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*Indicates MSDS

Safety Data Sheet

Document Group:	28-9171-1	**Version Number:**	2.00
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SECTION 1: Identification

1.1. Product identifier
3M™ High Power Brake Cleaner, 08179,

Product Identification Numbers
60-4550-5397-9

1.2. Recommended use and restrictions on use

Recommended use
Automotive

1.3. Supplier's details

MANUFACTURER:	3M
DIVISION:	Automotive Aftermarket
ADDRESS:	3M Center, St. Paul, MN 55144-1000, USA
Telephone:	1-888-3M HELPS (1-888-364-3577)

1.4. Emergency telephone number
1-800-364-3577 or (651) 737-6501 (24 hours)

SECTION 2: Hazard identification

The label elements below were prepared in accordance with OSHA Hazard Communication Standard, 29 CFR 1910.1200. This information may be different from the actual product label information for labels regulated by other agencies.

2.1. Hazard classification
Flammable Aerosol: Category 2.
Serious Eye Damage/Irritation: Category 2A.
Carcinogenicity: Category 2.
Specific Target Organ Toxicity (single exposure): Category 1.
Specific Target Organ Toxicity (central nervous system): Category 3.
Specific Target Organ Toxicity (repeated exposure): Category 1.

2.2. Label elements
Signal word
Danger

Symbols

Flame | Exclamation mark | Health Hazard |

Pictograms

Hazard Statements
Flammable aerosol.

Causes serious eye irritation.
May cause drowsiness or dizziness.
Suspected of causing cancer.

Causes damage to organs:
sensory organs |

Causes damage to organs through prolonged or repeated exposure:
nervous system |

May cause damage to organs through prolonged or repeated exposure:
sensory organs |

Precautionary Statements

Prevention:
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Do not spray on an open flame or other ignition source.
Pressurized container: Do not pierce or burn, even after use.
Do not breathe dust/fume/gas/mist/vapors/spray.
Use only outdoors or in a well-ventilated area.
Wear protective gloves and eye/face protection.
Do not eat, drink or smoke when using this product.
Wash thoroughly after handling.

Response:
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.
Continue rinsing.
If eye irritation persists: Get medical advice/attention.
Call a POISON CENTER or doctor/physician if you feel unwell.

Storage:
Protect from sunlight. Do not expose to temperatures exceeding 50C/122F.
Store in a well-ventilated place. Keep container tightly closed.
Store locked up.

Disposal:
Dispose of contents/container in accordance with applicable local/regional/national/international regulations.

2.3. Hazards not otherwise classified
None.

14% of the mixture consists of ingredients of unknown acute oral toxicity.
14% of the mixture consists of ingredients of unknown acute dermal toxicity.
14% of the mixture consists of ingredients of unknown acute inhalation toxicity.

SECTION 3: Composition/information on ingredients

Ingredient	C.A.S. No.	% by Wt
acetone	67-64-1	60 - 100 Trade Secret *
carbon dioxide	124-38-9	7 - 13 Trade Secret *
solvent naphtha (petroleum), light aliphatic	64742-89-8	3 - 7 Trade Secret *
xylene	1330-20-7	3 - 7 Trade Secret *
paraffins	Mixture	1 - 5 Trade Secret *
ethylbenzene	100-41-4	0 - 3 Trade Secret *

*The specific chemical identity and/or exact percentage (concentration) of this composition has been withheld as a trade secret.

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation:
Remove person to fresh air. If you feel unwell, get medical attention.

Skin Contact:
Wash with soap and water. If signs/symptoms develop, get medical attention.

Eye Contact:
Immediately flush with large amounts of water for at least 15 minutes. Remove contact lenses if easy to do. Continue rinsing. Immediately get medical attention.

If Swallowed:
Rinse mouth. If you feel unwell, get medical attention.

4.2. Most important symptoms and effects, both acute and delayed
See Section 11.1. Information on toxicological effects.

4.3. Indication of any immediate medical attention and special treatment required
Not applicable

SECTION 5: Fire-fighting measures

5.1. Suitable extinguishing media
Use a fire fighting agent suitable for the surrounding fire.

5.2. Special hazards arising from the substance or mixture
Closed containers exposed to heat from fire may build pressure and explode.

5.3. Special protective actions for fire-fighters
Water may not effectively extinguish fire; however, it should be used to keep fire-exposed containers and surfaces cool and prevent explosive rupture.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Evacuate area. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Use only non-sparking tools. Ventilate the area with fresh air. Warning! A motor could be an ignition source and could cause flammable gases or vapors in the spill area to burn or explode. Refer to other sections of this SDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment.

6.2. Environmental precautions
Avoid release to the environment. For larger spills, cover drains and build dikes to prevent entry into sewer systems or bodies of water.

6.3. Methods and material for containment and cleaning up
If possible, seal leaking container. Place leaking containers in a well-ventilated area, preferably an operating exhaust hood, or if necessary outdoors on an impermeable surface until appropriate packaging for the leaking container or its contents is available. Contain spill. Working from around the edges of the spill inward, cover with bentonite, vermiculite, or commercially available inorganic absorbent material. Mix in sufficient absorbent until it appears dry. Remember, adding an absorbent material does not remove a physical, health, or environmental hazard. Collect as much of the spilled material as possible using non-sparking tools. Place in a metal container approved for transportation by appropriate authorities. Seal the container. Dispose of collected material as soon as possible.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Do not use in a confined area with minimal air exchange. Do not handle until all safety precautions have been read and understood. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Do not spray on an open flame or other ignition source. Do not pierce or burn, even after use. Do not breathe dust/fume/gas/mist/vapors/spray. Do not get in eyes, on skin, or on clothing. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Avoid contact with oxidizing agents (eg. chlorine, chromic acid etc.) Use personal protective equipment (gloves, respirators, etc.) as required. Vapors may travel long distances along the ground or floor to an ignition source and flash back.

7.2. Conditions for safe storage including any incompatibilities
Store in a well-ventilated place. Keep container tightly closed. Protect from sunlight. Do not expose to temperatures exceeding 50C/122F. Store away from heat. Store away from acids. Store away from strong bases. Store away from oxidizing agents.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits
If a component is disclosed in section 3 but does not appear in the table below, an occupational exposure limit is not available for the component.

Ingredient	C.A.S. No.	Agency	Limit type	Additional Comments
ethylbenzene	100-41-4	ACGIH	TWA:20 ppm	A3: Confirmed animal carcin.
ethylbenzene	100-41-4	OSHA	TWA:435 mg/m3(100 ppm)	
ethylbenzene	100-41-4	CMRG	TWA:25 ppm;STEL:75 ppm	
carbon dioxide	124-38-9	ACGIH	TWA:5000 ppm;STEL:30000 ppm	
carbon dioxide	124-38-9	OSHA	TWA:9000 mg/m3(5000 ppm)	
xylene	1330-20-7	CMRG	TWA:50 ppm;STEL:75 ppm	
xylene	1330-20-7	ACGIH	TWA:100 ppm;STEL:150 ppm	A4: Not class. as human carcin

xylene	1330-20-7	OSHA	TWA:435 mg/m3(100 ppm)	
solvent naphtha (petroleum), light aliphatic	64742-89-8	CMRG	TWA:300 ppm	
acetone	67-64-1	ACGIH	TWA:500 ppm;STEL:750 ppm	A4: Not class. as human carcin
acetone	67-64-1	OSHA	TWA:2400 mg/m3(1000 ppm)	

ACGIH : American Conference of Governmental Industrial Hygienists
AIHA : American Industrial Hygiene Association
CMRG : Chemical Manufacturer's Recommended Guidelines
OSHA : United States Department of Labor - Occupational Safety and Health Administration
TWA: Time-Weighted-Average
STEL: Short Term Exposure Limit
CEIL: Ceiling

8.2. Exposure controls

8.2.1. Engineering controls
Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below relevant Exposure Limits and/or control dust/fume/gas/mist/vapors/spray. If ventilation is not adequate, use respiratory protection equipment.

8.2.2. Personal protective equipment (PPE)

Eye/face protection

Select and use eye/face protection to prevent contact based on the results of an exposure assessment. The following eye/face protection(s) are recommended:
Indirect Vented Goggles

Skin/hand protection
Select and use gloves and/or protective clothing approved to relevant local standards to prevent skin contact based on the results of an exposure assessment. Selection should be based on use factors such as exposure levels, concentration of the substance or mixture, frequency and duration, physical challenges such as temperature extremes, and other use conditions. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible gloves/protective clothing.
Gloves made from the following material(s) are recommended: Fluoroelastomer

Respiratory protection

An exposure assessment may be needed to decide if a respirator is required. If a respirator is needed, use respirators as part of a full respiratory protection program. Based on the results of the exposure assessment, select from the following respirator type(s) to reduce inhalation exposure:
Half facepiece or full facepiece air-purifying respirator suitable for organic vapors

For questions about suitability for a specific application, consult with your respirator manufacturer.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

General Physical Form:	Liquid
Specific Physical Form:	Aerosol
Odor, Color, Grade:	Water white liquid acetone odor
Odor threshold	*No Data Available*
pH	*No Data Available*
Melting point	*No Data Available*
Boiling Point	133 - 290 ºF
Flash Point	> 0 ºF
Evaporation rate	<=1 [*Ref Std:* ETHER=1]

Flammability (solid, gas)	Not Applicable
Flammable Limits(LEL)	*No Data Available*
Flammable Limits(UEL)	*No Data Available*
Vapor Pressure	*No Data Available*
Vapor Density	>=1 g/cm3 [*Ref Std:* AIR=1]
Density	0.775 g/ml
Specific Gravity	0.775 [*Ref Std:* WATER=1]
Solubility In Water	*No Data Available*
Solubility- non-water	*No Data Available*
Partition coefficient: n-octanol/ water	*No Data Available*
Autoignition temperature	*No Data Available*
Decomposition temperature	*No Data Available*
Viscosity	*No Data Available*
Hazardous Air Pollutants	15.2 % weight [*Test Method:* Calculated]
Volatile Organic Compounds	8.99 % weight [*Test Method:* calculated per CARB title 2]
Volatile Organic Compounds	69.64 g/l [*Test Method:* calculated SCAQMD rule 443.1]
Percent volatile	100 %
VOC Less H2O & Exempt Solvents	413.49 g/l [*Test Method:* calculated SCAQMD rule 443.1]

SECTION 10: Stability and reactivity

10.1. Reactivity
This material may be reactive with certain agents under certain conditions - see the remaining headings in this section.

10.2. Chemical stability
Stable.

10.3. Possibility of hazardous reactions
Hazardous polymerization will not occur.

10.4. Conditions to avoid
Heat
Sparks and/or flames

10.5. Incompatible materials
Strong acids
Strong bases

10.6. Hazardous decomposition products

Substance	Condition
Carbon monoxide	Not Specified
Carbon dioxide	Not Specified

SECTION 11: Toxicological information

The information below may not be consistent with the material classification in Section 2 if specific ingredient classifications are mandated by a competent authority. In addition, toxicological data on ingredients may not be reflected in the material classification and/or the signs and symptoms of exposure, because an ingredient may be present below the threshold for labeling, an ingredient may not be available for exposure, or the data may not be relevant to the material as a whole.

11.1. Information on Toxicological effects

Signs and Symptoms of Exposure

Based on test data and/or information on the components, this material may produce the following health effects:

Inhalation:
Respiratory Tract Irritation: Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

May cause additional health effects (see below).

Skin Contact:
Mild Skin Irritation: Signs/symptoms may include localized redness, swelling, itching, and dryness.

Eye Contact:
Severe Eye Irritation: Signs/symptoms may include significant redness, swelling, pain, tearing, cloudy appearance of the cornea, and impaired vision.

Ingestion:
Gastrointestinal Irritation: Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhea.

May cause additional health effects (see below).

Additional Health Effects:

Single exposure may cause target organ effects:
Auditory Effects: Signs/symptoms may include hearing impairment, balance dysfunction and ringing in the ears.

Central Nervous System (CNS) Depression: Signs/symptoms may include headache, dizziness, drowsiness, incoordination, nausea, slowed reaction time, slurred speech, giddiness, and unconsciousness.

Prolonged or repeated exposure may cause target organ effects:
Auditory Effects: Signs/symptoms may include hearing impairment, balance dysfunction and ringing in the ears.

Neurological Effects: Signs/symptoms may include personality changes, lack of coordination, sensory loss, tingling or numbness of the extremities, weakness, tremors, and/or changes in blood pressure and heart rate.

Carcinogenicity:
Contains a chemical or chemicals which can cause cancer.

Ingredient	CAS No.	Class Description	Regulation
ethylbenzene	100-41-4	Grp. 2B: Possible human carc.	International Agency for Research on Cancer

Toxicological Data
If a component is disclosed in section 3 but does not appear in a table below, either no data are available for that endpoint or the data are not sufficient for classification.

Acute Toxicity

Name	Route	Species	Value
Overall product	Dermal		No data available; calculated ATE > 5,000 mg/kg
Overall product	Inhalation-Vapor(4 hr)		No data available; calculated ATE > 50 mg/l
Overall product	Ingestion		No data available; calculated ATE > 5,000 mg/kg
acetone	Dermal	Rabbit	LD50 > 15,688 mg/kg
acetone	Inhalation-Vapor (4 hours)	Rat	LC50 76 mg/l
acetone	Ingestion	Rat	LD50 5,800 mg/kg

carbon dioxide	Inhalation-Gas (4 hours)	Rat	LC50 > 53,000 ppm
solvent naphtha (petroleum), light aliphatic	Dermal	Rabbit	LD50 3,000 mg/kg
solvent naphtha (petroleum), light aliphatic	Inhalation-Vapor (4 hours)	Rat	LC50 > 5.2 mg/l
solvent naphtha (petroleum), light aliphatic	Ingestion	Rat	LD50 > 5,000 mg/kg
xylene	Dermal	Rabbit	LD50 > 4,200 mg/kg
xylene	Inhalation-Vapor (4 hours)	Rat	LC50 29 mg/l
xylene	Ingestion	Rat	LD50 3,523 mg/kg
ethylbenzene	Dermal	Rabbit	LD50 15,433 mg/kg
ethylbenzene	Inhalation-Vapor (4 hours)	Rat	LC50 17.4 mg/l
ethylbenzene	Ingestion	Rat	LD50 4,769 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
acetone	Mouse	Minimal irritation
solvent naphtha (petroleum), light aliphatic	Rabbit	Irritant
xylene	Rabbit	Mild irritant
ethylbenzene	Rabbit	Mild irritant

Serious Eye Damage/Irritation

Name	Species	Value
acetone	Rabbit	Severe irritant
solvent naphtha (petroleum), light aliphatic	Rabbit	No significant irritation
xylene	Rabbit	Mild irritant
ethylbenzene	Rabbit	Moderate irritant

Skin Sensitization

Name	Species	Value
ethylbenzene	Human	Not sensitizing

Respiratory Sensitization

For the component/components, either no data are currently available or the data are not sufficient for classification.

Germ Cell Mutagenicity

Name	Route	Value
acetone	In vivo	Not mutagenic
acetone	In Vitro	Some positive data exist, but the data are not sufficient for classification
solvent naphtha (petroleum), light aliphatic	In Vitro	Not mutagenic
xylene	In Vitro	Not mutagenic
xylene	In vivo	Not mutagenic
ethylbenzene	In vivo	Not mutagenic
ethylbenzene	In Vitro	Some positive data exist, but the data are not sufficient for classification

Carcinogenicity

Name	Route	Species	Value
acetone	Not Specified	Multiple animal species	Not carcinogenic
solvent naphtha (petroleum), light aliphatic	Dermal	Mouse	Some positive data exist, but the data are not sufficient for classification
xylene	Dermal	Rat	Not carcinogenic

xylene	Ingestion	Multiple animal species	Not carcinogenic
xylene	Inhalation	Human	Some positive data exist, but the data are not sufficient for classification
ethylbenzene	Inhalation	Multiple animal species	Carcinogenic

Reproductive Toxicity

Reproductive and/or Developmental Effects

Name	Route	Value	Species	Test Result	Exposure Duration
acetone	Ingestion	Not toxic to female reproduction	Mouse	NOAEL 11,298 mg/kg/day	13 weeks
acetone	Ingestion	Some positive male reproductive data exist, but the data are not sufficient for classification	Rat	NOAEL 1,700 mg/kg/day	13 weeks
acetone	Inhalation	Some positive developmental data exist, but the data are not sufficient for classification	Rat	NOAEL 5.2 mg/l	during organogenesis
carbon dioxide	Inhalation	Some positive male reproductive data exist, but the data are not sufficient for classification	Mouse	LOAEL 350,000 ppm	not available
carbon dioxide	Inhalation	Some positive developmental data exist, but the data are not sufficient for classification	Rat	LOAEL 60,000 ppm	24 hours
xylene	Ingestion	Not toxic to female reproduction	Mouse	NOAEL 1,000 mg/kg/day	103 weeks
xylene	Ingestion	Not toxic to male reproduction	Mouse	NOAEL 1,000 mg/kg/day	103 weeks
xylene	Inhalation	Some positive female reproductive data exist, but the data are not sufficient for classification	Human	NOAEL Not available	occupational exposure
xylene	Ingestion	Some positive developmental data exist, but the data are not sufficient for classification	Mouse	NOAEL Not available	during organogenesis
xylene	Inhalation	Some positive developmental data exist, but the data are not sufficient for classification	Multiple animal species	NOAEL Not available	during gestation
ethylbenzene	Inhalation	Some positive developmental data exist, but the data are not sufficient for classification	Rat	NOAEL 4.3 mg/l	premating & during gestation

Lactation

Name	Route	Species	Value
xylene	Ingestion	Mouse	Does not cause effects on or via lactation

Target Organ(s)

Specific Target Organ Toxicity - single exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
acetone	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	
acetone	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	Human	NOAEL Not available	
acetone	Inhalation	immune system	Some positive data exist, but the data are not sufficient for classification	Human	NOAEL 1.19 mg/l	6 hours

acetone	Inhalation	liver	Some positive data exist, but the data are not sufficient for classification	Guinea pig	NOAEL Not available	
acetone	Ingestion	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	poisoning and/or abuse
solvent naphtha (petroleum), light aliphatic	Inhalation	central nervous system depression	May cause drowsiness or dizziness		NOAEL Not available	
solvent naphtha (petroleum), light aliphatic	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification		NOAEL Not available	
xylene	Inhalation	auditory system	Causes damage to organs	Rat	LOAEL 6.3 mg/l	8 hours
xylene	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	
xylene	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	Human	NOAEL Not available	
xylene	Inhalation	eyes	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 3.5 mg/l	not available
xylene	Inhalation	liver	Some positive data exist, but the data are not sufficient for classification	Multiple animal species	NOAEL Not available	
xylene	Ingestion	central nervous system depression	May cause drowsiness or dizziness	Multiple animal species	NOAEL Not available	
xylene	Ingestion	eyes	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 250 mg/kg	not applicable
ethylbenzene	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	
ethylbenzene	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	Human and animal	NOAEL Not available	

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
acetone	Dermal	eyes	Some positive data exist, but the data are not sufficient for classification	Guinea pig	NOAEL Not available	3 weeks
acetone	Inhalation	hematopoietic system	Some positive data exist, but the data are not sufficient for classification	Human	NOAEL 3 mg/l	6 weeks
acetone	Inhalation	immune system	Some positive data exist, but the data are not sufficient for classification	Human	NOAEL 1.19 mg/l	6 days
acetone	Inhalation	kidney and/or bladder	Some positive data exist, but the data are not sufficient for classification	Guinea pig	NOAEL 119 mg/l	not available
acetone	Inhalation	heart | liver	All data are negative	Rat	NOAEL 45 mg/l	8 weeks
acetone	Ingestion	kidney and/or bladder	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 900 mg/kg/day	13 weeks
acetone	Ingestion	heart	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 2,500 mg/kg/day	13 weeks
acetone	Ingestion	hematopoietic system	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 200 mg/kg/day	13 weeks
acetone	Ingestion	liver	Some positive data exist, but the data are not sufficient for classification	Mouse	NOAEL 3,896 mg/kg/day	14 days
acetone	Ingestion	eyes	All data are negative	Rat	NOAEL 3,400 mg/kg/day	13 weeks
acetone	Ingestion	respiratory system	All data are negative	Rat	NOAEL	13 weeks

					2,500 mg/kg/day	
acetone	Ingestion	muscles	All data are negative	Rat	NOAEL 2,500 mg/kg	13 weeks
acetone	Ingestion	skin | bone, teeth, nails, and/or hair	All data are negative	Mouse	NOAEL 11,298 mg/kg/day	13 weeks
carbon dioxide	Inhalation	heart | bone, teeth, nails, and/or hair | liver | nervous system | kidney and/or bladder | respiratory system	Some positive data exist, but the data are not sufficient for classification	Rat	LOAEL 60,000 ppm	166 days
xylene	Inhalation	nervous system	Causes damage to organs through prolonged or repeated exposure	Rat	LOAEL 0.4 mg/l	4 weeks
xylene	Inhalation	auditory system	May cause damage to organs though prolonged or repeated exposure	Rat	LOAEL 7.8 mg/l	5 days
xylene	Inhalation	liver	Some positive data exist, but the data are not sufficient for classification	Multiple animal species	NOAEL Not available	
xylene	Inhalation	heart | endocrine system | hematopoietic system | muscles | kidney and/or bladder | respiratory system	All data are negative	Multiple animal species	NOAEL 3.5 mg/l	13 weeks
xylene	Ingestion	auditory system	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 900 mg/kg/day	2 weeks
xylene	Ingestion	kidney and/or bladder	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 1,500 mg/kg/day	90 days
xylene	Ingestion	liver	Some positive data exist, but the data are not sufficient for classification	Multiple animal species	NOAEL Not available	
xylene	Ingestion	heart | skin | endocrine system | bone, teeth, nails, and/or hair | hematopoietic system | immune system | nervous system | respiratory system	All data are negative	Mouse	NOAEL 1,000 mg/kg/day	103 weeks
ethylbenzene	Inhalation	kidney and/or bladder	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 1.1 mg/l	2 years
ethylbenzene	Inhalation	liver	Some positive data exist, but the data are not sufficient for classification	Mouse	NOAEL 1.1 mg/l	103 weeks
ethylbenzene	Inhalation	hematopoietic system	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 3.4 mg/l	28 days
ethylbenzene	Inhalation	auditory system	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 2.4 mg/l	5 days
ethylbenzene	Inhalation	endocrine system	Some positive data exist, but the data are not sufficient for classification	Mouse	NOAEL 3.3 mg/l	103 weeks
ethylbenzene	Inhalation	bone, teeth, nails, and/or hair | muscles	All data are negative	Multiple animal species	NOAEL 4.2 mg/l	90 days
ethylbenzene	Inhalation	heart | immune system | respiratory system	All data are negative	Multiple animal species	NOAEL 3.3 mg/l	2 years

ethylbenzene	Ingestion	liver | kidney and/or bladder	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 680 mg/kg/day	6 months

Aspiration Hazard

Name	Value
solvent naphtha (petroleum), light aliphatic	Aspiration hazard
xylene	Aspiration hazard
ethylbenzene	Aspiration hazard

Please contact the address or phone number listed on the first page of the SDS for additional toxicological information on this material and/or its components.

SECTION 12: Ecological information

Ecotoxicological information

Please contact the address or phone number listed on the first page of the SDS for additional ecotoxicological information on this material and/or its components.

Chemical fate information

Please contact the address or phone number listed on the first page of the SDS for additional chemical fate information on this material and/or its components.

SECTION 13: Disposal considerations

13.1. Disposal methods

Dispose of contents/ container in accordance with the local/regional/national/international regulations.

Incinerate in a permitted waste incineration facility. Facility must be capable of handling aerosol cans. As a disposal alternative, utilize an acceptable permitted waste disposal facility. Empty drums/barrels/containers used for transporting and handling hazardous chemicals (chemical substances/mixtures/preparations classified as Hazardous as per applicable regulations) shall be considered, stored, treated & disposed of as hazardous wastes unless otherwise defined by applicable waste regulations. Consult with the respective regulating authorities to determine the available treatment and disposal facilities.

SECTION 14: Transport Information

For Transport Information, please visit **http://3M.com/Transportinfo** or call 1-800-364-3577 or 651-737-6501.

SECTION 15: Regulatory information

15.1. US Federal Regulations

Contact 3M for more information.

311/312 Hazard Categories:

Fire Hazard - Yes Pressure Hazard - Yes Reactivity Hazard - No Immediate Hazard - Yes Delayed Hazard - Yes

Section 313 Toxic Chemicals subject to the reporting requirements of that section and 40 CFR part 372 (EPCRA):

Ingredient	C.A.S. No	% by Wt
xylene	1330-20-7	3 - 7
ethylbenzene	100-41-4	0 - 3

15.2. State Regulations
Contact 3M for more information.

California Proposition 65

Ingredient	C.A.S. No.	Classification
Benzene	71-43-2	Male reproductive toxin
Benzene	71-43-2	Carcinogen
Benzene	71-43-2	Developmental Toxin
Toluene	108-88-3	Female reproductive toxin
Toluene	108-88-3	Developmental Toxin
ethylbenzene	100-41-4	Carcinogen

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.
WARNING: This product contains a chemical known to the State of California to cause cancer.

15.3. Chemical Inventories
The components of this product are in compliance with the chemical notification requirements of TSCA.

Contact 3M for more information.

15.4. International Regulations
Contact 3M for more information.

This SDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.

SECTION 16: Other information

NFPA Hazard Classification
Health: 2 **Flammability:** 4 **Instability:** 0 **Special Hazards:** None
Aerosol Storage Code: 2

National Fire Protection Association (NFPA) hazard ratings are designed for use by emergency response personnel to address the hazards that are presented by short-term, acute exposure to a material under conditions of fire, spill, or similar emergencies. Hazard ratings are primarily based on the inherent physical and toxic properties of the material but also include the toxic properties of combustion or decomposition products that are known to be generated in significant quantities.

HMIS Hazard Classification
Health: *2 **Flammability:** 4 **Physical Hazard:** 0 **Personal Protection:** X - See PPE section.

Hazardous Material Identification System (HMIS® III) hazard ratings are designed to inform employees of chemical hazards in the workplace. These ratings are based on the inherent properties of the material under expected conditions of normal use and are not intended for use in emergency situations. HMIS® III ratings are to be used with a fully implemented HMIS® III program. HMIS® is a registered mark of the American Coatings Association (ACA).

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SAFETY DATA SHEET

Acetylene

Section 1. Identification

GHS product identifier : Acetylene

Chemical name : acetylene

Other means of identification : Ethyne; Ethine; Narcylen; C2H2; Acetylen; UN 1001; Vinylene

Product use : Synthetic/Analytical chemistry.

Synonym : Ethyne; Ethine; Narcylen; C2H2; Acetylen; UN 1001; Vinylene

SDS # : 001001

Supplier's details : Airgas USA, LLC and its affiliates
259 North Radnor-Chester Road
Suite 100
Radnor, PA 19087-5283
1-610-687-5253

Emergency telephone number (with hours of operation) : 1-866-734-3438

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : FLAMMABLE GASES - Category 1
GASES UNDER PRESSURE - Compressed gas

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : Extremely flammable gas.
May form explosive mixtures with air.
Contains gas under pressure; may explode if heated.
May displace oxygen and cause rapid suffocation.

Precautionary statements

General : Read and follow all Safety Data Sheets (SDS'S) before use. Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand. Close valve after each use and when empty. Use equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Fusible plugs in top, bottom, or valve melt at 98°C to 107°C (208°F to 224°F). Do not discharge at pressures above 15psig (103kpa). Use a back flow preventative device in the piping. Use only equipment of compatible materials of construction. Approach suspected leak area with caution.

Prevention : Never Put cylinders into unventilated areas of passenger vehicles. Keep away from heat, sparks, open flames and hot surfaces. - No smoking. Use and store only outdoors or in a well ventilated place.

Response : Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so.

Section 2. Hazards identification

Storage : Protect from sunlight. Protect from sunlight when ambient temperature exceeds 52°C/125°F. Store in a well-ventilated place.

Disposal : Not applicable.

Hazards not otherwise classified : In addition to any other important health or physical hazards, this product may displace oxygen and cause rapid suffocation.

Section 3. Composition/information on ingredients

Substance/mixture : Substance

Chemical name : acetylene

Other means of identification : Ethyne; Ethine; Narcylen; C2H2; Acetylen; UN 1001; Vinylene

CAS number/other identifiers

CAS number : 74-86-2

Product code : 001001

Ingredient name	%	CAS number
acetylene	100	74-86-2

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. To avoid the risk of static discharges and gas ignition, soak contaminated clothing thoroughly with water before removing it. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : As this product is a gas, refer to the inhalation section.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Contact with rapidly expanding gas may cause burns or frostbite.

Inhalation : No known significant effects or critical hazards.

Skin contact : Contact with rapidly expanding gas may cause burns or frostbite.

Frostbite : Try to warm up the frozen tissues and seek medical attention.

Ingestion : As this product is a gas, refer to the inhalation section.

Over-exposure signs/symptoms

Section 4. First aid measures

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : Contains gas under pressure. Extremely flammable gas. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. If involved in fire, shut off flow immediately if it can be done without risk. If this is impossible, withdraw from area and allow fire to burn. Fight fire from protected location or maximum possible distance. Eliminate all ignition sources if safe to do so.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : Accidental releases pose a serious fire or explosion hazard. No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Section 6. Accidental release measures

Environmental precautions : Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment.

Large spill : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Avoid contact with eyes, skin and clothing. Avoid breathing gas. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Empty containers retain product residue and can be hazardous. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Eliminate all ignition sources. Keep container tightly closed and sealed until ready for use. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F).

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
acetylene	**NIOSH REL (United States, 1/2013).** CEIL: 2662 mg/m³ CEIL: 2500 ppm

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Section 8. Exposure controls/personal protection

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical state : Gas.

Color : Colorless.

Molecular weight : 26.04 g/mole

Molecular formula : C2-H2

Melting/freezing point : -81°C (-113.8°F)

Critical temperature : 35.25°C (95.5°F)

Odor : Mild. Ethereal.

Odor threshold : Not available.

pH : Not available.

Flash point : Closed cup: -18.15°C (-0.67°F)

Burning time : Not applicable.

Burning rate : Not applicable.

Section 9. Physical and chemical properties

Evaporation rate : Not available.

Flammability (solid, gas) : Extremely flammable in the presence of the following materials or conditions: open flames, sparks and static discharge, heat and oxidizing materials.

Lower and upper explosive (flammable) limits : Lower: 2.3%
Upper: 100%

Vapor pressure : 635 (psig)

Vapor density : 0.907 (Air = 1)

Specific Volume (ft^3/lb) : 14.7058

Gas Density (lb/ft^3) : 0.0691

Relative density : Not applicable.

Solubility : Not available.

Solubility in water : 1.2 g/l

Partition coefficient: n-octanol/water : 0.37

Auto-ignition temperature : 305°C (581°F)

Decomposition temperature : Not available.

SADT : Not available.

Viscosity : Not applicable.

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

Incompatibility with various substances : Extremely reactive or incompatible with the following materials: oxidizing materials.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Hazardous polymerization : Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Not available.

Irritation/Corrosion

Not available.

Sensitization

Section 11. Toxicological information

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Contact with rapidly expanding gas may cause burns or frostbite.

Inhalation : No known significant effects or critical hazards.

Skin contact : Contact with rapidly expanding gas may cause burns or frostbite.

Ingestion : As this product is a gas, refer to the inhalation section.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Section 11. Toxicological information

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Not available.

Persistence and degradability

Not available.

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
acetylene	0.37	-	low

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Empty Airgas-owned pressure vessels should be returned to Airgas. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Section 14. Transport information

	DOT	TDG	Mexico	IMDG	IATA
UN number	UN1001	UN1001	UN1001	UN1001	UN1001
UN proper shipping name	ACETYLENE, DISSOLVED	ACETYLENE, DISSOLVED	ACETYLENE, DISSOLVED	ACETYLENE, DISSOLVED	ACETYLENE, DISSOLVED
Transport hazard class(es)	2.1 	2.1 	2.1 	2.1 	2.1 
Packing group	-	-	-	-	-
Environment	No.	No.	No.	No.	No.
Additional information	**Limited quantity** Yes. **Packaging instruction** **Passenger aircraft** Quantity limitation: Forbidden. **Cargo aircraft** Quantity limitation: 15 kg	**Explosive Limit and Limited Quantity Index** 0 **Passenger Carrying Ship Index** 75 **Passenger Carrying Road or Rail Index** Forbidden **Special provisions** 38, 42	-	-	**Passenger and Cargo Aircraft** Quantity limitation: 0 Forbidden **Cargo Aircraft Only** Quantity limitation: 15 kg

"Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product."

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined

United States inventory (TSCA 8b): This material is listed or exempted.

Clean Air Act (CAA) 112 regulated flammable substances: acetylene

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

Section 15. Regulatory information

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Fire hazard
Sudden release of pressure

Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
acetylene	100	Yes.	Yes.	No.	No.	No.

State regulations

Massachusetts : This material is listed.

New York : This material is not listed.

New Jersey : This material is listed.

Pennsylvania : This material is listed.

Canada inventory : This material is listed or exempted.

International regulations

International lists : **Australia inventory (AICS)**: This material is listed or exempted.
China inventory (IECSC): This material is listed or exempted.
Japan inventory: This material is listed or exempted.
Korea inventory: This material is listed or exempted.
Malaysia Inventory (EHS Register): Not determined.
New Zealand Inventory of Chemicals (NZIoC): This material is listed or exempted.
Philippines inventory (PICCS): This material is listed or exempted.
Taiwan inventory (CSNN): Not determined.

Chemical Weapons Convention List Schedule I Chemicals : Not listed

Chemical Weapons Convention List Schedule II Chemicals : Not listed

Chemical Weapons Convention List Schedule III Chemicals : Not listed

Canada

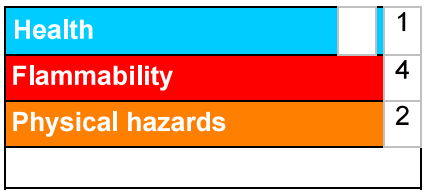
WHMIS (Canada) : Class A: Compressed gas.
Class B-1: Flammable gas.
Class F: Dangerously reactive material.

CEPA Toxic substances: This material is not listed.
Canadian ARET: This material is not listed.
Canadian NPRI: This material is listed.
Alberta Designated Substances: This material is not listed.
Ontario Designated Substances: This material is not listed.
Quebec Designated Substances: This material is not listed.

Section 16. Other information

Canada Label requirements : Class A: Compressed gas.
Class B-1: Flammable gas.
Class F: Dangerously reactive material.

Hazardous Material Information System (U.S.A.)



Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on SDSs under 29 CFR 1910. 1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)

Note: The instability hazard rating for acetylene, dissolved (stabilized acetylene) is 2.

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History

Date of printing : 4/26/2015.

Date of issue/Date of revision : 4/26/2015.

Date of previous issue : 10/14/2014.

Version : 0.04

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United NationsACGIH – American Conference of Governmental Industrial Hygienists
AIHA – American Industrial Hygiene Association
CAS – Chemical Abstract Services
CEPA – Canadian Environmental Protection Act
CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act (EPA)

Section 16. Other information

CFR – United States Code of Federal Regulations
CPR – Controlled Products Regulations
DSL – Domestic Substances List
GWP – Global Warming Potential
IARC – International Agency for Research on Cancer
ICAO – International Civil Aviation Organisation
Inh – Inhalation
LC – Lethal concentration
LD – Lethal dosage
NDSL – Non-Domestic Substances List
NIOSH – National Institute for Occupational Safety and Health
TDG – Canadian Transportation of Dangerous Goods Act and Regulations
TLV – Threshold Limit Value
TSCA – Toxic Substances Control Act
WEEL – Workplace Environmental Exposure Level
WHMIS – Canadian Workplace Hazardous Material Information System

References : Not available.

Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

SAFETY DATA SHEET

Oxygen

Section 1. Identification

GHS product identifier : Oxygen

Chemical name : oxygen

Other means of identification : Molecular oxygen; Oxygen molecule; Pure oxygen; O2; UN 1072; Dioxygen; Oxygen USP, Aviator's Breathing Oxygen (ABO)

Product use : Synthetic/Analytical chemistry.

Synonym : Molecular oxygen; Oxygen molecule; Pure oxygen; O2; UN 1072; Dioxygen; Oxygen USP, Aviator's Breathing Oxygen (ABO)

SDS # : 001043

Supplier's details : Airgas USA, LLC and its affiliates
259 North Radnor-Chester Road
Suite 100
Radnor, PA 19087-5283
1-610-687-5253

Emergency telephone number (with hours of operation) : 1-866-734-3438

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : OXIDIZING GASES - Category 1
GASES UNDER PRESSURE - Compressed gas

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : May cause or intensify fire; oxidizer.
Contains gas under pressure; may explode if heated.

Precautionary statements

General : Read and follow all Safety Data Sheets (SDS'S) before use. Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand. Close valve after each use and when empty. Use equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Use a back flow preventative device in the piping. Use only equipment of compatible materials of construction. Open valve slowly. Use only with equipment cleaned for Oxygen service.

Prevention : Keep away from clothing, incompatible materials and combustible materials. Keep reduction valves free from grease and oil. Use and store only outdoors or in a well ventilated place.

Response : In case of fire: Stop leak if safe to do so.

Storage : Protect from sunlight. Protect from sunlight when ambient temperature exceeds 52°C/125°F. Store in a well-ventilated place.

Disposal : Not applicable.

Section 2. Hazards identification

Hazards not otherwise classified : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Substance

Chemical name : oxygen

Other means of identification : Molecular oxygen; Oxygen molecule; Pure oxygen; O2; UN 1072; Dioxygen; Oxygen USP, Aviator's Breathing Oxygen (ABO)

CAS number/other identifiers

CAS number : 7782-44-7

Product code : 001043

Ingredient name	%	CAS number
oxygen	100	7782-44-7

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : As this product is a gas, refer to the inhalation section.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : May cause eye irritation. Contact with rapidly expanding gas may cause burns or frostbite.

Inhalation : No known significant effects or critical hazards.

Skin contact : May cause skin irritation. Contact with rapidly expanding gas may cause burns or frostbite.

Frostbite : Try to warm up the frozen tissues and seek medical attention.

Ingestion : As this product is a gas, refer to the inhalation section.

Over-exposure signs/symptoms

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Section 4. First aid measures

Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : Contains gas under pressure. Oxidizing material. This material increases the risk of fire and may aid combustion. Contact with combustible material may cause fire. In a fire or if heated, a pressure increase will occur and the container may burst or explode.

Hazardous thermal decomposition products : No specific data.

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. If involved in fire, shut off flow immediately if it can be done without risk.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment.

Section 6. Accidental release measures

Large spill : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Avoid contact with eyes, skin and clothing. Avoid breathing gas. Keep away from clothing, incompatible materials and combustible materials. Keep reduction valves free from grease and oil. Empty containers retain product residue and can be hazardous. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Separate from acids, alkalies, reducing agents and combustibles. Keep container tightly closed and sealed until ready for use. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F).

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

None.

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Section 8. Exposure controls/personal protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical state : Gas. [Compressed gas.]

Color : Colorless. Blue.

Molecular weight : 32 g/mole

Molecular formula : O2

Boiling/condensation point : -183°C (-297.4°F)

Melting/freezing point : -218.4°C (-361.1°F)

Critical temperature : -118.15°C (-180.7°F)

Odor : Odorless.

Odor threshold : Not available.

pH : Not available.

Flash point : [Product does not sustain combustion.]

Burning time : Not applicable.

Burning rate : Not applicable.

Evaporation rate : Not available.

Flammability (solid, gas) : Extremely flammable in the presence of the following materials or conditions: reducing materials, combustible materials and organic materials.

Lower and upper explosive (flammable) limits : Not available.

Vapor pressure : Not available.

Vapor density : 1.1 (Air = 1)

Specific Volume (ft^3/lb) : 12.0482

Gas Density (lb/ft^3) : 0.083

Relative density : Not applicable.

Solubility : Not available.

Solubility in water : Not available.

Partition coefficient: n-octanol/water : 0.65

Auto-ignition temperature : Not available.

Decomposition temperature : Not available.

Section 9. Physical and chemical properties

SADT : Not available.

Viscosity : Not applicable.

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Hazardous reactions or instability may occur under certain conditions of storage or use.
Conditions may include the following:
contact with combustible materials
Reactions may include the following:
risk of causing fire

Conditions to avoid : No specific data.

Incompatibility with various substances : Extremely reactive or incompatible with the following materials: oxidizing materials, reducing materials and combustible materials.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Hazardous polymerization : Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Not available.

Irritation/Corrosion

Not available.

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Section 11. Toxicological information

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : May cause eye irritation. Contact with rapidly expanding gas may cause burns or frostbite.

Inhalation : No known significant effects or critical hazards.

Skin contact : May cause skin irritation. Contact with rapidly expanding gas may cause burns or frostbite.

Ingestion : As this product is a gas, refer to the inhalation section.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Not available.

Persistence and degradability

Not available.

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
oxygen	0.65	-	low

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Empty Airgas-owned pressure vessels should be returned to Airgas. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Section 14. Transport information

	DOT	TDG	Mexico	IMDG	IATA
UN number	UN1072	UN1072	UN1072	UN1072	UN1072
UN proper shipping name	OXYGEN, COMPRESSED	OXYGEN, COMPRESSED	OXYGEN, COMPRESSED	OXYGEN, COMPRESSED	OXYGEN, COMPRESSED
Transport hazard class(es)	2.2 (5.1) 	2.2 	2.2 (5.1) 	2.2 (5.1) 	2.2 (5.1) 
Packing group	-	-	-	-	-
Environment	No.	No.	No.	No.	No.
Additional information	**Limited quantity** Yes. **Packaging instruction** **Passenger aircraft** Quantity limitation: 75 kg **Cargo aircraft**	**Explosive Limit and Limited Quantity Index** 0.125 **ERAP Index** 3000 **Passenger Carrying Ship Index**	-	-	**Passenger and Cargo Aircraft**Quantity limitation: 75 kg **Cargo Aircraft Only** Quantity limitation: 150 kg

Section 14. Transport information

	Quantity limitation: 150 kg **Special provisions** A52	50 **Passenger Carrying Road or Rail Index** 75 **Special provisions** 42			

"Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product."

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption**: This material is listed or exempted.
United States inventory (TSCA 8b): This material is listed or exempted.

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Sudden release of pressure

Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
oxygen	100	No.	Yes.	No.	No.	No.

State regulations

Massachusetts : This material is listed.

Section 15. Regulatory information

New York : This material is not listed.

New Jersey : This material is listed.

Pennsylvania : This material is listed.

Canada inventory : This material is listed or exempted.

International regulations

International lists : **Australia inventory (AICS)**: This material is listed or exempted.
China inventory (IECSC): This material is listed or exempted.
Japan inventory: Not determined.
Korea inventory: This material is listed or exempted.
Malaysia Inventory (EHS Register): Not determined.
New Zealand Inventory of Chemicals (NZIoC): This material is listed or exempted.
Philippines inventory (PICCS): This material is listed or exempted.
Taiwan inventory (CSNN): Not determined.

Chemical Weapons Convention List Schedule I Chemicals : Not listed

Chemical Weapons Convention List Schedule II Chemicals : Not listed

Chemical Weapons Convention List Schedule III Chemicals : Not listed

Canada

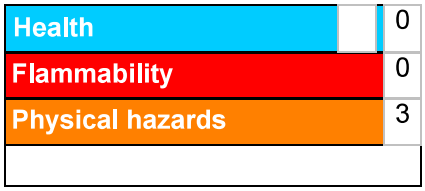
WHMIS (Canada) : Class A: Compressed gas.
Class C: Oxidizing material.

CEPA Toxic substances: This material is not listed.
Canadian ARET: This material is not listed.
Canadian NPRI: This material is not listed.
Alberta Designated Substances: This material is not listed.
Ontario Designated Substances: This material is not listed.
Quebec Designated Substances: This material is not listed.

Section 16. Other information

Canada Label requirements : Class A: Compressed gas.
Class C: Oxidizing material.

Hazardous Material Information System (U.S.A.)

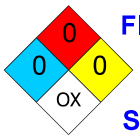


Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on SDSs under 29 CFR 1910. 1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)

Section 16. Other information



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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

History

Date of printing : 6/2/2015.

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Date of previous issue : 6/2/2015.

Version : 0.05

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United NationsACGIH – American Conference of Governmental Industrial Hygienists
AIHA – American Industrial Hygiene Association
CAS – Chemical Abstract Services
CEPA – Canadian Environmental Protection Act
CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act (EPA)
CFR – United States Code of Federal Regulations
CPR – Controlled Products Regulations
DSL – Domestic Substances List
GWP – Global Warming Potential
IARC – International Agency for Research on Cancer
ICAO – International Civil Aviation Organisation
Inh – Inhalation
LC – Lethal concentration
LD – Lethal dosage
NDSL – Non-Domestic Substances List
NIOSH – National Institute for Occupational Safety and Health
TDG – Canadian Transportation of Dangerous Goods Act and Regulations
TLV – Threshold Limit Value
TSCA – Toxic Substances Control Act
WEEL – Workplace Environmental Exposure Level
WHMIS – Canadian Workplace Hazardous Material Information System

References : Not available.

Indicates information that has changed from previously issued version.

Section 16. Other information

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Material Safety Data Sheet

Beach

bp

1. Chemical product and company identification

Product name	DIESEL FUEL NO. 2
MSDS #	11155
Historic MSDS #:	None.
Code	11155
Product use	Fuel.
Synonyms	Ultra Low Sulfur No.2 Diesel Fuel, Low Sulfur No.2 Diesel Fuel, High Sulfur No.2 Diesel Fuel, Amoco Diesel Fuel No. 2
Supplier	BP Products North America Inc. 150 West Warrenville Road Naperville, Illinois 60563-8460 USA
EMERGENCY HEALTH INFORMATION:	1 (800) 447-8735 Outside the US: +1 703-527-3887 (CHEMTREC)
EMERGENCY SPILL INFORMATION:	1 (800) 424-9300 CHEMTREC (USA)
OTHER PRODUCT INFORMATION	1 (866) 4 BP - MSDS (866-427-6737 Toll Free - North America) email: bpcares@bp.com

2. Composition/information on ingredients

Ingredient name	CAS #	% by weight
Petroleum distillates	68476-34-6	100
Contains: naphthalene	91-20-3	1 - 3

May also contain small quantities of proprietary performance additives.

3. Hazards identification

Physical state	Liquid.
Color	Colorless. to Various colors. (may be dyed Red., Light Green. ,Yellow.)
Emergency overview	WARNING! COMBUSTIBLE LIQUID AND VAPOR. VAPOR MAY CAUSE FLASH FIRE. HARMFUL IF SWALLOWED. ASPIRATION HAZARD. HARMFUL OR FATAL IF LIQUID IS ASPIRATED INTO LUNGS. CAUSES SKIN IRRITATION. MAY CAUSE RESPIRATORY TRACT IRRITATION. INHALATION CAUSES HEADACHES, DIZZINESS, DROWSINESS, AND NAUSEA, AND MAY LEAD TO UNCONSCIOUSNESS.

	Do not ingest. If ingested do not induce vomiting. Avoid contact with eyes, skin and clothing. Do not breathe vapor or mist. Keep away from heat, sparks and flame. Keep container closed. Use with adequate ventilation. Use only with adequate ventilation Wash thoroughly after handling.
Routes of entry	Dermal contact. Eye contact. Inhalation. Ingestion.
Potential health effects	
Eyes	Slightly irritating to the eyes.
Skin	Causes skin irritation.
Inhalation	May cause respiratory tract irritation. Inhalation causes headaches, dizziness, drowsiness, and nausea, and may lead to unconsciousness. See toxicological Information (section 11).
Ingestion	Harmful if swallowed. Aspiration hazard if swallowed -- harmful or fatal if liquid is aspirated into lungs. See toxicological Information (section 11).
Medical conditions aggravated by over-exposure	None identified.

See toxicological Information (section 11).

4. First aid measures

Eye contact	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.
Skin contact	In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.
Inhalation	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
Ingestion	If swallowed, do NOT induce vomiting. Never give anything by mouth to an unconscious person. Aspiration hazard if swallowed- can enter lungs and cause damage. Get medical attention immediately.

5. Fire-fighting measures

Flammability of the product	Combustible liquid.
Flash point	>38 °C (Closed cup) Pensky-Martens.
Explosion limits	Lower: 0.6 % Upper: 7.5 %
Products of combustion	These products are carbon oxides (CO, CO_2) (carbon monoxide, carbon dioxide).
Unusual fire/explosion hazards	Combustible liquid and vapor. Vapor may cause flash fire. Vapors may accumulate in low or confined areas, travel considerable distance to source of ignition and flash back. Runoff to sewer may create fire or explosion hazard. Explosive in the presence of the following materials or conditions: open flames, sparks and static discharge and heat.
Fire-fighting media and instructions	In case of fire, use water fog, foam, dry chemicals, or carbon dioxide. DO NOT FIGHT FIRE WHEN IT REACHES MATERIAL. Withdraw from fire and let it burn. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. First move people out of line-of-sight of the scene and away from windows.
Protective clothing (fire)	Fire-fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.
Special remarks on fire hazards	Do not use water jet.

6. Accidental release measures

Personal precautions

Immediately contact emergency personnel. Eliminate all ignition sources. Keep unnecessary personnel away. Use suitable protective equipment (See Section: "Exposure controls/personal protection"). Follow all fire fighting procedures (See Section: "Fire-fighting measures"). Do not touch or walk through spilled material.

Environmental precautions and clean-up methods

If emergency personnel are unavailable, contain spilled material. For small spills add absorbent (soil may be used in the absence of other suitable materials) and use a non-sparking or explosion proof means to transfer material to a sealed, appropriate container for disposal. For large spills dike spilled material or otherwise contain material to ensure runoff does not reach a waterway. Place spilled material in an appropriate container for disposal. Avoid contact of spilled material with soil and prevent runoff entering surface waterways. See Section 13 for Waste Disposal Information.

Personal protection in case of a large spill

Splash goggles. Chemical resistant protective suit. Vapor respirator. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

CAUTION: The protection provided by air-purifying respirators is limited. Use a positive pressure air-supplied respirator if there is any potential for an uncontrolled release, if exposure levels are not known, or if concentrations exceed the protection limits of air-purifying respirator.

7. Handling and storage

Handling

Aspiration hazard if swallowed- can enter lungs and cause damage. Never siphon by mouth. Do not ingest. If ingested do not induce vomiting. When using do not eat, drink or smoke. Avoid contact with skin and clothing. Avoid prolonged or repeated contact with skin. Avoid contact with eyes. Use only with adequate ventilation Avoid breathing vapor or mist. Keep away from heat, sparks and flame. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Wash thoroughly after handling. Empty containers may contain harmful, flammable/combustible or explosive residue or vapors. Do not cut, grind, drill, weld, reuse or dispose of containers unless adequate precautions are taken against these hazards.

Storage

Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame). Store and use only in equipment/containers designed for use with this product.

8. Exposure controls/personal protection

Occupational exposure limits

Ingredient name	Occupational exposure limits
Petroleum distillates	**ACGIH TLV (United States, 1/2006). Skin** TWA: 100 mg/m³ 8 hour(s). Form: Total hydrocarbons
Contains: naphthalene	**ACGIH TLV (United States, 1/2006).** STEL: 79 mg/m³ 15 minute(s). STEL: 15 ppm 15 minute(s). TWA: 52 mg/m³ 8 hour(s). TWA: 10 ppm 8 hour(s). **OSHA PEL (United States, 8/1997).** TWA: 50 mg/m³ 8 hour(s). TWA: 10 ppm 8 hour(s).

May also contain small quantities of proprietary performance additives.

Control Measures	Provide exhaust ventilation or other engineering controls to keep the relevant airborne concentrations below their respective occupational exposure limits. In accordance with good industrial hygiene and safety work practices, airborne exposures should be controlled to the lowest extent practicable.
Hygiene measures	Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period.
Personal protection	
Eyes	Avoid contact with eyes. Safety glasses with side shields.
Skin and body	Avoid contact with skin and clothing. Wear suitable protective clothing.
Respiratory	Use only with adequate ventilation Do not breathe vapor or mist. If ventilation is inadequate, use a NIOSH certified respirator with an organic vapor cartridge and P95 particulate filter. CAUTION: The protection provided by air-purifying respirators is limited. Use a positive pressure air-supplied respirator if there is any potential for an uncontrolled release, if exposure levels are not known, or if concentrations exceed the protection limits of air-purifying respirator.
Hands	Wear gloves that cannot be penetrated by chemicals or oil. The correct choice of protective gloves depends upon the chemicals being handled, the conditions of work and use, and the condition of the gloves (even the best chemically resistant glove will break down after repeated chemical exposures). Most gloves provide only a short time of protection before they must be discarded and replaced. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. Gloves should therefore be chosen in consultation with the supplier/manufacturer and with a full assessment of the working conditions. Consult your supervisor or S.O.P. for special handling directions

Consult local authorities for acceptable exposure limits.

9. Physical and chemical properties

Physical state	Liquid.
Odor	Petroleum
Color	Colorless. to Various colors. (may be dyed Red., Light Green. ,Yellow.)
Heat of combustion	Not available.
Specific gravity	<1 (Water = 1)
Density	820 to 875 kg/m^3 (0.82 to 0.875 g/cm^3)
Solubility	negligible <0.1%
Viscosity	Kinematic: 1.7 to 4.1 mm^2/s (1.7 to 4.1 cSt) at 40°C

10. Stability and reactivity

Stability and reactivity	Stable under recommended storage and handling conditions (See Section: "Handling and storage").
Conditions to avoid	Keep away from heat, sparks and flame. Avoid all possible sources of ignition (spark or flame).
Incompatibility with various substances	Reactive or incompatible with the following materials: oxidizing materials, acids and alkalis. halogenated compounds.
Hazardous decomposition products	These products are carbon oxides (CO, CO_2) (carbon monoxide, carbon dioxide)
Hazardous polymerization	Will not occur.

11. Toxicological information

Acute toxicity

Aspiration of this product into the lungs can cause chemical pneumonia and can be fatal. Aspiration into the lungs can occur while vomiting after ingestion of this product. Do not siphon by mouth.

Chronic toxicity

Carcinogenic effects

Contains material which may cause cancer.
Risk of cancer depends on duration and level of exposure.
Classified 2B (Possible for human.) by IARC: [naphthalene]
Classified 2 (Reasonably Anticipated To Be Human Carcinogens.) by NTP: [naphthalene]

Other chronic toxicity data

Middle distillate: From skin-painting studies of petroleum distillates of similar composition and distillate range, it has been shown that these types of materials often possess weak carcinogenic activity in laboratory animals. In these tests, the material is painted on the shaved backs of mice twice a week for their lifetime. The material is not washed off between applications. Therefore, there may be a potential risk of skin cancer from prolonged or repeated skin contact with this product in the absence of good personal hygiene. This particular product has not been tested for carcinogenic activity, but we have chosen to be cautious in light of the findings with other distillate streams.

Occasional skin contact with this product is not expected to have serious effects, but good personal hygiene should be practiced and repeated skin contact avoided. This product can also be expected to produce skin irritation upon prolonged or repeated skin contact. Personal hygiene measures taken to prevent skin irritation are expected to be adequate to prevent risk of skin cancer.

Diesel exhaust particulates have been classified by the National Toxicological Program (NTP) to be a reasonably anticipated human carcinogen. Exposure should be minimized to reduce potential risk.

Naphthalene has been reported to cause developmental toxicity in mice after oral exposure to relatively high dose levels, but developmental toxicity was not observed in NTP (National Toxicology Program) sponsored studies in rats and rabbits. Ingestion or inhalation of naphthalene can result in hemolysis and other blood abnormalities, and individuals (and infants) deficient in glucose-6-phosphate dehydrogenase may be especially susceptible to these effects. Inhalation of naphthalene may cause headache and nausea. Airborne exposure can result in eye irritation. Naphthalene exposure has been associated with cataracts in animals and humans.

12. Ecological information

Ecotoxicity

Toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

Mobility

Spillages may penetrate the soil causing ground water contamination.

Bioaccumulative potential

This product is not expected to bioaccumulate through food chains in the environment.

Other ecological information

Spills may form a film on water surfaces causing physical damage to organisms. Oxygen transfer could also be impaired.

13. Disposal considerations

Waste information

Avoid contact of spilled material and runoff with soil and surface waterways. Consult an environmental professional to determine if local, regional or national regulations would classify spilled or contaminated materials as hazardous waste. Use only approved transporters, recyclers, treatment, storage or disposal facilities. Dispose of in accordance with all applicable local and national regulations.

Consult your local or regional authorities.

14. Transport information

International transport regulations

Regulatory information	UN number	Proper shipping name	Class	Packing group	Label	Additional information
DOT Classification	NA1993	Diesel Fuel	Combustible liquid.	III	----	Reportable quantity 100 lbs. (45.36 kg)
TDG Classification	UN1202	Gas oil	3	III		Not determined.
IMDG Classification	UN1202	Gas oil	3	III		Not determined.
IATA Classification	UN1202	Gas oil	3	III		Not determined.

15. Regulatory information

U.S. Federal regulations

US INVENTORY (TSCA): In compliance.

TSCA 12(b) one-time export notification:: naphthalene

This product is not regulated under Section 302 of SARA and 40 CFR Part 355.

SARA 311/312 MSDS distribution - chemical inventory - hazard identification: DIESEL FUEL NO. 2: Fire hazard, Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard

SARA 313

Form R - Reporting requirements

Product name	CAS number	Concentration
naphthalene	91-20-3	1 - 3

Supplier notification

naphthalene	91-20-3	1 - 3

CERCLA Sections 102a/103 Hazardous Substances (40 CFR Part 302.4):: o-Xylene: 1000 lbs. (453.6 kg); naphthalene: 100 lbs. (45.36 kg); xylene: 100 lbs. (45.36 kg); Ethylbenzene: 1000 lbs. (453.6 kg); Xylene: 100 lbs. (45.36 kg); Cumene: 5000 lbs. (2268 kg); xylene: 100 lbs. (45.36 kg);

State regulations

Massachusetts RTK:Straight run kerosine; 1,2,4-Trimethylbenzene
New Jersey:Straight run kerosine; 1,2,4-Trimethylbenzene
Pennsylvania RTK:Straight run kerosine (generic environmental hazard); 1,2,4-Trimethylbenzene (environmental hazard, generic environmental hazard)

WARNING: This product contains a chemical known to the State of California to cause cancer. ; Ethylbenzene; naphthalene

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.
Toluene
WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.
Benzene

Prop 65 chemicals will result under certain conditions from the use of this material. For example, burning fuels produces combustion products including diesel exhaust, a Prop 65 carcinogen, and carbon monoxide, a Prop 65 reproductive toxin.

Inventories

AUSTRALIAN INVENTORY (AICS): Not determined.

CANADA INVENTORY (DSL): In compliance.

CHINA INVENTORY (IECS): Not determined.

EC INVENTORY (EINECS/ELINCS): Not determined.

JAPAN INVENTORY (ENCS): Not determined.

KOREA INVENTORY (ECL): Not determined.

PHILIPPINE INVENTORY (PICCS): Not determined.

16. Other information

Label requirements

WARNING!

COMBUSTIBLE LIQUID AND VAPOR.
VAPOR MAY CAUSE FLASH FIRE.
HARMFUL IF SWALLOWED.
ASPIRATION HAZARD.
HARMFUL OR FATAL IF LIQUID IS ASPIRATED INTO LUNGS.
CAUSES SKIN IRRITATION.
MAY CAUSE RESPIRATORY TRACT IRRITATION.
INHALATION CAUSES HEADACHES, DIZZINESS, DROWSINESS, AND NAUSEA, AND MAY LEAD TO UNCONSCIOUSNESS.

HMIS® Rating :

Health	**0**
Flammability	**2**
Physical Hazard	**0**
Personal protection	**X**

National Fire Protection Association (U.S.A.)

History

Date of issue 08/29/2006.

Date of previous issue 08/29/2006.

Prepared by Product Stewardship

Notice to reader

NOTICE : This Material Safety Data Sheet is based upon data considered to be accurate at the time of its preparation. Despite our efforts, it may not be up to date or applicable to the circumstances of any particular case. We are not responsible for any damage or injury resulting from abnormal use, from any failure to follow appropriate practices or from hazards inherent in the nature of the product.

SAFETY DATA SHEET

Xtreme Blue -20° Bittered Windshield Washer Fluid

Section 1- Chemical Product and Company Identification

Product Name: **Xtreme Blue -20° Bittered Windshield Washer Fluid**

Supplier: **Camco Manufacturing, Inc.**
121 Landmark Drive
Greensboro, NC 27409
1-800-334-2004

Product Use: **Cleaner / Solvent**
Product Code: **30957 (Gallon)**
Date of Preparation/Revision: **October 8, 2014**
In case of Emergency: **1-800-535-5053**

Section 2- Hazards identification

Physical State: Liquid. [CLEAR, BLUE, FLAMMABLE, POISONOUS LIQUID WITH CHARACTERISTIC PUNGENT ODOR]

Warning

Poison

Toxic

DANGER

GHS Classifications
Flammable Liquid (Category 3)
Acute Inhalation Toxicity (Category 3)
Acute Dermal Toxicity (Category 3)
Acute Oral Toxicity (Category 3)
Specific Target Organ Systemic Toxicity (STOT)-Single Exposure (Category 1)

Hazard Statements
H226 Flammable liquid and vapor
H331 Toxic if inhaled
H311 Toxic in contact with skin
H301 Toxic if swallowed
H370 Cause damage to organs

Precautionary statements
P102 Keep out of reach of children
P210 Keep away from heat/sparks/open flames/hot surfaces – No smoking
P233 Keep container tightly closed
P260 Do not breathe dust/fumes/gas/mist/vapors/spray
P264 Wash thoroughly after handling

Response statements
P331 Do Not induce vomiting

P301 + P313 IF SWALLOWED: Immediately call a Poison Center or Doctor/Physician
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P321 Specific treatment (see First Aid Measures on Safety Data Sheet)
Disposal
P501 Dispose of contents/container in accordance with local/regional/national regulations

FLAMMABLE LIQUID AND VAPOR
MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.

Flammable liquid. Keep away from heat, sparks and flame. Avoid breathing vapor or mist. Avoid contact with skin and clothing. May cause target organ damage, based on animal data. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use.

Target organs: May cause damage to the following organs: gastrointestinal tract, upper respiratory tract, skin, eyes, central nervous system (CNS).

Potential acute health effects

Eyes: May cause eye irritation.
Skin: May cause skin irritation.
Inhalation: Significant effects or critical hazards.
Ingestion: Significant effects or critical hazards.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Not available.
MUTAGENIC EFFECTS: Not available.
TERATOGENIC EFFECTS: Not available.

HMIS Ratings: Health: 1 **Fire:** 3 **Reactivity:** 0
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

Medical conditions aggravated by overexposure:
Pre-existing disorders involving any target organs mentioned in this SDS as being at risk may be aggravated by over-exposure to this product.

See toxicological information (section 11)

Section 3 - Composition, Information on Ingredients

Name	CAS Number	% Volume	Exposure limits
Methanol	67-56-1	33.0 – 38.0	**ACGIH TLV (United States, 1/2009).** **Absorbed through skin.** STEL: 328 mg/m³ 15 minute(s). STEL: 250 ppm 15 minute(s). TWA: 262 mg/m³ 8 hour(s). TWA: 200 ppm 8 hour(s). **NIOSH REL (United States, 6/2009)** **Absorbed through skin.** STEL: 325 mg/m³ 15 minute(s). STEL: 250 ppm 15 minute(s). TWA: 260 mg/m³ 10 hour(s). TWA: 200 ppm 10 hour(s). **OSHA PEL (United States, 11/2006).**

TWA: 260 mg/m³ 8 hour(s).
TWA: 200 ppm 8 hour(s).
OSHA PEL 1989 (United States, 3/1989).
Absorbed through skin.
STEL: 325 mg/m³ 15 minute(s).
STEL: 250 ppm 15 minute(s).
TWA: 260 mg/m³ 8 hour(s).
TWA: 200 ppm 8 hour(s).

Denatonium Benzoate 3734-33-6 0.01 – 2.0

Section 4 - First Aid Measures

Eye contact: Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.

Skin contact: In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.

Inhalation: Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Ingestion: Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Section 5 - Fire-Fighting Measures

Flammability of the Product: Flammable
Auto-ignition Temperature: 464°C (867.2°F)
Flash Point: Closed cup: 97° F (36.1° C)
Flammable Limits: Lower: 6% Upper: 36%
Products of Combustion: Decomposition products may include the following materials: Carbon Dioxide and Carbon Monoxide

Extinguishing Media
Suitable: Use dry chemical, CO2, water spray (fog) or foam.
Not suitable: Do not use water jet.

Special Exposure Hazards: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. Flammable liquid. In a fire or if heated, a pressure increase will occur and the container may burst with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.

Equipment for Fire-Fighters: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

HMIS Ratings: Health: 1 **Fire:** 2 **Reactivity:** 0
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

Section 6 - Accidental release measures

Personal Precautions: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8).

Environmental Precautions: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods for Cleaning Up: Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

Section 7- Handling and Storage

Handling: Put on appropriate personal protective equipment (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking.
Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.

Storage: Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in

unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8 - Exposure Controls / Personal Protection

Recommended monitoring procedures:

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

Engineering controls: Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Hygiene measures: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protection

Eyes: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.

Skin: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory: Use only with adequate ventilation.

Hands: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Personal protection in case of a large spill: Self-contained breathing apparatus (SCBA) should be used to avoid inhalation of the product.

Product name:

Methanol

ACGIH TLV (United States, 1/2009). Absorbed through skin.
STEL: 328 mg/m³ 15 minute(s).
STEL: 250 ppm 15 minute(s).
TWA: 262 mg/m³ 8 hour(s).
TWA: 200 ppm 8 hour(s).

NIOSH REL (United States, 6/2009). Absorbed through skin.
STEL: 325 mg/m³ 15 minute(s).
STEL: 250 ppm 15 minute(s).
TWA: 260 mg/m³ 10 hour(s).
TWA: 200 ppm 10 hour(s).

OSHA PEL (United States, 11/2006).
TWA: 260 mg/m³ 8 hour(s).
TWA: 200 ppm 8 hour(s).

OSHA PEL 1989 (United States, 3/1989). Absorbed through skin.
STEL: 325 mg/m³ 15 minute(s).
STEL: 250 ppm 15 minute(s).
TWA: 260 mg/m³ 8 hour(s).
TWA: 200 ppm 8 hour(s).

Consult local authorities for acceptable exposure limits.

Section 9 - Physical and Chemical Properties

Physical State:	Clear Blue Liquid
Odor:	Mild Alcohol Odor
Boiling/condensation point:	150 - 180° F
Melting/freezing point:	-2° F
Critical temperature:	Not Determined
Solubility in Water:	Completely Soluble
Specific Gravity:	0.9601@ 70° F
Flash Point (PMCC):	97° F (36.1° C)
Auto-ignition Temperature:	464°C (867.2°F)
Flammable Limits in Air by Volume:	LOWER: ~ 6.0 vol % UPPER: ~ 36.0 vol %
Evaporation Rate:	Greater than n-Butyl Acetate
Decomposition Temperature:	Not Determined
Viscosity (cps):	< 20cps
VOC (%):	approximately 30% by weight

Section 10 - Stability and Reactivity

Stability and Reactivity:	The product is stable.
Incompatibility with various Substances:	Extremely reactive or incompatible with the following materials: oxidizing materials.
Hazardous Decomposition Products:	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Hazardous polymerization:	Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11 - Toxicological Information

Toxicity Data

Product/Ingredient Name	Result	Species	Dose	Exposure
Methanol	LD50 Dermal	Rabbit	15800 mg/kg	-
	LD50 Intraperitoneal	Rat	7529 mg/kg	-
	LD50 Intravenous	Rat	2131 mg/kg	-
	LD50 Oral	Rat	5600 mg/kg	-
	TDLo Oral	Rat	8 g/kg	-
	TDLo Intraperitoneal	Rat	3490 mg/kg	-
	TDLo Oral	Rat	3500 mg/kg	-
	TDLo Intraperitoneal	Rat	3000 mg/kg	-
	TDLo Oral	Rat	3 g/kg	-
	LC50 Inhalation Gas.	Rat	64000 ppm	4 hours

IDLH: 6000 ppm

Chronic effects on humans	May cause damage to the following organs: gastrointestinal tract, upper respiratory tract, skin, eyes, central nervous system (CNS).
Other toxic effects on humans	No specific information is available in our database regarding the other toxic effects of this material to humans.

Specific effects

Carcinogenic Effects:	No known significant effects or critical hazards.
Mutagenic Effects:	No known significant effects or critical hazards.
Reproduction Toxicity:	No known significant effects or critical hazards.

Section 12 - Ecological Information

Aquatic Ecotoxicity:

Methanol	Acute EC50 2220 to 23400 mg/L Fresh Water	Daphnia – Water Flea – Daphnia obtuse - Neonate - <24 hours	48 hours
	Acute EC50 13000000 13400000 ug/L Fresh Water	Fish – Rainbow trout, Donaldson trout – Oncorhynchus mykiss Juvenile (Fledgling, Hatchling, Weanling) 0.813 g	96 hours
	Acute EC50 12700000 13700000 ug/l Fresh Water	Fish – Bluegill – Lepomis macrochirus - Juvenile (Fledgling, Hatchling, Weanling) 3.07 g	96 hours
	Acute EC50>10000000 ug/L Fresh Water Water	Daphnia – Water Flea – Daphnia magna - 6 to 24 hours	48 hours
	Acute EC50 24500000 to 2935000023400 ug/L Fresh Water	Daphnia – Water Flea – Daphnia magna -Larve - <24 hours	48 hours
	Acute EC50 15500mg/L Fresh Water	Fish – Bluegill – Lepomis macrochirus	96 hours
	Acute EC50 3289 to 4395 mg/L Fresh Water	Daphnia – Water Flea – Daphnia magna - Neonate - <24 hours	48 hours
	Acute LC50 10000000 to 33000000 ug/L Marine Water	Fish – Hooknose – Agonus cataphractus - Adult	96 hours
	Acute EC50 19 to 20 ml/L Fresh Water	Fish – Rainbow trout, Donaldson trout –	96 hours

	Oncorhynchus mykiss 0.8 g	
Acute LC50 250000 ug/L Marine Water	Crustaceans – Common shrimp – sand shrimp – Crangon crangon – Adult	48 hours
Acute EC50 >100000 ug/l Fresh Water	Fish – Fathead minnow Pimephales promelas Juvenile (Fledgling, Hatchling, Weanling) - 0.2 to 0.5 g	96 hours
Acute EC50 28000000 ug/l Marine Water	Fish – Bleak – Alburnus alburnus – 8 cm	96 hours
Acute EC50 >28000000 ug/l Marine Water	Fish – Bleak – Alburnus alburnus – 8 to 10 cm	96 hours
Acute EC50 15400000 to 17600000 ug/l Fresh Water	Fish – Bluegill – Lepomis macrochirus - Juvenile (Fledgling, Hatchling, Weanling) 3.07 g	96 hours
Acute EC50 20100000 to 20700000 ug/L Fresh Water	Fish – Rainbow trout, Donaldson trout – Oncorhynchus mykiss Juvenile (Fledgling, Hatchling, Weanling) 0.813 g	96 hours

Products of degradation: Products of degradation: carbon oxides (CO, CO_2) and water.

Section 13 - Disposal Considerations

The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any byproducts should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14 - Transport information

Domestic Ground within the Continental US under 49CFR100-185

Regulatory Information	UN Number	Proper Shipping Name	Class	Packing Group	
DOT Classification	UN1993	Flammable Liquid n.o.s. (Methanol)	3	III	LTD QTY

See 49CFR173.150 for more details - refer to current TDG Canada for further Canadian regulations

IMDG

Refer to Current IMDG regulations for full shipping description requirements

IATA
This material is not prepared or packaged for air transportation

International shipping requirements must be determined by the party offering the material for transportation

Section 15 - Regulatory Information

U.S. Federal regulations

United States inventory (TSCA 8b): This material is listed or exempted.
SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: Methanol
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Methanol: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard
Clean Water Act (CWA) 307: No products were found.
Clean Water Act (CWA) 311: No products were found.
Clean Air Act (CAA) 112 accidental release prevention: No products were found.
Clean Air Act (CAA) 112 regulated flammable substances: No products were found.
Clean Air Act (CAA) 112 regulated toxic substances: No products were found.

SARA 313	**Product Name**	**CAS Number**	**Concentration**
Form R – Reporting Requirements:	**Listed and** Methanol	67-56-1	

State regulations

Connecticut Carcinogen Reporting: This material is not listed.
Connecticut Hazardous Material Survey: This material is not listed.
Florida substances: This material is not listed.
Illinois Chemical Safety Act: This material is not listed.
Illinois Toxic Substances Disclosure to Employee Act: This material is not listed.
Louisiana Reporting: This material is not listed.
Louisiana Spill: This material is not listed.
Massachusetts Spill: This material is not listed.
Massachusetts Substances: This material is listed.
Michigan Critical Material: This material is not listed.
Minnesota Hazardous Substances: This material is not listed.
New Jersey Hazardous Substances: This material is listed.
New Jersey Spill: This material is not listed.
New Jersey Toxic Catastrophe Prevention Act: This material is not listed.
New York Acutely Hazardous Substances: This material is not listed.
New York Toxic Chemical Release Reporting: This material is not listed.
Pennsylvania RTK Hazardous Substances: This material is listed.
Rhode Island Hazardous Substances: This material is not listed
California Prop 65 Warning: Listed and Products of Combustion

Section 16 - Other information

NFPA CODES:	Health	1
	Flammability	2
	Reactivity	0

Note - NFPA ratings are based on a 0-4 rating scale with 0 representing minimal hazards or risks and 4 representing extreme hazards or risks.

Date of Preparation/Revision: October 8, 2014 (Supersedes all previous MSDS and SDS)

DISCLAIMER

To the best of our knowledge, the information contained herein is accurate, obtained from sources believed by Camco Manufacturing, Inc., to be accurate. However, the information is provided without any representation or warranty, expressed or implied, regarding its accuracy or correctness.

The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. It is the responsibility of the user to determine the safety, toxicity and suitability of their own use, handling and disposal of this product.

Material Safety Data Sheet

1. Product and company identification

Product name	BP Unleaded Gasolines
MSDS #	12631
Code	12631
Product use	USE AS MOTOR FUEL ONLY.
Supplier	BP Products North America Inc. 150 West Warrenville Road Naperville, Illinois 60563-8460 USA
EMERGENCY HEALTH INFORMATION:	1 (800) 447-8735 Outside the US: +1 703-527-3887 (CHEMTREC)
EMERGENCY SPILL INFORMATION:	1 (800) 424-9300 CHEMTREC (USA)
OTHER PRODUCT INFORMATION	1 (866) 4 BP - MSDS (866-427-6737 Toll Free - North America) email: bpcares@bp.com

2. Hazards identification

Physical state	Liquid.
Color	Clear
Emergency overview	DANGER ! EXTREMELY FLAMMABLE. VAPOR MAY CAUSE FLASH FIRE. INHALATION OF VAPOR/AEROSOL CONCENTRATIONS ABOVE THE RECOMMENDED EXPOSURE LIMITS CAUSES HEADACHES, DIZZINESS, DROWSINESS, AND NAUSEA, AND MAY LEAD TO UNCONSCIOUSNESS OR DEATH. HARMFUL IF SWALLOWED. HARMFUL OR FATAL IF LIQUID IS ASPIRATED INTO LUNGS. CAUSES EYE AND SKIN IRRITATION. PROLONGED OR REPEATED CONTACT MAY DRY SKIN AND CAUSE IRRITATION. LONG-TERM EXPOSURE TO VAPORS HAS CAUSED CANCER IN LABORATORY ANIMALS. Extremely flammable liquid. Do not ingest. If ingested, do not induce vomiting. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Keep away from heat, sparks and flame. Keep container tightly closed and sealed until ready for use. Use only with adequate ventilation. Wash thoroughly after handling. Contains material which can cause cancer. Risk of cancer depends on duration and level of exposure.
Routes of entry	Dermal contact. Eye contact. Inhalation. Ingestion.
Potential health effects	
Eyes	Causes eye irritation.
Skin	Causes skin irritation. Prolonged or repeated contact can defat the skin and lead to irritation and/or dermatitis. See toxicological information (Section 11)
Inhalation	Inhalation of vapor/aerosol concentrations above the recommended exposure limits causes headaches, drowsiness and nausea and may lead to unconsciousness or death. See toxicological information (Section 11)
Ingestion	Aspiration hazard if swallowed. Can enter lungs and cause damage. See toxicological information (Section 11)

See toxicological information (Section 11)

6. Accidental release measures

Environmental precautions	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
Personal protection in case of a large spill	Chemical splash goggles. Chemical-resistant protective suit. Boots. Chemical-resistant gloves. Self-contained breathing apparatus (SCBA) should be used to avoid inhalation of the product. Suggested protective clothing might not be adequate. Consult a specialist before handling this product.

Methods for cleaning up

Large spill	Stop leak if without risk. Eliminate all ignition sources. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal.
Small spill	Stop leak if without risk. Eliminate all ignition sources. Move containers from spill area. Dilute with water and mop up if water-soluble or absorb with an inert dry material and place in an appropriate waste disposal container. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor.

7. Handling and storage

Handling

Put on appropriate personal protective equipment (see Section 8). Workers should wash hands and face before eating, drinking and smoking. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material.

Never siphon by mouth.
For use as a motor fuel only. Do not use as a cleaning solvent, thinner or for other non-motor fuel uses. Do not use as a portable heater or appliance fuel.
Warning! Customers should not re-enter vehicle during the re-fueling process as this can generate static electricity and cause a spark and flash fire hazard if sufficient vapors are present. The flow of gasoline through a pump nozzle can produce static electricity, which may cause a fire if gasoline is pumped into an ungrounded container. To avoid static spark hazard when filling portable containers:
- Fill only containers approved to hold gasoline
- Place container on the ground while dispensing fuel.
- Do not fill container in or on a vehicle or on a truck or trailer bed.
- Keep nozzle in contact with container while filling.

Storage

Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10). Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Other information

Do not enter storage tanks without breathing apparatus unless the tank has been well ventilated and the tank atmosphere has been shown to contain hydrocarbon vapor concentrations of less than 1% of the lower flammability limit and an oxygen concentration of at least 20% volume.

Light hydrocarbon vapors can build up in the headspace of tanks. These can cause flammability/explosion hazards even at temperatures below the normal flash point (note: flash point must not be regarded as a reliable indicator of the potential flammability of vapor in tank headspaces). Tank headspaces should always be regarded as potentially flammable and care should be taken to avoid static electrical discharge and all ignition sources during filling, ullaging and sampling from storage tanks. When the product is pumped (e.g. during filling, discharge or ullaging) and when sampling, there is a risk of static discharge. Ensure equipment used is properly earthed or bonded to the tank structure. Electrical equipment should not be used unless it is intrinsically safe (i.e. will not produce sparks).

Eyes	Avoid contact with eyes. Safety glasses with side shields or chemical goggles.
Skin and body	Do not get on skin or clothing. Wear clothing and footwear that cannot be penetrated by chemicals or oil.
Respiratory	Use only with adequate ventilation. Avoid breathing vapor or mist. If ventilation is inadequate, use a NIOSH certified respirator with an organic vapor cartridge and P95 particulate filter.
Hands	Wear gloves that cannot be penetrated by chemicals or oil. The correct choice of protective gloves depends upon the chemicals being handled, the conditions of work and use, and the condition of the gloves (even the best chemically resistant glove will break down after repeated chemical exposures). Most gloves provide only a short time of protection before they must be discarded and replaced. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. Gloves should therefore be chosen in consultation with the supplier/manufacturer and with a full assessment of the working conditions. Consult your supervisor or Standard Operating Procedure (S.O.P) for special handling instructions.

9. Physical and chemical properties

Physical state	Liquid.
Color	Clear
Odor	Hydrocarbon.
Flash point	Closed cup: -42.778°C (-45°F)
Explosion limits	Lower: 1.3% Upper: 7.6% (Estimated.)
Density	750 kg/m^3 (0.75 g/cm^3)
Boiling point / Range	26.67 to 221°C (80 to 430°F)
Vapor pressure	48.134 to 103.146 kPa (361.97 to 775.66 mm Hg)
Volatility	100% (v/v)
Solubility	Very slightly soluble in water

10. Stability and reactivity

Stability and reactivity	The product is stable.
Possibility of hazardous reactions	Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	Keep away from heat, sparks and flame. Avoid all possible sources of ignition (spark or flame).
Incompatibility with various substances	Reactive or incompatible with the following materials: oxidizing materials. Chlorine and Fluorine
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Hazardous polymerization	Will not occur.

11. Toxicological information

Classification

Product/ingredient name	IARC	NTP	OSHA
xylene	3	-	-
Toluene	3	-	-
Benzene	1	Proven.	+
Ethylbenzene	2B	-	-
Naphthalene	2B	Possible	-

such reactions may also be elicited by drinking alcoholic drinks or by gross reaction to certain other alcohols.

Sub-acute/Subchronic Toxicity: It has been shown in many animal experiments that the repeated oral consumption of large doses of ethanol can lead to damage in practically all organ systems. The main manifestations of the toxic effects are shown by the liver.

Chronic toxicity/carcinogenicity: No convincing evidence of carcinogenic effects in animal studies.

Genotoxicity : The product has been tested in a number of bacterial and mammalian systems. The product did not exhibit mutagenic activity in the following systems (with and without metabolic activation): Drosophila. Salmonella typhimurium. Human lymphocytes in vitro. Most in vitro tests and all in vivo tests for chromosome abberations report negative results. The product did not induce micronuclei in standard bone marrow tests in vivo. There is some evidence that ethanol both induces SCE in vivo and can also act as an aneugen at high doses. Overall, there is no robust evidence that ethanol is a genotoxic hazard according to the criteria normally applied for the purpose of classification and labelling of industrial chemicals.

Reproductive/Developmental Toxicity: Adverse effects on the male reproductive system have been reported in laboratory animals following repeated exposure to high concentrations. Developmental effects have been observed in laboratory animals following large oral exposures.

Human data: In humans excessive consumption of alcoholic beverages during pregnancy is associated with the induction of Fetal Alcohol Syndrome in the offspring. Reduced birth weight and physical and mental defects occur. There is no evidence that such effects might be caused by exposures other than direct ingestion of alcoholic drinks. In humans high lifetime consumption of alcoholic beverages can be associated with certain cancers and effects on the liver. There is no evidence that these can be caused by exposure other than direct ingestion of alcoholic drinks (IARC 1988).

Potential chronic health effects

Carcinogenicity	Contains material which can cause cancer. Risk of cancer depends on duration and level of exposure.

12. Ecological information

Ecotoxicity

No testing has been performed by the manufacturer.

Persistence/degradability	Inherently biodegradable
Mobility	Spillages may penetrate the soil causing ground water contamination.
Bioaccumulative potential	This product is not expected to bioaccumulate through food chains in the environment.
Other ecological information	Spills may form a film on water surfaces causing physical damage to organisms. Oxygen transfer could also be impaired.

13. Disposal considerations

Waste information	The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

NOTE: The generator of waste has the responsibility for proper waste identification (based on characteristic(s) or listing), transportation and disposal

California Prop. 65	**WARNING:** This product contains a chemical known to the State of California to cause cancer. Ethylbenzene **WARNING:** This product contains a chemical known to the State of California to cause birth defects or other reproductive harm. Toluene **WARNING:** This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm. Benzene Other Prop 65 chemicals will result under certain conditions from the use of this material. For example, burning fuels produces combustion products including carbon monoxide, a Prop 65 reproductive toxin.

Other regulations

Canada inventory	All components are listed or exempted.
REACH Status	For the REACH status of this product please consult your company contact, as identified in Section 1.
Australia inventory (AICS)	At least one component is not listed.
China inventory (IECSC)	At least one component is not listed.
Japan inventory (ENCS)	All components are listed or exempted.
Korea inventory (KECI)	All components are listed or exempted.
Philippines inventory (PICCS)	All components are listed or exempted.

16. Other information

Label requirements

DANGER !

EXTREMELY FLAMMABLE.
VAPOR MAY CAUSE FLASH FIRE.
INHALATION OF VAPOR/AEROSOL CONCENTRATIONS ABOVE THE RECOMMENDED EXPOSURE LIMITS CAUSES HEADACHES, DIZZINESS, DROWSINESS, AND NAUSEA, AND MAY LEAD TO UNCONSCIOUSNESS OR DEATH.
HARMFUL IF SWALLOWED.
HARMFUL OR FATAL IF LIQUID IS ASPIRATED INTO LUNGS.
CAUSES EYE AND SKIN IRRITATION.
PROLONGED OR REPEATED CONTACT MAY DRY SKIN AND CAUSE IRRITATION.
LONG-TERM EXPOSURE TO VAPORS HAS CAUSED CANCER IN LABORATORY ANIMALS.

HMIS® Rating :

Health	* 2
Flammability	3
Physical Hazard	0
Personal protection	X

National Fire Protection Association (U.S.A.)

History

Date of issue 05/23/2011.

Date of previous issue No previous validation.

Prepared by Product Stewardship

Notice to reader

All reasonably practicable steps have been taken to ensure this data sheet and the health, safety and environmental information contained in it is accurate as of the date specified below. No warranty or representation, express or implied is made as to the accuracy or completeness of the data and information in this data sheet.

The data and advice given apply when the product is sold for the stated application or applications. You should not use the product other than for the stated application or applications without seeking advice from BP Group.

It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations. The BP Group shall not be responsible for any damage or injury resulting from use, other than the stated product use of the material, from any failure to adhere to recommendations, or from any hazards inherent in the nature of the material. Purchasers of the product for supply to a third party for use at work, have a duty to take all necessary steps to ensure that any person handling or using the

Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Delo ELC PG Antifreee/Coolant - Premixed 50/50

Product Use: Antifreeze/Coolant
Product Number(s): 275109
Synonyms: Delo Extended Life Prediluted 50/50 C/AF - PG
Company Identification
Chevron Products Company
a division of Chevron U.S.A. Inc.
6001 Bollinger Canyon Rd.
San Ramon, CA 94583
United States of America
www.chevronlubricants.com

Transportation Emergency Response
CHEMTREC: (800) 424-9300 or (703) 527-3887
Health Emergency
Chevron Emergency Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623
Product Information
email : lubemsds@chevron.com
Product Information: 1 (800) 582-3835, LUBETEK@chevron.com

SECTION 2 HAZARDS IDENTIFICATION

CLASSIFICATION: Reproductive toxicant (developmental): Category 2.

Signal Word: Warning

Health Hazards: Suspected of damaging the unborn child.

PRECAUTIONARY STATEMENTS:
Prevention: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required.
Response: IF exposed or concerned: Get medical advice/attention.
Storage: Store locked up.
Disposal: Dispose of contents/container in accordance with applicable local/regional/national/international regulations.

HAZARDS NOT OTHERWISE CLASSIFIED: Not Applicable

SECTION 3 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
1,2-Propanediol	57-55-6	40 - 60 %wt/wt
Potassium 2-ethylhexanoate	3164-85-0	1 - 5 %wt/wt

SECTION 4 FIRST AID MEASURES

Description of first aid measures
Eye: No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.
Skin: No specific first aid measures are required. As a precaution, remove clothing and shoes if contaminated. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.
Ingestion: No specific first aid measures are required. Do not induce vomiting. As a precaution, get medical advice.
Inhalation: No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.

Most important symptoms and effects, both acute and delayed
IMMEDIATE HEALTH EFFECTS
Eye: Not expected to cause prolonged or significant eye irritation.
Skin: Contact with the skin is not expected to cause prolonged or significant irritation. Contact with the skin is not expected to cause an allergic skin response. Not expected to be harmful to internal organs if absorbed through the skin.
Ingestion: Not expected to be harmful if swallowed.
Inhalation: Not expected to be harmful if inhaled.

DELAYED OR OTHER HEALTH EFFECTS:
Reproduction and Birth Defects: Contains material that may cause harm to the unborn child if swallowed based on animal data. Risk depends on duration and level of exposure. See Section 11 for additional information.

Indication of any immediate medical attention and special treatment needed Not Applicable

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

PROTECTION OF FIRE FIGHTERS:
Fire Fighting Instructions: This material will burn although it is not easily ignited. See Section 7 for proper handling and storage. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.
Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion. Combustion may form oxides of: Potassium.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in vicinity of spilled material.
Spill Management: Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.
Reporting: Report spills to local authorities and/or the U.S. Coast Guard's National Response Center at (800) 424-8802 as appropriate or required.

SECTION 7 HANDLING AND STORAGE

Precautionary Measures: Do not get in eyes, on skin, or on clothing. Do not breathe vapor or fumes. Wash thoroughly after handling. Keep out of the reach of children.
Static Hazard: Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures.
Container Warnings: Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

GENERAL CONSIDERATIONS:
Consider the potential hazards of this material (see Section 3), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful

levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

ENGINEERING CONTROLS:
If user operations generate airborne material, use process enclosures, local exhaust ventilation, or other engineering controls to control exposure.

PERSONAL PROTECTIVE EQUIPMENT
Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.
Skin Protection: No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested materials for protective gloves include: Natural rubber, Neoprene, Nitrile Rubber, Polyvinyl Chloride (PVC or Vinyl).
Respiratory Protection: If exposure to harmful levels of airborne material may occur when working with this material, wear an approved respirator that provides protection, such as:

Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

Occupational Exposure Limits:

Component	Agency	TWA	STEL	Ceiling	Notation
1,2-Propanediol	Not Applicable	--	--	--	--
Potassium 2-ethylhexanoate	Not Applicable	--	--	--	--

Consult local authorities for appropriate values.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Pink
Physical State: Liquid
Odor: Faint or Mild
Odor Threshold: No data available
pH: 8 - 8.6
Vapor Pressure: <1 mmHg @ 25 °C (77 °F)
Vapor Density (Air = 1): 2.1
Initial Boiling Point: 108.9°C (228°F)
Solubility: Miscible
Freezing Point: -32.2°C (-26°F)
Specific Gravity: 1.05 @ 15.6°C (60.1°F) / 15.6°C (60.1°F)
Viscosity: No data available
Evaporation Rate: No data available
Decomposition temperature: No Data Available
Octanol/Water Partition Coefficient: No data available

FLAMMABLE PROPERTIES:
Flammability (solid, gas): No Data Available

Flashpoint: Not Applicable
Autoignition: No data available
Flammability (Explosive) Limits (% by volume in air): Lower: No data available Upper: No data available

SECTION 10 STABILITY AND REACTIVITY

Reactivity: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
Chemical Stability: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
Incompatibility With Other Materials: Not applicable
Hazardous Decomposition Products: Aldehydes (Elevated temperatures)
Hazardous Polymerization: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

Information on toxicological effects
Serious Eye Damage/Irritation: The eye irritation hazard is based on evaluation of data for product components.

Skin Corrosion/Irritation: The skin irritation hazard is based on evaluation of data for product components.

Skin Sensitization: The skin sensitization hazard is based on evaluation of data for product components.

Acute Dermal Toxicity: The acute dermal toxicity hazard is based on evaluation of data for product components.

Acute Oral Toxicity: The acute oral toxicity hazard is based on evaluation of data for product components.

Acute Inhalation Toxicity: The acute inhalation toxicity hazard is based on evaluation of data for product components.
Acute Toxicity Estimate: Not Determined

Germ Cell Mutagenicity: The hazard evaluation is based on data for components or a similar material.

Carcinogenicity: The hazard evaluation is based on data for components or a similar material.

Reproductive Toxicity: The hazard evaluation is based on data for components or a similar material.

Specific Target Organ Toxicity - Single Exposure: The hazard evaluation is based on data for components or a similar material.

Specific Target Organ Toxicity - Repeated Exposure: The hazard evaluation is based on data for components or a similar material.

ADDITIONAL TOXICOLOGY INFORMATION:
This product contains diethylene glycol (DEG). The estimated oral lethal dose is about 50 cc (1.6 oz) for an adult human. DEG has caused the following effects in laboratory animals: liver abnormalities, kidney damage and blood abnormalities. It has been suggested as a cause of the following effects in humans: liver abnormalities, kidney damage, lung damage and central nervous system damage.

2-Ethylhexanoic acid (2-EXA) caused an increase in liver size and enzyme levels when repeatedly administered to rats via the diet. When administered to pregnant rats by gavage or in drinking water, 2-EXA caused teratogenicity (birth defects) and delayed postnatal development of the pups. Additionally, 2-EXA impaired female fertility in rats. Birth defects were seen in the offspring of mice who were administered sodium 2-ethylhexanoate via intraperitoneal injection during pregnancy.

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICITY
This material is not expected to be harmful to aquatic organisms.
The product has not been tested. The statement has been derived from the properties of the individual components.

MOBILITY
No data available.

PERSISTENCE AND DEGRADABILITY
This material is expected to be readily biodegradable. The biodegradability of this material is based on an evaluation of data for the components or a similar material.
The product has not been tested. The statement has been derived from the properties of the individual components.

POTENTIAL TO BIOACCUMULATE
Bioconcentration Factor: No data available.
Octanol/Water Partition Coefficient: No data available

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by international, country, or local laws and regulations.

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

DOT Shipping Description: NOT REGULATED AS A HAZARDOUS MATERIAL UNDER 49 CFR

IMO/IMDG Shipping Description: NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER THE IMDG CODE

ICAO/IATA Shipping Description: NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code:
Not applicable

SECTION 15 REGULATORY INFORMATION

EPCRA 311/312 CATEGORIES:

1.	Immediate (Acute) Health Effects:	NO
2.	Delayed (Chronic) Health Effects:	YES
3.	Fire Hazard:	NO
4.	Sudden Release of Pressure Hazard:	NO
5.	Reactivity Hazard:	NO

REGULATORY LISTS SEARCHED:

01-1=IARC Group 1	03=EPCRA 313
01-2A=IARC Group 2A	04=CA Proposition 65
01-2B=IARC Group 2B	05=MA RTK
02=NTP Carcinogen	06=NJ RTK
	07=PA RTK

The following components of this material are found on the regulatory lists indicated.
1,2-Propanediol 07

CHEMICAL INVENTORIES:
All components comply with the following chemical inventory requirements: AICS (Australia), DSL (Canada), EINECS (European Union), IECSC (China), PICCS (Philippines), TSCA (United States).

One or more components does not comply with the following chemical inventory requirements: ENCS (Japan), KECI (Korea).

NEW JERSEY RTK CLASSIFICATION:
Refer to components listed in Section 3. Ethylene Glycol Under the New Jersey Right-to-Know Act L. 1983 Chapter 315 N.J.S.A. 34:5A-1 et. seq., the product is to be identified as follows:

SECTION 16 OTHER INFORMATION

NFPA RATINGS: Health: 0 Flammability: 0 Reactivity: 0

HMIS RATINGS: Health: 0* Flammability: 0 Reactivity: 0
(0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme, PPE:- Personal Protection Equipment Index recommendation, *- Chronic Effect Indicator). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint and Coating Association (for HMIS ratings).

LABEL RECOMMENDATION:

Label Category : ANTIFREEZE/COOLANT 9 - AFC9

REVISION STATEMENT: This revision updates the following sections of this Safety Data Sheet: 1,3,8,16
Revision Date: MARCH 17, 2015

ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:

TLV - Threshold Limit Value	TWA - Time Weighted Average
STEL - Short-term Exposure Limit	PEL - Permissible Exposure Limit
GHS - Globally Harmonized System	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Governmental Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	SDS - Safety Data Sheet
HMIS - Hazardous Materials Information System	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration
NCEL - New Chemical Exposure Limit	EPA - Environmental Protection Agency
SCBA - Self-Contained Breathing Apparatus	

Prepared according to the 29 CFR 1910.1200 (2012) by Chevron Energy Technology Company, 6001 Bollinger Canyon Road San Ramon, CA 94583.

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Delo Heavy Duty Moly 3% EP 1, 5% EP 1, 3% EP 2, 5% EP 2

Product Use: Grease
Product Number(s): 222231, 222232, 223407, 223408
Company Identification
Chevron Products Company
a division of Chevron U.S.A. Inc.
6001 Bollinger Canyon Rd.
San Ramon, CA 94583
United States of America
www.chevronlubricants.com

Transportation Emergency Response
CHEMTREC: (800) 424-9300 or (703) 527-3887
Health Emergency
Chevron Emergency Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623
Product Information
email : lubemsds@chevron.com
Product Information: 1 (800) 582-3835, LUBETEK@chevron.com

SECTION 2 HAZARDS IDENTIFICATION

CLASSIFICATION: Acute aquatic toxicant: Category 3. Chronic aquatic toxicant: Category 3.

Environmental Hazards: Harmful to aquatic life. Harmful to aquatic life with long lasting effects.

PRECAUTIONARY STATEMENTS:
Prevention: Avoid release to the environment.
Disposal: Dispose of contents/container in accordance with applicable local/regional/national/international regulations.

SECTION 3 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Highly refined mineral oil (C15 - C50)	Mixture	70 - 99 %weight

Distillates, hydrotreated middle	64742-46-7	10 - 30 %weight
Zinc dialkyldithiophosphate	68649-42-3	1 - 5 %weight
Phosphoric acid ester amine salt	Mixture	0.1 - 1 %weight

SECTION 4 FIRST AID MEASURES

Description of first aid measures
Eye: No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.
Skin: No specific first aid measures are required. As a precaution, remove clothing and shoes if contaminated. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.
Ingestion: No specific first aid measures are required. Do not induce vomiting. As a precaution, get medical advice.
Inhalation: No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.

Most important symptoms and effects, both acute and delayed
IMMEDIATE SYMPTOMS AND HEALTH EFFECTS
Eye: Not expected to cause prolonged or significant eye irritation.
Skin: Contact with the skin is not expected to cause prolonged or significant irritation. Contact with the skin is not expected to cause an allergic skin response. Not expected to be harmful to internal organs if absorbed through the skin. High-Pressure Equipment Information: Accidental high-velocity injection under the skin of materials of this type may result in serious injury. Seek medical attention at once should an accident like this occur. The initial wound at the injection site may not appear to be serious at first; but, if left untreated, could result in disfigurement or amputation of the affected part.

Ingestion: Not expected to be harmful if swallowed.
Inhalation: Not expected to be harmful if inhaled. Contains a petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit. Symptoms of respiratory irritation may include coughing and difficulty breathing.

DELAYED OR OTHER SYMPTOMS AND HEALTH EFFECTS: Not classified.

Indication of any immediate medical attention and special treatment needed
Note to Physicians: In an accident involving high-pressure equipment, this product may be injected under the skin. Such an accident may result in a small, sometimes bloodless, puncture wound. However, because of its driving force, material injected into a fingertip can be deposited into the palm of the hand. Within 24 hours, there is usually a great deal of swelling, discoloration, and intense throbbing pain. Immediate treatment at a surgical emergency center is recommended.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

PROTECTION OF FIRE FIGHTERS:
Fire Fighting Instructions: This material will burn although it is not easily ignited. See Section 7 for proper

handling and storage. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.
Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in vicinity of spilled material.
Spill Management: Clean up spills immediately, observing precautions in Exposure Controls/Personal Protection section. Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.
Reporting: Report spills to local authorities as appropriate or required.

SECTION 7 HANDLING AND STORAGE

Precautionary Measures: Do not get in eyes, on skin, or on clothing. Keep out of the reach of children. Wash thoroughly after handling.
General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.
Static Hazard: Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures. For more information, refer to OSHA Standard 29 CFR 1910.106, 'Flammable and Combustible Liquids', National Fire Protection Association (NFPA 77, 'Recommended Practice on Static Electricity', and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents'.
Container Warnings: Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

GENERAL CONSIDERATIONS:
Consider the potential hazards of this material (see Section 3), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

ENGINEERING CONTROLS:

Use in a well-ventilated area.

PERSONAL PROTECTIVE EQUIPMENT
Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.
Skin Protection: No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested materials for protective gloves include: Neoprene, Nitrile Rubber, Silver Shield, Viton.
Respiratory Protection: No respiratory protection is normally required.
If user operations generate an oil mist, determine if airborne concentrations are below the occupational exposure limit for mineral oil mist. If not, wear an approved respirator that provides adequate protection from the measured concentrations of this material. For air-purifying respirators use a particulate cartridge. Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

Occupational Exposure Limits:

Component	Agency	TWA	STEL	Ceiling	Notation
Highly refined mineral oil (C15 - C50)	ACGIH	5 mg/m3	10 mg/m3	--	--
Highly refined mineral oil (C15 - C50)	OSHA Z-1	5 mg/m3	--	--	--

Consult local authorities for appropriate values.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Grey
Physical State: Semi-solid
Odor: Petroleum odor
Odor Threshold: No data available
pH: Not Applicable
Vapor Pressure: <0.01 mmHg Maximum @ 37.8 °C (100 °F)
Vapor Density (Air = 1): >1 Minimum
Initial Boiling Point: 315°C (599°F) Minimum
Solubility: Soluble in hydrocarbon solvents; insoluble in water.
Freezing Point: Not Applicable
Melting Point: 233°C (451.4°F) (Min)
Density: No data available
Viscosity: 22 mm2/s @ 100°C (212°F) Minimum
Evaporation Rate: No data available
Decomposition temperature: No Data Available
Octanol/Water Partition Coefficient: No data available

FLAMMABLE PROPERTIES:
Flammability (solid, gas): No Data Available

Flashpoint: 150 °C (302 °F) (Estimated)
Autoignition: No data available
Flammability (Explosive) Limits (% by volume in air): Lower: Not Applicable Upper: Not Applicable

SECTION 10 STABILITY AND REACTIVITY

Reactivity: This material is not expected to react.
Chemical Stability: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
Incompatibility With Other Materials: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
Hazardous Decomposition Products: None known (None expected)
Hazardous Polymerization: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

Information on toxicological effects
Serious Eye Damage/Irritation: The eye irritation hazard is based on evaluation of data for similar materials.

Skin Corrosion/Irritation: The skin irritation hazard is based on evaluation of data for similar materials.

Skin Sensitization: The skin sensitization hazard is based on evaluation of data for similar materials.

Acute Dermal Toxicity: The acute dermal toxicity hazard is based on evaluation of data for similar materials.

Acute Oral Toxicity: The acute oral toxicity hazard is based on evaluation of data for similar materials.

Acute Inhalation Toxicity: The acute inhalation toxicity hazard is based on evaluation of data for similar materials.

Acute Toxicity Estimate: Not Determined

Germ Cell Mutagenicity: The hazard evaluation is based on data for components or a similar material.

Carcinogenicity: The hazard evaluation is based on data for components or a similar material.

Reproductive Toxicity: The hazard evaluation is based on data for components or a similar material.

Specific Target Organ Toxicity - Single Exposure: The hazard evaluation is based on data for components or a similar material.

Specific Target Organ Toxicity - Repeated Exposure: The hazard evaluation is based on data for components or a similar material.

ADDITIONAL TOXICOLOGY INFORMATION:
This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or severe hydrotreating. None of the oils requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NTP) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as; carcinogenic to humans (Group 1), probably

carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B). These oils have not been classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as: confirmed human carcinogen (A1), suspected human carcinogen (A2), or confirmed animal carcinogen with unknown relevance to humans (A3).

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICITY
This material is expected to be harmful to aquatic organisms and may cause long-term adverse effects in the aquatic environment. The ecotoxicity hazard is based on data for a similar material. The product has not been tested. The statement has been derived from the properties of the individual components.

MOBILITY
No data available.

PERSISTENCE AND DEGRADABILITY
This material is not expected to be readily biodegradable. The biodegradability of this material is based on an evaluation of data for the components or a similar material.The product has not been tested. The statement has been derived from the properties of the individual components.

POTENTIAL TO BIOACCUMULATE
Bioconcentration Factor: No data available.
Octanol/Water Partition Coefficient: No data available

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods.

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

DOT Shipping Description: PETROLEUM LUBRICATING GREASE; NOT REGULATED AS A HAZARDOUS MATERIAL FOR TRANSPORTATION UNDER 49 CFR

IMO/IMDG Shipping Description: PETROLEUM LUBRICATING GREASE; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER THE IMDG CODE

ICAO/IATA Shipping Description: PETROLEUM LUBRICATING GREASE; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code:

Not applicable

SECTION 15 REGULATORY INFORMATION

EPCRA 311/312 CATEGORIES:

1. Immediate (Acute) Health Effects: NO
2. Delayed (Chronic) Health Effects: NO
3. Fire Hazard: NO
4. Sudden Release of Pressure Hazard: NO
5. Reactivity Hazard: NO

REGULATORY LISTS SEARCHED:

01-1=IARC Group 1	03=EPCRA 313
01-2A=IARC Group 2A	04=CA Proposition 65
01-2B=IARC Group 2B	05=MA RTK
02=NTP Carcinogen	06=NJ RTK
	07=PA RTK

The following components of this material are found on the regulatory lists indicated.
Zinc dialkyldithiophosphate 03, 06

CHEMICAL INVENTORIES:
All components comply with the following chemical inventory requirements: AICS (Australia), DSL (Canada), IECSC (China), PICCS (Philippines), TSCA (United States).

One or more components does not comply with the following chemical inventory requirements: ENCS (Japan), KECI (Korea).

NEW JERSEY RTK CLASSIFICATION:
Under the New Jersey Right-to-Know Act L. 1983 Chapter 315 N.J.S.A. 34:5A-1 et. seq., the product is to be identified as follows: PETROLEUM OIL (Grease)

SECTION 16 OTHER INFORMATION

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

HMIS RATINGS: Health: 0 Flammability: 1 Reactivity: 0
(0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme, PPE:- Personal Protection Equipment Index recommendation, *- Chronic Effect Indicator). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint and Coating Association (for HMIS ratings).

LABEL RECOMMENDATION:
Label Category : GREASE 1 - GRS1

REVISION STATEMENT: This revision updates the following sections of this Safety Data Sheet: 1-16.

Revision Date: JULY 11, 2014

ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:

TLV - Threshold Limit Value	TWA - Time Weighted Average
STEL - Short-term Exposure Limit	PEL - Permissible Exposure Limit
GHS - Globally Harmonized System	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Governmental Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	SDS - Safety Data Sheet
HMIS - Hazardous Materials Information System	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration
NCEL - New Chemical Exposure Limit	EPA - Environmental Protection Agency
SCBA - Self-Contained Breathing Apparatus	

Prepared according to the 29 CFR 1910.1200 (2012) by Chevron Energy Technology Company, 6001 Bollinger Canyon Road San Ramon, CA 94583.

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Chevron Hydraulic Oil AW 32, 46, 68

Product Use: Hydraulic Oil
Product Number(s): 255673, 255674, 255675, 293130, 293131, 293132
Synonyms: Chevron Hydraulic Oil AW 32, 46, 68, ISOCLEAN Certified
Company Identification
Chevron Products Company
a division of Chevron U.S.A. Inc.
6001 Bollinger Canyon Rd.
San Ramon, CA 94583
United States of America
www.chevronlubricants.com

Transportation Emergency Response
CHEMTREC: (800) 424-9300 or (703) 527-3887
Health Emergency
Chevron Emergency Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623
Product Information
email : lubemsds@chevron.com
Product Information: 1 (800) 582-3835, LUBETEK@chevron.com

SECTION 2 HAZARDS IDENTIFICATION

CLASSIFICATION: Not classified as hazardous according to 29 CFR 1910.1200 (2012).

HAZARDS NOT OTHERWISE CLASSIFIED: Not Applicable

SECTION 3 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Highly refined mineral oil (C15 - C50)	Mixture	70 - 99 %weight

SECTION 4 FIRST AID MEASURES

Description of first aid measures
Eye: No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.
Skin: No specific first aid measures are required. As a precaution, remove clothing and shoes if contaminated. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.
Ingestion: No specific first aid measures are required. Do not induce vomiting. As a precaution, get medical advice.
Inhalation: No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.

Most important symptoms and effects, both acute and delayed
IMMEDIATE HEALTH EFFECTS
Eye: Not expected to cause prolonged or significant eye irritation.
Skin: Contact with the skin is not expected to cause prolonged or significant irritation. Contact with the skin is not expected to cause an allergic skin response. Not expected to be harmful to internal organs if absorbed through the skin. High-Pressure Equipment Information: Accidental high-velocity injection under the skin of materials of this type may result in serious injury. Seek medical attention at once should an accident like this occur. The initial wound at the injection site may not appear to be serious at first; but, if left untreated, could result in disfigurement or amputation of the affected part.

Ingestion: Not expected to be harmful if swallowed.
Inhalation: Not expected to be harmful if inhaled. Contains a petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit. Symptoms of respiratory irritation may include coughing and difficulty breathing.

DELAYED OR OTHER HEALTH EFFECTS: Not classified

Indication of any immediate medical attention and special treatment needed
Note to Physicians: In an accident involving high-pressure equipment, this product may be injected under the skin. Such an accident may result in a small, sometimes bloodless, puncture wound. However, because of its driving force, material injected into a fingertip can be deposited into the palm of the hand. Within 24 hours, there is usually a great deal of swelling, discoloration, and intense throbbing pain. Immediate treatment at a surgical emergency center is recommended.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

Unusual Fire Hazards: Leaks/ruptures in high pressure system using materials of this type can create a fire hazard when in the vicinity of ignition sources (eg. open flame, pilot lights, sparks, or electric arcs).

PROTECTION OF FIRE FIGHTERS:
Fire Fighting Instructions: This material will burn although it is not easily ignited. See Section 7 for proper handling and storage. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.

Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in vicinity of spilled material.
Spill Management: Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.
Reporting: Report spills to local authorities and/or the U.S. Coast Guard's National Response Center at (800) 424-8802 as appropriate or required.

SECTION 7 HANDLING AND STORAGE

General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.
Precautionary Measures: DO NOT USE IN HIGH PRESSURE SYSTEMS in the vicinity of flames, sparks and hot surfaces. Use only in well ventilated areas. Keep container closed.

Static Hazard: Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures.
Container Warnings: Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

GENERAL CONSIDERATIONS:
Consider the potential hazards of this material (see Section 3), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

ENGINEERING CONTROLS:
Use in a well-ventilated area.

PERSONAL PROTECTIVE EQUIPMENT

Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.
Skin Protection: No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested materials for protective gloves include: 4H (PE/EVAL), Nitrile Rubber, Silver Shield, Viton.
Respiratory Protection: No respiratory protection is normally required.
If user operations generate an oil mist, determine if airborne concentrations are below the occupational exposure limit for mineral oil mist. If not, wear an approved respirator that provides adequate protection from the measured concentrations of this material. For air-purifying respirators use a particulate cartridge. Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

Occupational Exposure Limits:

Component	Agency	TWA	STEL	Ceiling	Notation
Highly refined mineral oil (C15 - C50)	OSHA Z-1	5 mg/m3	--	--	--
Highly refined mineral oil (C15 - C50)	ACGIH	5 mg/m3	10 mg/m3	--	--

Consult local authorities for appropriate values.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Yellow
Physical State: Liquid
Odor: Petroleum odor
Odor Threshold: No data available
pH: Not Applicable
Vapor Pressure: <0.01 mmHg @ 37.8 °C (100 °F)
Vapor Density (Air = 1): >1
Initial Boiling Point: 315°C (599°F)
Solubility: Soluble in hydrocarbon solvents; insoluble in water.
Freezing Point: Not Applicable
Density: 0.87 kg/l @ 15°C (59°F) (Typical)
Viscosity: 28.8 mm2/s @ 40°C (104°F) Minimum
Decomposition temperature: No data available
Octanol/Water Partition Coefficient: No data available

FLAMMABLE PROPERTIES:
Flammability (solid, gas): No Data Available

Flashpoint: (Cleveland Open Cup) 170 °C (338 °F) Minimum
Autoignition: No data available
Flammability (Explosive) Limits (% by volume in air): Lower: Not Applicable Upper: Not Applicable

SECTION 10 STABILITY AND REACTIVITY

Reactivity: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
Chemical Stability: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
Incompatibility With Other Materials: Not applicable
Hazardous Decomposition Products: None known (None expected)
Hazardous Polymerization: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

Information on toxicological effects
Serious Eye Damage/Irritation: The eye irritation hazard is based on evaluation of data for product components.

Skin Corrosion/Irritation: The skin irritation hazard is based on evaluation of data for product components.

Skin Sensitization: The skin sensitization hazard is based on evaluation of data for product components.

Acute Dermal Toxicity: The acute dermal toxicity hazard is based on evaluation of data for product components.

Acute Oral Toxicity: The acute oral toxicity hazard is based on evaluation of data for product components.

Acute Inhalation Toxicity: The acute inhalation toxicity hazard is based on evaluation of data for product components.
Acute Toxicity Estimate: Not Determined

Germ Cell Mutagenicity: The hazard evaluation is based on data for components or a similar material.

Carcinogenicity: The hazard evaluation is based on data for components or a similar material.

Reproductive Toxicity: The hazard evaluation is based on data for components or a similar material.

Specific Target Organ Toxicity - Single Exposure: The hazard evaluation is based on data for components or a similar material.

Specific Target Organ Toxicity - Repeated Exposure: The hazard evaluation is based on data for components or a similar material.

ADDITIONAL TOXICOLOGY INFORMATION:
This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or severe hydrotreating. None of the oils requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NTP) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as; carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B).
These oils have not been classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as: confirmed human carcinogen (A1), suspected human carcinogen (A2), or confirmed animal carcinogen with unknown relevance to humans (A3).

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICITY
This material is not expected to be harmful to aquatic organisms.
The product has not been tested. The statement has been derived from the properties of the individual components.

MOBILITY
No data available.

PERSISTENCE AND DEGRADABILITY
This material is not expected to be readily biodegradable. The biodegradability of this material is based on an evaluation of data for the components or a similar material.
The product has not been tested. The statement has been derived from the properties of the individual components.

POTENTIAL TO BIOACCUMULATE
Bioconcentration Factor: No data available.
Octanol/Water Partition Coefficient: No data available

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods.

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

DOT Shipping Description: PETROLEUM LUBRICATING OIL, NOT REGULATED AS A HAZARDOUS MATERIAL FOR TRANSPORTATION UNDER 49 CFR

IMO/IMDG Shipping Description: PETROLEUM LUBRICATING OIL; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER THE IMDG CODE

ICAO/IATA Shipping Description: PETROLEUM LUBRICATING OIL; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO TI OR IATA DGR

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code:
Not applicable

SECTION 15 REGULATORY INFORMATION

EPCRA 311/312 CATEGORIES:

1. Immediate (Acute) Health Effects: NO
2. Delayed (Chronic) Health Effects: NO

3. Fire Hazard: NO
4. Sudden Release of Pressure Hazard: NO
5. Reactivity Hazard: NO

REGULATORY LISTS SEARCHED:

01-1=IARC Group 1	03=EPCRA 313
01-2A=IARC Group 2A	04=CA Proposition 65
01-2B=IARC Group 2B	05=MA RTK
02=NTP Carcinogen	06=NJ RTK
	07=PA RTK

No components of this material were found on the regulatory lists above.

CHEMICAL INVENTORIES:
All components comply with the following chemical inventory requirements: AICS (Australia), DSL (Canada), ENCS (Japan), IECSC (China), KECI (Korea), PICCS (Philippines), TSCA (United States).

NEW JERSEY RTK CLASSIFICATION:
Under the New Jersey Right-to-Know Act L. 1983 Chapter 315 N.J.S.A. 34:5A-1 et. seq., the product is to be identified as follows: PETROLEUM OIL (Hydraulic oil)

SECTION 16 OTHER INFORMATION

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

HMIS RATINGS: Health: 0 Flammability: 1 Reactivity: 0
(0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme, PPE:- Personal Protection Equipment Index recommendation, *- Chronic Effect Indicator). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint and Coating Association (for HMIS ratings).

LABEL RECOMMENDATION:
Label Category : INDUSTRIAL OIL 1 - IND1

REVISION STATEMENT: This revision updates the following sections of this Safety Data Sheet: 1,16
Revision Date: APRIL 23, 2015

ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:

TLV - Threshold Limit Value	TWA - Time Weighted Average
STEL - Short-term Exposure Limit	PEL - Permissible Exposure Limit
GHS - Globally Harmonized System	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Governmental Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	SDS - Safety Data Sheet
HMIS - Hazardous Materials Information System	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)

IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration
NCEL - New Chemical Exposure Limit	EPA - Environmental Protection Agency
SCBA - Self-Contained Breathing Apparatus	

Prepared according to the 29 CFR 1910.1200 (2012) by Chevron Energy Technology Company, 6001 Bollinger Canyon Road San Ramon, CA 94583.

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Starplex EP 1, 2

Product Use: Grease
Product Number(s): 219579, 277110, 277111
Company Identification
Chevron Products Company
a division of Chevron U.S.A. Inc.
6001 Bollinger Canyon Rd.
San Ramon, CA 94583
United States of America
www.chevronlubricants.com

Transportation Emergency Response
CHEMTREC: (800) 424-9300 or (703) 527-3887
Health Emergency
Chevron Emergency Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623
Product Information
email : lubemsds@chevron.com
Product Information: 1 (800) 582-3835, LUBETEK@chevron.com

SECTION 2 HAZARDS IDENTIFICATION

CLASSIFICATION: Acute aquatic toxicant: Category 3. Chronic aquatic toxicant: Category 3.

Environmental Hazards: Harmful to aquatic life. Harmful to aquatic life with long lasting effects.

PRECAUTIONARY STATEMENTS:
Prevention: Avoid release to the environment.
Disposal: Dispose of contents/container in accordance with applicable local/regional/national/international regulations.

HAZARDS NOT OTHERWISE CLASSIFIED: Not Applicable

SECTION 3 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Highly refined mineral oil (C15 - C50)	Mixture	70 - 99 %wt/wt
Zinc dialkyldithiophosphate	68649-42-3	1 - < 2.5 %wt/wt
Phosphoric acid ester, amine salt	Confidential	0.1 - 1 %wt/wt

SECTION 4 FIRST AID MEASURES

Description of first aid measures
Eye: No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.
Skin: No specific first aid measures are required. As a precaution, remove clothing and shoes if contaminated. To remove the material from skin, apply a waterless hand cleaner, mineral oil, or petroleum jelly. Then wash with soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.
Ingestion: No specific first aid measures are required. Do not induce vomiting. As a precaution, get medical advice.
Inhalation: No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.

Most important symptoms and effects, both acute and delayed
IMMEDIATE SYMPTOMS AND HEALTH EFFECTS
Eye: Not expected to cause prolonged or significant eye irritation.
Skin: Contact with the skin is not expected to cause prolonged or significant irritation. Contact with the skin is not expected to cause an allergic skin response. Not expected to be harmful to internal organs if absorbed through the skin. High-Pressure Equipment Information: Accidental high-velocity injection under the skin of materials of this type may result in serious injury. Seek medical attention at once should an accident like this occur. The initial wound at the injection site may not appear to be serious at first; but, if left untreated, could result in disfigurement or amputation of the affected part.

Ingestion: Not expected to be harmful if swallowed.
Inhalation: Not expected to be harmful if inhaled. Contains a petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit. Symptoms of respiratory irritation may include coughing and difficulty breathing.

DELAYED OR OTHER SYMPTOMS AND HEALTH EFFECTS: Not classified.

Indication of any immediate medical attention and special treatment needed
Note to Physicians: In an accident involving high-pressure equipment, this product may be injected under the skin. Such an accident may result in a small, sometimes bloodless, puncture wound. However, because of its driving force, material injected into a fingertip can be deposited into the palm of the hand. Within 24 hours, there is usually a great deal of swelling, discoloration, and intense throbbing pain. Immediate treatment at a surgical emergency center is recommended.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

PROTECTION OF FIRE FIGHTERS:
Fire Fighting Instructions: This material will burn although it is not easily ignited. See Section 7 for proper handling and storage. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.
Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in vicinity of spilled material.
Spill Management: Clean up spills immediately, observing precautions in Exposure Controls/Personal Protection section. Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.
Reporting: Report spills to local authorities as appropriate or required.

SECTION 7 HANDLING AND STORAGE

Precautionary Measures: Do not get in eyes, on skin, or on clothing. Keep out of the reach of children. Wash thoroughly after handling.
General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.
Static Hazard: Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures. For more information, refer to OSHA Standard 29 CFR 1910.106, 'Flammable and Combustible Liquids', National Fire Protection Association (NFPA 77, 'Recommended Practice on Static Electricity', and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents'.
Container Warnings: Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

GENERAL CONSIDERATIONS:
Consider the potential hazards of this material (see Section 3), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually

provided for a limited time or under certain circumstances.

ENGINEERING CONTROLS:
Use in a well-ventilated area.

PERSONAL PROTECTIVE EQUIPMENT
Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.
Skin Protection: No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested materials for protective gloves include: Neoprene, Nitrile Rubber, Silver Shield, Viton.
Respiratory Protection: No respiratory protection is normally required.
If user operations generate an oil mist, determine if airborne concentrations are below the occupational exposure limit for mineral oil mist. If not, wear an approved respirator that provides adequate protection from the measured concentrations of this material. For air-purifying respirators use a particulate cartridge. Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

Occupational Exposure Limits:

Component	Agency	TWA	STEL	Ceiling	Notation
Highly refined mineral oil (C15 - C50)	ACGIH	5 mg/m3	10 mg/m3	--	--
Highly refined mineral oil (C15 - C50)	OSHA Z-1	5 mg/m3	--	--	--
Zinc dialkyldithiophosphate	Not Applicable	--	--	--	--
Phosphoric acid ester, amine salt	Not Applicable	--	--	--	--

Consult local authorities for appropriate values.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Red
Physical State: Semi-solid
Odor: Petroleum odor
Odor Threshold: No data available
pH: Not Applicable
Vapor Pressure: <0.01 mmHg Maximum @ 37.8 °C (100 °F)
Vapor Density (Air = 1): >1 Minimum
Initial Boiling Point: 315°C (599°F) Minimum
Solubility: Soluble in hydrocarbons; insoluble in water
Freezing Point: Not Applicable
Melting Point: No data available
Specific Gravity: 0.9 @ 15.6°C (60.1°F) (Typical)
Density: 0.9 (Typical)
Viscosity: 18 mm2/s @ 100°C (212°F) Minimum

Evaporation Rate: No data available
Decomposition temperature: " "No Data Available
Octanol/Water Partition Coefficient: No data available

FLAMMABLE PROPERTIES:
Flammability (solid, gas): No Data Available

Flashpoint: (Cleveland Open Cup) 200 °C (392 °F) (Estimated)
Autoignition: No data available
Flammability (Explosive) Limits (% by volume in air): Lower: Not Applicable Upper: Not Applicable

SECTION 10 STABILITY AND REACTIVITY

Reactivity: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
Chemical Stability: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
Incompatibility With Other Materials: Not applicable
Hazardous Decomposition Products: None known (None expected)
Hazardous Polymerization: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

Information on toxicological effects
Serious Eye Damage/Irritation: The eye irritation hazard is based on evaluation of data for similar materials.

Skin Corrosion/Irritation: The skin irritation hazard is based on evaluation of data for similar materials.

Skin Sensitization: The skin sensitization hazard is based on evaluation of data for product components.

Acute Dermal Toxicity: The acute dermal toxicity hazard is based on evaluation of data for product components.

Acute Oral Toxicity: The acute oral toxicity hazard is based on evaluation of data for product components.

Acute Inhalation Toxicity: The acute inhalation toxicity hazard is based on evaluation of data for product components.

Acute Toxicity Estimate: Not Determined

Germ Cell Mutagenicity: The hazard evaluation is based on data for components or a similar material.

Carcinogenicity: The hazard evaluation is based on data for components or a similar material.

Reproductive Toxicity: The hazard evaluation is based on data for components or a similar material.

Specific Target Organ Toxicity - Single Exposure: The hazard evaluation is based on data for components or a similar material.

Specific Target Organ Toxicity - Repeated Exposure: The hazard evaluation is based on data for components or a similar material.

ADDITIONAL TOXICOLOGY INFORMATION:
This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or severe hydrotreating. None of the oils requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NTP) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as; carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B).
These oils have not been classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as: confirmed human carcinogen (A1), suspected human carcinogen (A2), or confirmed animal carcinogen with unknown relevance to humans (A3).

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICITY
This material is expected to be harmful to aquatic organisms. The ecotoxicity hazard is based on an evaluation of data for the components or a similar material. The product has not been tested. The statement has been derived from the properties of the individual components.

MOBILITY
No data available.

PERSISTENCE AND DEGRADABILITY
This material is not expected to be readily biodegradable. The biodegradability of this material is based on an evaluation of data for the components or a similar material.The product has not been tested. The statement has been derived from products of a similar structure and composition.

POTENTIAL TO BIOACCUMULATE
Bioconcentration Factor: No data available.
Octanol/Water Partition Coefficient: No data available

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods.

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

DOT Shipping Description: PETROLEUM LUBRICATING GREASE; NOT REGULATED AS A HAZARDOUS MATERIAL FOR TRANSPORTATION UNDER 49 CFR

IMO/IMDG Shipping Description: PETROLEUM LUBRICATING GREASE; NOT REGULATED AS

DANGEROUS GOODS FOR TRANSPORT UNDER THE IMDG CODE

ICAO/IATA Shipping Description: PETROLEUM LUBRICATING GREASE; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code:
Not applicable

SECTION 15 REGULATORY INFORMATION

EPCRA 311/312 CATEGORIES:

1.	Immediate (Acute) Health Effects:	NO
2.	Delayed (Chronic) Health Effects:	NO
3.	Fire Hazard:	NO
4.	Sudden Release of Pressure Hazard:	NO
5.	Reactivity Hazard:	NO

REGULATORY LISTS SEARCHED:

01-1=IARC Group 1	03=EPCRA 313
01-2A=IARC Group 2A	04=CA Proposition 65
01-2B=IARC Group 2B	05=MA RTK
02=NTP Carcinogen	06=NJ RTK
	07=PA RTK

The following components of this material are found on the regulatory lists indicated.

Zinc dialkyldithiophosphate	03, 06

CHEMICAL INVENTORIES:
All components comply with the following chemical inventory requirements: AICS (Australia), DSL (Canada), ENCS (Japan), IECSC (China), KECI (Korea), PICCS (Philippines), TSCA (United States).

NEW JERSEY RTK CLASSIFICATION:
Under the New Jersey Right-to-Know Act L. 1983 Chapter 315 N.J.S.A. 34:5A-1 et. seq., the product is to be identified as follows: PETROLEUM OIL (Grease)

SECTION 16 OTHER INFORMATION

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

HMIS RATINGS: Health: 0 Flammability: 1 Reactivity: 0
(0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme, PPE:- Personal Protection Equipment Index recommendation, *- Chronic Effect Indicator). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint and Coating Association (for HMIS ratings).

LABEL RECOMMENDATION:
Label Category : GREASE 1 - GRS1

REVISION STATEMENT: This revision updates the following sections of this Safety Data Sheet: 1-16
Revision Date: SEPTEMBER 17, 2014

ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:

TLV - Threshold Limit Value	TWA - Time Weighted Average
STEL - Short-term Exposure Limit	PEL - Permissible Exposure Limit
GHS - Globally Harmonized System	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Governmental Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	SDS - Safety Data Sheet
HMIS - Hazardous Materials Information System	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration
NCEL - New Chemical Exposure Limit	EPA - Environmental Protection Agency
SCBA - Self-Contained Breathing Apparatus	

Prepared according to the 29 CFR 1910.1200 (2012) by Chevron Energy Technology Company, 6001 Bollinger Canyon Road San Ramon, CA 94583.

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Ursa Super Plus EC SAE 15W-40

Product Use: Diesel Engine Oil
Product Number(s): 219382, 271201, 278068
Synonyms: Ursa Super Plus EC SAE 15W-40 ISOCLEAN Certified
Company Identification
Chevron Products Company
a division of Chevron U.S.A. Inc.
6001 Bollinger Canyon Rd.
San Ramon, CA 94583
United States of America
www.chevronlubricants.com

Transportation Emergency Response
CHEMTREC: (800) 424-9300 or (703) 527-3887
Health Emergency
Chevron Emergency Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623
Product Information
email : lubemsds@chevron.com
Product Information: 1 (800) 582-3835, LUBETEK@chevron.com

SECTION 2 HAZARDS IDENTIFICATION

CLASSIFICATION: Acute aquatic toxicant: Category 3. Chronic aquatic toxicant: Category 3.

Environmental Hazards: Harmful to aquatic life. Harmful to aquatic life with long lasting effects.

PRECAUTIONARY STATEMENTS:
Prevention: Avoid release to the environment.
Disposal: Dispose of contents/container in accordance with applicable local/regional/national/international regulations.

HAZARDS NOT OTHERWISE CLASSIFIED: Not Applicable

SECTION 3 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Highly refined mineral oil (C15 - C50)	Mixture	70 - 99 %wt/wt
Zinc dialkyldithiophosphate	68649-42-3	1 - 5 %wt/wt
01154100-5284P	Trade secret	0.5 - 1.5 %wt/wt
01154100-5301P	Trade secret	0.1 - 1 %wt/wt
Phenol, dodecyl-, branched	121158-58-5	0.1 - 1 %wt/wt

SECTION 4 FIRST AID MEASURES

Description of first aid measures
Eye: No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.
Skin: No specific first aid measures are required. As a precaution, remove clothing and shoes if contaminated. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.
Ingestion: No specific first aid measures are required. Do not induce vomiting. As a precaution, get medical advice.
Inhalation: No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.

Most important symptoms and effects, both acute and delayed
IMMEDIATE HEALTH EFFECTS
Eye: Not expected to cause prolonged or significant eye irritation.
Skin: Contact with the skin is not expected to cause prolonged or significant irritation. Contact with the skin is not expected to cause an allergic skin response. Not expected to be harmful to internal organs if absorbed through the skin.
Ingestion: Not expected to be harmful if swallowed.
Inhalation: Not expected to be harmful if inhaled. Contains a petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit. Symptoms of respiratory irritation may include coughing and difficulty breathing.

DELAYED OR OTHER HEALTH EFFECTS: Not classified

Indication of any immediate medical attention and special treatment needed Not Applicable

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

PROTECTION OF FIRE FIGHTERS:
Fire Fighting Instructions: This material will burn although it is not easily ignited. See Section 7 for proper handling and storage. For fires involving this material, do not enter any enclosed or confined fire space

without proper protective equipment, including self-contained breathing apparatus.
Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in vicinity of spilled material.
Spill Management: Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.
Reporting: Report spills to local authorities and/or the U.S. Coast Guard's National Response Center at (800) 424-8802 as appropriate or required.

SECTION 7 HANDLING AND STORAGE

General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.
Precautionary Measures: Keep out of the reach of children.
Static Hazard: Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures.
Container Warnings: Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

GENERAL CONSIDERATIONS:
Consider the potential hazards of this material (see Section 3), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

ENGINEERING CONTROLS:
Use in a well-ventilated area.

PERSONAL PROTECTIVE EQUIPMENT
Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear

safety glasses with side shields as a good safety practice.
Skin Protection: No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested materials for protective gloves include: 4H (PE/EVAL), Nitrile Rubber, Silver Shield, Viton.
Respiratory Protection: No respiratory protection is normally required.
If user operations generate an oil mist, determine if airborne concentrations are below the occupational exposure limit for mineral oil mist. If not, wear an approved respirator that provides adequate protection from the measured concentrations of this material. For air-purifying respirators use a particulate cartridge. Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

Occupational Exposure Limits:

Component	Agency	TWA	STEL	Ceiling	Notation
Highly refined mineral oil (C15 - C50)	OSHA Z-1	5 mg/m3	--	--	--
Highly refined mineral oil (C15 - C50)	ACGIH	5 mg/m3	10 mg/m3	--	--
Zinc dialkyldithiophosphate	Not Applicable	--	--	--	--
01154100-5284P	Not Applicable	--	--	--	--
01154100-5301P	Not Applicable	--	--	--	--
Phenol, dodecyl-, branched	Not Applicable	--	--	--	--

Consult local authorities for appropriate values.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Light to Brown
Physical State: Liquid
Odor: Petroleum odor
Odor Threshold: No data available
pH: Not Applicable
Vapor Pressure: <0.01 mmHg @ 37.8 °C (100 °F)
Vapor Density (Air = 1): >1
Initial Boiling Point: 315°C (599°F)
Solubility: Soluble in hydrocarbons; insoluble in water
Freezing Point: Not Applicable
Melting Point: Not Applicable -
Density: 0.9 kg/l @ 15°C (59°F) (Typical)
Viscosity: 15.4 mm2/s @ 100°C (212°F) (Typical)
Evaporation Rate: No data available
Decomposition temperature: No data available
Octanol/Water Partition Coefficient: No data available

FLAMMABLE PROPERTIES:
Flammability (solid, gas): No Data Available

Flashpoint: (Cleveland Open Cup) 204 °C (399 °F) Minimum
Autoignition: No data available
Flammability (Explosive) Limits (% by volume in air): Lower: Not Applicable Upper: Not Applicable

SECTION 10 STABILITY AND REACTIVITY

Reactivity: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
Chemical Stability: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
Incompatibility With Other Materials: Not applicable
Hazardous Decomposition Products: None known (None expected)
Hazardous Polymerization: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

Information on toxicological effects
Serious Eye Damage/Irritation: The eye irritation hazard is based on evaluation of data for product components.

Skin Corrosion/Irritation: The skin irritation hazard is based on evaluation of data for product components.

Skin Sensitization: The skin sensitization hazard is based on evaluation of data for product components.

Acute Dermal Toxicity: The acute dermal toxicity hazard is based on evaluation of data for product components.

Acute Oral Toxicity: The acute oral toxicity hazard is based on evaluation of data for product components.

Acute Inhalation Toxicity: The acute inhalation toxicity hazard is based on evaluation of data for product components.
Acute Toxicity Estimate: Not Determined

Germ Cell Mutagenicity: The hazard evaluation is based on data for components or a similar material.

Carcinogenicity: The hazard evaluation is based on data for components or a similar material.

Reproductive Toxicity: The hazard evaluation is based on data for components or a similar material.

Specific Target Organ Toxicity - Single Exposure: The hazard evaluation is based on data for components or a similar material.

Specific Target Organ Toxicity - Repeated Exposure: The hazard evaluation is based on data for components or a similar material.

ADDITIONAL TOXICOLOGY INFORMATION:
During use in engines, contamination of oil with low levels of cancer-causing combustion products occurs.

Used motor oils have been shown to cause skin cancer in mice following repeated application and continuous exposure. Brief or intermittent skin contact with used motor oil is not expected to have serious effects in humans if the oil is thoroughly removed by washing with soap and water.
This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or severe hydrotreating. None of the oils requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NTP) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as; carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B).
These oils have not been classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as: confirmed human carcinogen (A1), suspected human carcinogen (A2), or confirmed animal carcinogen with unknown relevance to humans (A3).

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICITY
This material is expected to be harmful to aquatic organisms and may cause long-term adverse effects in the aquatic environment.
The product has not been tested. The statement has been derived from the properties of the individual components.

MOBILITY
No data available.

PERSISTENCE AND DEGRADABILITY
This material is not expected to be readily biodegradable. The biodegradability of this material is based on an evaluation of data for the components or a similar material.
The product has not been tested. The statement has been derived from the properties of the individual components.

POTENTIAL TO BIOACCUMULATE
Bioconcentration Factor: No data available.
Octanol/Water Partition Coefficient: No data available

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods.

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

DOT Shipping Description: PETROLEUM LUBRICATING OIL, NOT REGULATED AS A HAZARDOUS MATERIAL FOR TRANSPORTATION UNDER 49 CFR

IMO/IMDG Shipping Description: PETROLEUM LUBRICATING OIL; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER THE IMDG CODE

ICAO/IATA Shipping Description: PETROLEUM LUBRICATING OIL; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO TI OR IATA DGR

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code:
Not applicable

SECTION 15 REGULATORY INFORMATION

EPCRA 311/312 CATEGORIES:

1.	Immediate (Acute) Health Effects:	NO
2.	Delayed (Chronic) Health Effects:	NO
3.	Fire Hazard:	NO
4.	Sudden Release of Pressure Hazard:	NO
5.	Reactivity Hazard:	NO

REGULATORY LISTS SEARCHED:

01-1=IARC Group 1	03=EPCRA 313
01-2A=IARC Group 2A	04=CA Proposition 65
01-2B=IARC Group 2B	05=MA RTK
02=NTP Carcinogen	06=NJ RTK
	07=PA RTK

The following components of this material are found on the regulatory lists indicated.

Zinc dialkyldithiophosphate	03, 06

CHEMICAL INVENTORIES:
All components comply with the following chemical inventory requirements: AICS (Australia), DSL (Canada), KECI (Korea), PICCS (Philippines), TSCA (United States).

One or more components has been notified but may not be listed in the following chemical inventories: IECSC (China). Secondary notification may be required.

One or more components is listed on ELINCS (European Union). Secondary notification by the importer may be required. All other components are listed or exempted from listing on EINECS.

One or more components does not comply with the following chemical inventory requirements: ENCS (Japan).

NEW JERSEY RTK CLASSIFICATION:
Under the New Jersey Right-to-Know Act L. 1983 Chapter 315 N.J.S.A. 34:5A-1 et. seq., the product is to be identified as follows: PETROLEUM OIL (Motor oil)

SECTION 16 OTHER INFORMATION

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

HMIS RATINGS: Health: 0 Flammability: 1 Reactivity: 0
(0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme, PPE:- Personal Protection Equipment Index recommendation, *- Chronic Effect Indicator). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint and Coating Association (for HMIS ratings).

LABEL RECOMMENDATION:
Label Category : ENGINE OIL 1 - ENG1

REVISION STATEMENT: This revision updates the following sections of this Safety Data Sheet: 1,16
Revision Date: JUNE 25, 2015

ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:

TLV - Threshold Limit Value	TWA - Time Weighted Average
STEL - Short-term Exposure Limit	PEL - Permissible Exposure Limit
GHS - Globally Harmonized System	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Governmental Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	SDS - Safety Data Sheet
HMIS - Hazardous Materials Information System	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration
NCEL - New Chemical Exposure Limit	EPA - Environmental Protection Agency
SCBA - Self-Contained Breathing Apparatus	

Prepared according to the 29 CFR 1910.1200 (2012) by Chevron Energy Technology Company, 6001 Bollinger Canyon Road San Ramon, CA 94583.

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

Material Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

HAVOLINE® ANTIFREEZE/COOLANT

Product Use: Antifreeze/Coolant
Product Number(s): CPS226799
Company Identification
Chevron Products Company
a division of Chevron U.S.A. Inc.
6001 Bollinger Canyon Road
San Ramon, CA 94583
United States of America

Transportation Emergency Response
CHEMTREC: (800) 424-9300 or (703) 527-3887
Health Emergency
Chevron Emergency Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623
Product Information
email : lubemsds@chevron.com
Product Information: 800-LUBE-TEK
MSDS Requests: 800-414-6737

SECTION 2 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Ethylene Glycol	107-21-1	60 - 100 %weight
Diethylene glycol	111-46-6	1 - 5 %weight
Sodium tetraborate, pentahydrate	12179-04-3	1 - 5 %weight

SECTION 3 HAZARDS IDENTIFICATION

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EMERGENCY OVERVIEW

- HARMFUL OR FATAL IF SWALLOWED
- CONTAINS MATERIAL THAT MAY CAUSE ADVERSE REPRODUCTIVE EFFECTS IN MALES BASED ON ANIMAL DATA
- POSSIBLE BIRTH DEFECT HAZARD - CONTAINS MATERIAL THAT MAY CAUSE BIRTH DEFECTS BASED ON ANIMAL DATA
- CAUSES DAMAGE TO:
- KIDNEY

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IMMEDIATE HEALTH EFFECTS
Eye: Not expected to cause prolonged or significant eye irritation.
Skin: Contact with the skin is not expected to cause prolonged or significant irritation. Contact with the skin is not expected to cause an allergic skin response. Not expected to be harmful to internal organs if absorbed through the skin.
Ingestion: Toxic; may be harmful or fatal if swallowed.
Inhalation: The vapor or fumes from this material may cause respiratory irritation. Symptoms of respiratory irritation may include coughing and difficulty breathing. Breathing this material at concentrations above the recommended exposure limits may cause central nervous system effects. Central nervous system effects may include headache, dizziness, nausea, vomiting, weakness, loss of coordination, blurred vision, drowsiness, confusion, or disorientation. At extreme exposures, central nervous system effects may include respiratory depression, tremors or convulsions, loss of consciousness, coma or death.

DELAYED OR OTHER HEALTH EFFECTS:
Reproduction and Birth Defects: Contains material that may cause adverse reproductive effects based on animal data. Contains material that may cause birth defects based on animal data.
Target Organs: Contains material that causes damage to the following organ(s) if swallowed: Kidney
See Section 11 for additional information. Risk depends on duration and level of exposure.

SECTION 4 FIRST AID MEASURES

Eye: No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.
Skin: No specific first aid measures are required. As a precaution, remove clothing and shoes if contaminated.
Ingestion: If swallowed, get immediate medical attention. Do not induce vomiting. Never give anything by mouth to an unconscious person.
Inhalation: Move the exposed person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if breathing difficulties continue.

SECTION 5 FIRE FIGHTING MEASURES

FIRE CLASSIFICATION:
OSHA Classification (29 CFR 1910.1200): Not classified by OSHA as flammable or combustible.

NFPA RATINGS: Health: 2 Flammability: 1 Reactivity: 0

FLAMMABLE PROPERTIES:
Flashpoint: (Pensky-Martens Closed Cup) 115 °C (239 °F) (Min)
Autoignition: No Data Available
Flammability (Explosive) Limits (% by volume in air): Lower: 3.2 Upper:

EXTINGUISHING MEDIA: Dry Chemical, CO2, AFFF Foam or alcohol resistant foam.

PROTECTION OF FIRE FIGHTERS:
Fire Fighting Instructions: This material will burn although it is not easily ignited. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.
Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in vicinity of spilled material.
Spill Management: Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.
Reporting: Report spills to local authorities and/or the U.S. Coast Guard's National Response Center at (800) 424-8802 as appropriate or required.

SECTION 7 HANDLING AND STORAGE

Precautionary Measures: Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Do not breathe vapor or fumes. Wash thoroughly after handling.
General Handling Information: Do not taste or swallow antifreeze or solution. Keep out of the reach of children and animals.
Static Hazard: Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures. For more information, refer to OSHA Standard 29 CFR 1910.106, 'Flammable and Combustible Liquids', National Fire Protection Association (NFPA 77, 'Recommended Practice on Static Electricity', and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents'.
General Storage Information: Do not store in open or unlabeled containers.
Container Warnings: Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

GENERAL CONSIDERATIONS:
Consider the potential hazards of this material (see Section 3), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

ENGINEERING CONTROLS:
Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below the recommended exposure limits.

PERSONAL PROTECTIVE EQUIPMENT
Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.

Skin Protection: No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested materials for protective gloves include: Natural rubber, Neoprene, Nitrile Rubber, Polyvinyl Chloride (PVC or Vinyl).
Respiratory Protection: Determine if airborne concentrations are below the recommended occupational exposure limits for jurisdiction of use. If airborne concentrations are above the acceptable limits, wear an approved respirator that provides adequate protection from this material, such as: Air-Purifying Respirator for Organic Vapors, Dusts and Mists.
Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.
Occupational Exposure Limits:

Component	Agency	TWA	STEL	Ceiling	Notation
Ethylene Glycol	ACGIH	--	--	100 mg/m3	--
Sodium tetraborate, pentahydrate	ACGIH	2 mg/m3	6 mg/m3	--	--

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Blue
Physical State: Liquid
Odor: Faint or Mild
pH: 8.2 - 8.6
Vapor Pressure: 0.12 mmHg (Typical) @ 20 °C (68 °F)
Vapor Density (Air = 1): >1 (Typical)
Boiling Point: 196°C (384.8°F) (Estimated)
Solubility: Miscible
Freezing Point: -38.9°C (-38°F)
Specific Gravity: 1.13 @ 15.6°C (60.1°F) / 15.6°C (60.1°F)
Density: 1.1 kg/l @ 15.6°C (60°F)
Viscosity: No data available

SECTION 10 STABILITY AND REACTIVITY

Chemical Stability: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
Incompatibility With Other Materials: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
Hazardous Decomposition Products: Aldehydes (Elevated temperatures), Ketones (Elevated temperatures)
Hazardous Polymerization: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

IMMEDIATE HEALTH EFFECTS
Eye Irritation: The eye irritation hazard is based on evaluation of data for similar materials or product components.
Skin Irritation: The skin irritation hazard is based on evaluation of data for similar materials or product components.

Skin Sensitization: The skin sensitization hazard is based on evaluation of data for similar materials or product components.No product toxicology data available.
Acute Dermal Toxicity: The acute dermal toxicity hazard is based on evaluation of data for similar materials or product components.
Acute Oral Toxicity: The acute oral toxicity hazard is based on evaluation of data for similar materials or product components.
Acute Inhalation Toxicity: The acute inhalation toxicity hazard is based on evaluation of data for similar materials or product components.

ADDITIONAL TOXICOLOGY INFORMATION:
This product contains diethylene glycol (DEG). The estimated oral lethal dose is about 50 cc (1.6 oz) for an adult human. DEG has caused the following effects in laboratory animals: liver abnormalities, kidney damage and blood abnormalities. It has been suggested as a cause of the following effects in humans: liver abnormalities, kidney damage, lung damage and central nervous system damage.

This product contains ethylene glycol (EG). The toxicity of EG via inhalation or skin contact is expected to be slight at room temperature. The estimated oral lethal dose is about 100 cc (3.3 oz.) for an adult human. Ethylene glycol is oxidized to oxalic acid which results in the deposition of calcium oxalate crystals mainly in the brain and kidneys. Early signs and symptoms of EG poisoning may resemble those of alcohol intoxication. Later, the victim may experience nausea, vomiting, weakness, abdominal and muscle pain, difficulty in breathing and decreased urine output. When EG was heated above the boiling point of water, vapors formed which reportedly caused unconsciousness, increased lymphocyte count, and a rapid, jerky movement of the eyes in persons chronically exposed. When EG was administered orally to pregnant rats and mice, there was an increase in fetal deaths and birth defects. Some of these effects occurred at doses that had no toxic effects on the mothers. We are not aware of any reports that EG causes reproductive toxicity in human beings.

Chronic feeding of sodium tetraborate to rats and dogs leads to accumulation in the testes, germ cell depletion, and testicular atrophy.

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICITY
This material is not expected to be harmful to aquatic organisms. The ecotoxicity hazard is based on an evaluation of data for the components or a similar material.

ENVIRONMENTAL FATE
Ready Biodegradability: This material is expected to be readily biodegradable. The biodegradability of this material is based on an evaluation of data for the components or a similar material.

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods.

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous

Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

DOT Shipping Description: Anti-freeze Preparations, Proprietary
Additional Information: Bulk shipments with a reportable quantity (5000 pounds) of ethylene glycol are a hazardous material. The Proper Shipping Name is: Environmentally Hazardous Substance, Liquid, N.O.S. (ethylene glycol), 9, UN3082, III, RQ (ethylene glycol).

IMO/IMDG Shipping Description: MAY BE REGULATED AS DANGEROUS GOODS FOR TRANSPORTATION UNDER THE IMDG CODE

ICAO/IATA Shipping Description: Anti-freeze Preparations, Proprietary; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO

SECTION 15 REGULATORY INFORMATION

EPCRA 311/312 CATEGORIES:

1.	Immediate (Acute) Health Effects:	YES
2.	Delayed (Chronic) Health Effects:	YES
3.	Fire Hazard:	NO
4.	Sudden Release of Pressure Hazard:	NO
5.	Reactivity Hazard:	NO

REGULATORY LISTS SEARCHED:

01-1=IARC Group 1	03=EPCRA 313
01-2A=IARC Group 2A	04=CA Proposition 65
01-2B=IARC Group 2B	05=MA RTK
02=NTP Carcinogen	06=NJ RTK
	07=PA RTK

The following components of this material are found on the regulatory lists indicated.

Diethylene glycol	07
Ethylene Glycol	03, 05, 06, 07
Sodium tetraborate, pentahydrate	05, 07

CERCLA REPORTABLE QUANTITIES(RQ)/EPCRA 302 THRESHOLD PLANNING QUANTITIES(TPQ):

Component	Component RQ	Component TPQ	Product RQ
Ethylene Glycol	5000 lbs	None	5326 lbs

CHEMICAL INVENTORIES:
All components comply with the following chemical inventory requirements: AICS (Australia), DSL (Canada), EINECS (European Union), IECSC (China), KECI (Korea), PICCS (Philippines), TSCA (United States).

One or more components does not comply with the following chemical inventory requirements: ENCS (Japan).

NEW JERSEY RTK CLASSIFICATION:
Refer to components listed in Section 2.

WHMIS CLASSIFICATION:
Class D, Division 1, Subdivision B: Toxic Material -

Acute Lethality
Class D, Division 2, Subdivision A: Very Toxic Material -
Teratogenicity and Embryotoxicity
Reproductive Toxicity

SECTION 16 OTHER INFORMATION

NFPA RATINGS: Health: 2 Flammability: 1 Reactivity: 0

HMIS RATINGS: Health: 2* Flammability: 1 Reactivity: 0
(0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme, PPE:- Personal Protection Equipment Index recommendation, *- Chronic Effect Indicator). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint and Coating Association (for HMIS ratings).

LABEL RECOMMENDATION:
Label Category : ANTIFREEZE/COOLANT 5 - AFC5

REVISION STATEMENT: This revision updates the following sections of this Material Safety Data Sheet: 9, 15
Revision Date: March 19, 2008

ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:

TLV - Threshold Limit Value	TWA - Time Weighted Average
STEL - Short-term Exposure Limit	PEL - Permissible Exposure Limit
	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Government Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	MSDS - Material Safety Data Sheet
CVX - Chevron	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration

Prepared according to the OSHA Hazard Communication Standard (29 CFR 1910.1200) and the ANSI MSDS Standard (Z400.1) by the Chevron Energy Technology Company, 100 Chevron Way, Richmond, California 94802.

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

Safety Data Sheet

Issuing Date 16-Feb-2011 **Revision Date** 21-May-2014 **Version** 2

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product identifier

Product name SN Motor Oils; 5W-20, 5W-30, 10W-30, 10W-40, 20W-50

Other means of identification

Product Code(s) 5W-20: 51175, 151175. 5W-30: 51176, 151176. 10W-30: 51177, 151177. 10W-40: 51128, 151128. 20W-50: 51120, 151120

Synonyms No information available

Recommended use of the chemical and restrictions on use

Recommended Use Engine oil, Lubricant.

Uses advised against No information available

Details of the supplier of the safety data sheet

Manufacturer Address

Hicks Oils
845 N. Hickory Street
Du Quoin,IL 62832
TEL: 618-542-5431

Emergency telephone number

Company Phone Number 618-542-5431

Company Emergency Phone Number (618) 542-5431

Emergency telephone number Chemtrec 1-800-424-9300

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Label elements

EMERGENCY OVERVIEW

Appearance Amber colored liquid **Physical state** viscous liquid **Odor** Mild petroleum odor

Hazards not otherwise classified (HNOC)

Other information

Unknown Aquatic Toxicty 0% of the mixture consists of ingredient(s) of unknown toxicity

3. COMPOSITION/INFORMATION ON INGREDIENTS

Common Name Hydrocarbon Lubricating Fluid.

Chemical Family Petroleum hydrocarbon mixture.

Chemical name	CAS-No	Weight %	Trade secret
Lubricating oils, petroleum, hydrotreated spent	64742-58-1	55-85	*
Petroleum distillates, hydrotreated heavy paraffinic	64742-54-7	0-25	*
Zinc dialkyl dithiophosphate	68649-42-3	0.50-0.91	*

*The exact percentage (concentration) of composition has been withheld as a trade secret.

4. FIRST AID MEASURES

First aid measures

General advice No hazards which require special first aid measures.

Eye contact Flush eyes for 30 minutes with water. Get medical attention if irritation persists.

Skin contact Wash off immediately with soap and plenty of water.

Inhalation Move exposed persons to fresh air. Consult medical personnel if breathing issues occur.

Ingestion Do NOT induce vomiting. Consult a physician.

Most important symptoms and effects, both acute and delayed

Symptoms No information available.

Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
Carbon dioxide (CO_2). Dry chemical. Foam. Water can be used to keep surrounding materials cool.

Small Fires Always use personal safety equipment. Follow appropriate personal safety procedures, and extinguishing media.

Large Fires Contact emergency personnel.

Unsuitable extinguishing media Caution: Use of water spray when fighting fire may be inefficient.

Specific hazards arising from the chemical
Combustible material.

Hazardous combustion products Carbon monoxide. Carbon dioxide (CO_2).

Explosion data
Sensitivity to Mechanical Impact None.
Sensitivity to Static Discharge None.

Protective equipment and precautions for firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal protection Avoid contact with the skin and the eyes. Eye protection or face shield should be used if material is used under conditions that increase the chances of splattering. Wash skin with soap and water if contact occurs. Launder soiled clothing. If spilled, take caution, as material can cause surfaces to become very slippery.

Other information Small spill: Remove sources of heat or ignition, provide adequate ventilation, contain leak using absorbent, inert, non-combustible material. Large Spill: Contain spill, transfer to secure containers. In the event of an uncontrolled material release, the user should determine if release is reportable under applicable laws and regulations.

For emergency responders Clean up area with absorbent material and place in closed containers for disposal.

Environmental precautions

Environmental precautions See Section 12 for additional Ecological Information.

Methods and material for containment and cleaning up

Methods for containment Cover with earth, sand, or other non-combustible material followed with plastic sheets to minimize spreading or contact with rain.

Methods for cleaning up Excess liquid material can be collected using a scoop or shovel and stored for recycling or disposal. Prevent material from entering drains or waterways.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Avoid contact with skin, eyes and clothing. Eye protection or face shield should be used if material is used under conditions that increase the chances of splattering. If contact is made, wash skin with soap and water. Launder soiled clothing. Maximum handling temperature is 70 degrees C (158 F). It is recommended to pump or transfer material at ambient temperature.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep away from heat and sources of ignition. Keep containers closed when not in use. Follow first aid measures if contact occurs, and spill procedures if spill occurs. For packaged material: Store in a cool dry area. For bulk material: store in cool dry area. Always follow local, state, and federal guidlines for storage of material for amount stored.

Incompatible Products Strong oxidizing agents.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure guidelines This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Appropriate engineering controls

Engineering Controls Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face Protection If splashes are likely to occur, wear:. Goggles. Eye/face Protection.

Skin and body protection Long sleeved clothing. Protective gloves can be worn, if material comes in contact with skin wash with soap and water.

Respiratory protection If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

General Hygiene Considerations Remove and wash contaminated clothing before re-use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	viscous liquid		
Appearance	Amber colored liquid	**Odor**	Mild petroleum odor
Color	amber	**Odor threshold**	No information available

Property	Values	Remarks • Method
pH	No information available	
Melting point/freezing point	No information available	
Boiling Point/Range	No information available	
Flash point	> 200 °C / > 392 °F	Cleveland open cup (COC)
Evaporation rate	No information available	
Flammability (solid, gas)	No information available	
Flammability Limit in Air		
Upper flammability limit:	No information available	
Lower flammability limit:	No information available	
Vapor pressure	No information available	
Vapor density	No information available	
Specific gravity	0.86-0.87	
Water solubility	No information available	
Solubility in other solvents	No information available	
Partition coefficient	No information available	
Autoignition temperature		
Decomposition temperature	No information available	
Kinematic viscosity	50-145 @40C mm2/s	
Dynamic viscosity	No information available	
Explosive properties	No information available	
Oxidizing properties	No information available	

Other information

Softening point	No information available
VOC Content	No information available
Density	No information available
Bulk density	No information available

10. STABILITY AND REACTIVITY

Reactivity
No data available

Chemical stability
Stable under normal conditions.

Possibility of Hazardous Reactions
None under normal processing.

Hazardous polymerization Hazardous polymerization does not occur.

Conditions to avoid
Excessive heat. High energy sources of ignition.

Incompatible materials
Strong oxidizing agents.

Hazardous decomposition products
None known based on information supplied.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information No data available

Inhalation Inhalation of vapors in high concentration may cause irritation of respiratory system.

Eye contact Avoid contact with eyes. May cause irritation.

Skin contact May cause eye/skin irritation. Repeated exposure may cause skin dryness or cracking.

Ingestion Do NOT taste or swallow.

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Lubricating oils, petroleum, hydrotreated spent 64742-58-1	> 2000 mg/kg (Rat)	> 4480 mg/kg (Rabbit)	-

Information on toxicological effects

Symptoms No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Irritating to eyes.
Sensitization No information available.
Germ cell mutagenicity No information available.
Carcinogenicity Mineral oils are known to cause cancer because of carcinogenic components (e.g. benzene). The mineral oil in this product is highly refined and should not be considered a carcinogen. Used lubricating oil may contain hazardous components which have the potential to cause skin cancer. Continuous long-term contact with used lubricating oils has caused skin cancer in animal tests. .

Chemical name	ACGIH	IARC	NTP	OSHA
Petroleum distillates, hydrotreated heavy paraffinic 64742-54-7	-	Group 1	-	X

Reproductive toxicity No information available.
STOT - single exposure No information available.
STOT - repeated exposure No information available.
Aspiration hazard No information available.

Numerical measures of toxicity - Product Information

Unknown Aquatic Toxicty 0% of the mixture consists of ingredient(s) of unknown toxicity
The following values are calculated based on chapter 3.1 of the GHS document .
ATEmix (oral) 5051 mg/kg
ATEmix (dermal) 5051 mg/kg

12. ECOLOGICAL INFORMATION

Ecotoxicity

17.48% of the mixture consists of components(s) of unknown hazards to the aquatic environment

Chemical name	Algae/aquatic plants	Fish	Crustacea
Lubricating oils, petroleum, hydrotreated spent 64742-58-1	-	3.2: 96 h Pimephales promelas mg/L LC50 semi-static 79.6: 96 h Brachydanio rerio mg/L LC50 semi-static	-
Petroleum distillates, hydrotreated heavy paraffinic 64742-54-7	-	5000: 96 h Oncorhynchus mykiss mg/L LC50	1000: 48 h Daphnia magna mg/L EC50
Zinc dialkyl dithiophosphate 68649-42-3	-	1.0 - 5.0: 96 h Pimephales promelas mg/L LC50 static 10.0 - 35.0: 96 h Pimephales promelas mg/L LC50 semi-static	1 - 1.5: 48 h Daphnia magna mg/L EC50

Persistence and degradability
No information available.

Bioaccumulation
No information available.

Other adverse effects No information available

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste Disposal Method Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated packaging Do not reuse container.

14. TRANSPORT INFORMATION

DOT Not regulated

IATA PETROLEUM LUBRICATING OIL; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO TI OR IATA DGR

15. REGULATORY INFORMATION

International Inventories

TSCA	Does not comply
DSL/NDSL	Does not comply
EINECS/ELINCS	Does not comply
ENCS	Does not comply
IECSC	Does not comply
KECL	Does not comply
PICCS	Does not comply
AICS	Does not comply

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

U.S. Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

SARA 311/312 Hazard Categories

Acute health hazard	No
Chronic Health Hazard	No
Fire hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

Clean Water Act

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

U.S. State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations

Chemical name	New Jersey	Massachusetts	Pennsylvania
Zinc dialkyl dithiophosphate 68649-42-3	X	-	X

U.S. EPA Label Information

EPA Pesticide registration number Not Applicable

16. OTHER INFORMATION

NFPA	**Health hazards** 1	**Flammability** 1	**Instability** 0	**Physical and Chemical Hazards** -
HMIS	**Health hazards** 1	**Flammability** 1	**Physical hazards** 0	**Personal protection** X

Issuing Date 16-Feb-2011
Revision Date 21-May-2014
Revision Note
(M)SDS sections updated 2 3 5 6 7 9 10 11 14 16

Disclaimer

The information provided on this SDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of MSDS

Safety Data Sheet

According to OSHA HCS 2012 (29 CFR 1910.1200)

Section 1: Identification

Product Identifier: **Premium Rotary Air Compressor Oil**
SDS Number: **814676**
Synonyms/Other Means of Identification: Premium Rotary Air Compressor Oil 46
Intended Use: Compressor Oil
Uses Advised Against: All others

Manufacturer:
Phillips 66 Lubricants
P.O. Box 4428
Houston, TX 77210

SDS Information:
Phone: 800-762-0942
Email: SDS@P66.com
URL: www.Phillips66.com

Emergency Health and Safety Number:
Chemtrec: 800-424-9300 (24 Hours)

Customer Service:
U.S.: 1-800-822-6457 or International: +1-83-2486-3363
Technical Information: 1-877-445-9198

Section 2: Hazards Identification

Classified Hazards
This material is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200.

Other Hazards
None Known

Label Elements

No classified hazards.

Section 3: Composition / Information on Ingredients

Chemical Name	CASRN	Concentration[1]
Lubricant Base Oil (Petroleum)	VARIOUS	>85
1,2-benzenedicarboxylic acid, di-C9-C11-branched alkyl ester	68515-49-1	5 - 15
Additives	Proprietary	<15

[1] All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

Section 4: First Aid Measures

Eye Contact: If irritation or redness develops from exposure, flush eyes with clean water. If symptoms persist, seek medical attention.

Skin Contact: Remove contaminated shoes and clothing and cleanse affected area(s) thoroughly by washing with mild soap and water or a waterless hand cleaner. If irritation or redness develops and persists, seek medical attention.

Inhalation (Breathing): First aid is not normally required. If breathing difficulties develop, move victim away from source of exposure and into fresh air in a position comfortable for breathing. Seek immediate medical attention.

Ingestion (Swallowing): First aid is not normally required; however, if swallowed and symptoms develop, seek medical attention.

Most important symptoms and effects

Acute: None known or anticipated
Delayed: Dry skin and possible irritation with repeated or prolonged exposure.

Notes to Physician: Acute aspirations of large amounts of oil-laden material may produce a serious aspiration pneumonia. Patients who aspirate these oils should be followed for the development of long-term sequelae. Inhalation exposure to oil mists below current workplace exposure limits is unlikely to cause pulmonary abnormalities.

Section 5: Fire-Fighting Measures

NFPA 704 Hazard Class

Health: 0 **Flammability:** 1 **Instability:** 0

0 (Minimal)
1 (Slight)
2 (Moderate)
3 (Serious)
4 (Severe)

Extinguishing Media: Dry chemical, carbon dioxide, foam, or water spray is recommended. Water or foam may cause frothing of materials heated above 212°F / 100°C. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces. Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam.

Specific hazards arising from the chemical

Unusual Fire & Explosion Hazards: This material may burn, but will not ignite readily. If container is not properly cooled, it can rupture in the heat of a fire.

Hazardous Combustion Products: Combustion may yield smoke, carbon monoxide, and other products of incomplete combustion. Oxides of sulfur, nitrogen or phosphorus may also be formed.

Special protective actions for firefighters: For fires beyond the initial stage, emergency responders in the immediate hazard area should wear protective clothing. When the potential chemical hazard is unknown, in enclosed or confined spaces, a self contained breathing apparatus should be worn. In addition, wear other appropriate protective equipment as conditions warrant (see Section 8).

Isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done safely. Move undamaged containers from immediate hazard area if it can be done safely. Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Cool equipment exposed to fire with water, if it can be done safely. Avoid spreading burning liquid with water used for cooling purposes.

See Section 9 for Flammable Properties including Flash Point and Flammable (Explosive) Limits

Section 6: Accidental Release Measures

Personal precautions, protective equipment and emergency procedures: This material may burn, but will not ignite readily. Keep all sources of ignition away from spill/release. Stay upwind and away from spill/release. Avoid direct contact with material. For large spillages, notify persons down wind of the spill/release, isolate immediate hazard area and keep unauthorized personnel out. Wear appropriate protective equipment, including respiratory protection, as conditions warrant (see Section 8). See Sections 2 and 7 for additional information on hazards and precautionary measures.

Environmental Precautions: Stop spill/release if it can be done safely. Prevent spilled material from entering sewers, storm drains, other unauthorized drainage systems, and natural waterways. Use water sparingly to minimize environmental contamination and reduce disposal requirements. If spill occurs on water notify appropriate authorities and advise shipping of any hazard. Spills into or upon navigable waters, the contiguous zone, or adjoining shorelines that cause a sheen or discoloration on the surface of the water, may require notification of the National Response Center (phone number 800-424-8802).

Methods and material for containment and cleaning up: Notify relevant authorities in accordance with all applicable regulations. Immediate cleanup of any spill is recommended. Dike far ahead of spill for later recovery or disposal. Absorb spill with inert material such as sand or vermiculite, and place in suitable container for disposal. If spilled on water remove with appropriate methods (e.g. skimming, booms or absorbents). In case of soil contamination, remove contaminated soil for remediation or disposal, in accordance with local regulations.

Recommended measures are based on the most likely spillage scenarios for this material; however local conditions and regulations may influence or limit the choice of appropriate actions to be taken. See Section 13 for information on appropriate disposal.

Section 7: Handling and Storage

Precautions for safe handling: Keep away from flames and hot surfaces. Wash thoroughly after handling. Use good personal hygiene practices and wear appropriate personal protective equipment (see section 8). Spills will produce very slippery surfaces. Do Not Use this product in any compressor that produces "breathing air." Do not enter confined spaces such as tanks or pits without following proper entry procedures such as ASTM D-4276 and 29CFR 1910.146. Do not wear contaminated clothing or shoes.

Conditions for safe storage: Keep container(s) tightly closed and properly labeled. Use and store this material in cool, dry, well-ventilated area away from heat and all sources of ignition. Store only in approved containers. Keep away from any incompatible material (see Section 10). Protect container(s) against physical damage.

"Empty" containers retain residue and may be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury or death. "Empty" drums should be completely drained, properly bunged, and promptly shipped to the supplier or a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations. Before working on or in tanks which contain or have contained this material, refer to OSHA regulations, ANSI Z49.1, and other references pertaining to cleaning, repairing, welding, or other contemplated operations.

Section 8: Exposure Controls / Personal Protection

Chemical Name	ACGIH	OSHA	Other
Lubricant Base Oil (Petroleum)	TWA: 5mg/m^3 STEL: 10 mg/m^3 as Oil Mist, if Generated	TWA: 5 mg/m^3 as Oil Mist, if generated	---

Note: State, local or other agencies or advisory groups may have established more stringent limits. Consult an industrial hygienist or similar professional, or your local agencies, for further information.

Engineering controls: If current ventilation practices are not adequate to maintain airborne concentrations below the established exposure limits, additional engineering controls may be required.

Eye/Face Protection: The use of eye/face protection is not normally required; however, good industrial hygiene practice suggests the use of eye protection that meets or exceeds ANSI Z.87.1 whenever working with chemicals.

Skin/Hand Protection: The use of skin protection is not normally required; however, good industrial hygiene practice suggests the use of gloves or other appropriate skin protection whenever working with chemicals. Suggested protective materials: Nitrile

Respiratory Protection: Where there is potential for airborne exposure above the exposure limit a NIOSH certified air purifying respirator equipped with R or P95 filters may be used.

A respiratory protection program that meets or is equivalent to OSHA 29 CFR 1910.134 and ANSI Z88.2 should be followed whenever workplace conditions warrant a respirator's use. Air purifying respirators provide limited protection and cannot be used in atmospheres that exceed the maximum use concentration (as directed by regulation or the manufacturer's instructions), in oxygen deficient (less than 19.5 percent oxygen) situations, or under conditions that are immediately dangerous to life and health (IDLH).

Suggestions provided in this section for exposure control and specific types of protective equipment are based on readily available information. Users should consult with the specific manufacturer to confirm the performance of their protective equipment. Specific situations may require consultation with industrial hygiene, safety, or engineering professionals.

Section 9: Physical and Chemical Properties

Data represent typical values and are not intended to be specifications. N/A = Not Applicable; N/D = Not Determined

Appearance: Clear and bright
Physical Form: Liquid
Odor: Petroleum
Odor Threshold: No data
Partition Coefficient (n-octanol/water) (Kow): No data
Melting/Freezing Point: < -22 °F / < -30 °C
Initial Boiling Point/Range: No data
Solubility in Water: Negligible
Evaporation Rate (nBuAc=1): 1
Bulk Density: 7.2 - 7.3 lbs/gal

Flash Point: > 320 °F / > 160 °C
Test Method: Pensky-Martens Closed Cup (PMCC), ASTM D93, EPA 1010
Vapor Pressure: <1 mm Hg
Vapor Density (air=1): >1
pH: Not applicable
Auto-ignition Temperature: No data
Upper Explosive Limits (vol % in air): No data
Lower Explosive Limits (vol % in air): No data
Specific Gravity (water=1): 0.86 - 0.88 @ 60ºF (15.6ºC)
Viscosity: 6.7 cSt @ 100°C; 46 cSt @ 40°C

Section 10: Stability and Reactivity

Reactivity: Stable under normal ambient and anticipated conditions of use.

Chemical stability: Stable under normal ambient and anticipated conditions of use.

Possibility of hazardous reactions: Hazardous reactions not anticipated.

Conditions to avoid: Extended exposure to high temperatures can cause decomposition. Avoid all possible sources of ignition.

Incompatible materials: Avoid contact with strong oxidizing agents and strong reducing agents.

Hazardous decomposition products: Not anticipated under normal conditions of use.

Section 11: Toxicological Information

Information on Toxicological Effects of Substance/Mixture

Acute Toxicity	Hazard	Additional Information	LC50/LD50 Data
Inhalation	Unlikely to be harmful		>5 mg/L (mist, estimated)
Dermal	Unlikely to be harmful		> 2 g/kg (estimated)
Oral	Unlikely to be harmful		> 5 g/kg (estimated)

Aspiration Hazard: Not expected to be an aspiration hazard.

Skin Corrosion/Irritation: Not expected to be irritating. Repeated exposure may cause skin dryness or cracking.

Serious Eye Damage/Irritation: Not expected to be irritating.

Symptoms of Overexposure: Inhalation of oil mists or vapors generated at elevated temperatures may cause respiratory irritation. Accidental ingestion can result in minor irritation of the digestive tract, nausea and diarrhea.

Skin Sensitization: No information available on the mixture, however none of the components have been classified for skin sensitization (or are below the concentration threshold for classification).

Respiratory Sensitization: No information available.

Specific Target Organ Toxicity (Single Exposure): No information available on the mixture, however none of the components have been classified for target organ toxicity (or are below the concentration threshold for classification).

Specific Target Organ Toxicity (Repeated Exposure): No information available on the mixture, however none of the components have been classified for target organ toxicity (or are below the concentration threshold for classification).

Carcinogenicity: No information available on the mixture, however none of the components have been classified for carcinogenicity (or are below the concentration threshold for classification).

Germ Cell Mutagenicity: No information available on the mixture, however none of the components have been classified for germ cell mutagenicity (or are below the concentration threshold for classification).

Reproductive Toxicity: No information available on the mixture, however none of the components have been classified for reproductive toxicity (or are below the concentration threshold for classification).

Other Comments: None Known

Information on Toxicological Effects of Components

Lubricant Base Oil (Petroleum)

Carcinogenicity: The petroleum base oils contained in this product have been highly refined by a variety of processes including severe hydrocracking/hydroprocessing to reduce aromatics and improve performance characteristics. All of the oils meet the IP-346 criteria of less than 3 percent PAH's and are not considered carcinogens by NTP, IARC, or OSHA.

1,2-benzenedicarboxylic acid, di-C9-C11-branched alkyl ester

Reproductive Toxicity: Rats exposed during gestation demonstrated developmental effects in the offspring. Effects included increased rudimentary cervical ribs and increase accessory 14th ribs. Minimal developmental effects are thought to be due to maternal toxicity observed.

Section 12: Ecological Information

Toxicity: All acute aquatic toxicity studies on samples of lubricant base oils show acute toxicity values greater than 100 mg/L for invertebrates, algae and fish. These tests were carried out on water accommodated fractions and the results are consistent with the predicted aquatic toxicity of these substances based on their hydrocarbon compositions.

Persistence and Degradability: The hydrocarbons in this material are not readily biodegradable, but since they can be degraded by microorganisms, they are regarded as inherently biodegradable.

Bioaccumulative Potential: Log Kow values measured for the hydrocarbon components of this material are greater than 5.3, and therefore regarded as having the potential to bioaccumulate. In practice, metabolic processes may reduce bioconcentration.

Mobility in Soil: Volatilization to air is not expected to be a significant fate process due to the low vapor pressure of this material. In water, base oils will float and spread over the surface at a rate dependent upon viscosity. There will be significant removal of hydrocarbons from the water by sediment adsorption. In soil and sediment, hydrocarbon components will show low mobility with adsorption to sediments being the predominant physical process. The main fate process is expected to be slow biodegradation of the hydrocarbon constituents in soil and sediment.

Other Adverse Effects: None anticipated.

Section 13: Disposal Considerations

The generator of a waste is always responsible for making proper hazardous waste determinations and needs to consider state and local requirements in addition to federal regulations.

This material, if discarded as produced, would not be a federally regulated RCRA "listed" hazardous waste and is not believed to exhibit characteristics of hazardous waste. See Sections 7 and 8 for information on handling, storage and personal protection and Section 9 for physical/chemical properties. It is possible that the material as produced contains constituents which are not required to be listed in the MSDS but could affect the hazardous waste determination. Additionally, use which results in chemical or physical change of this material could subject it to regulation as a hazardous waste.

This material under most intended uses would become "Used Oil" due to contamination by physical or chemical impurities. Whenever possible, Recycle used oil in accordance with applicable federal and state or local regulations. Container contents should be completely used and containers should be emptied prior to discard.

Section 14: Transport Information

U.S. Department of Transportation (DOT)

Shipping Description: *Not regulated*

Note: *If shipped by land in a packaging having a capacity of 3,500 gallons or more, the provisions of 49 CFR, Part 130 apply. (Contains oil)*

International Maritime Dangerous Goods (IMDG)

Shipping Description: *Not regulated*
Note: *U.S. DOT compliance requirements may apply. See 49 CFR 171.22, 23 & 25.*

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

International Civil Aviation Org. / International Air Transport Assoc. (ICAO/IATA)

UN/ID #: *Not regulated*
Note: *U.S. DOT compliance requirements may apply. See 49 CFR 171.22, 23 & 24.*

	LTD. QTY	Passenger Aircraft	Cargo Aircraft Only
Packaging Instruction #:	---	---	---
Max. Net Qty. Per Package:	---	---	---

Section 15: Regulatory Information

CERCLA/SARA - Section 302 Extremely Hazardous Substances and TPQs (in pounds):

This material does not contain any chemicals subject to the reporting requirements of SARA 302 and 40 CFR 372.

CERCLA/SARA - Section 311/312 (Title III Hazard Categories)

Acute Health: No
Chronic Health: No
Fire Hazard: No
Pressure Hazard: No
Reactive Hazard: No

CERCLA/SARA - Section 313 and 40 CFR 372:

This material does not contain any chemicals subject to the reporting requirements of SARA 313 and 40 CFR 372.

EPA (CERCLA) Reportable Quantity (in pounds):

This material does not contain any chemicals with CERCLA Reportable Quantities.

California Proposition 65:

Warning: This material may contain detectable quantities of the following chemicals, known to the State of California to cause cancer, birth defects or other reproductive harm, and which may be subject to the warning requirements of California Proposition 65 (CA Health & Safety Code Section 25249.5):

Chemical Name	Type of Toxicity
1,2-benzenedicarboxylic acid, di-C9-C11-branched alkyl ester	Developmental Toxicant

International Hazard Classification

Canada:

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all the information required by the Regulations.

WHMIS Hazard Class:

None

National Chemical Inventories

All components are either listed on the US TSCA Inventory, or are not regulated under TSCA
All components are either on the DSL, or are exempt from DSL listing requirements.

U.S. Export Control Classification Number: EAR99

Section 16: Other Information

Date of Issue:	Previous Issue Date:	SDS Number:	Status:
11-Jan-2013	04-Jan-2010	814676	FINAL

Revised Sections or Basis for Revision:
Format change; Product Name / Synonyms (Section 1); Manufacturer (Section 1); Physical Properties (Section 9); Toxicological (Section 11); Regulatory information (Section 15)

Guide to Abbreviations:
ACGIH = American Conference of Governmental Industrial Hygienists; CASRN = Chemical Abstracts Service Registry Number; CEILING = Ceiling Limit (15 minutes); CERCLA = The Comprehensive Environmental Response, Compensation, and Liability Act; EPA = Environmental Protection Agency; GHS = Globally Harmonized System; IARC = International Agency for Research on Cancer; INSHT = National Institute for Health and Safety at Work; IOPC = International Oil Pollution Compensation; LEL = Lower Explosive Limit; NE = Not Established; NFPA = National Fire Protection Association; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; PEL = Permissible Exposure Limit (OSHA); SARA = Superfund Amendments and Reauthorization Act; STEL = Short Term Exposure Limit (15 minutes); TLV = Threshold Limit Value (ACGIH); TWA = Time Weighted Average (8 hours); UEL = Upper Explosive Limit; WHMIS = Worker Hazardous Materials Information System (Canada)

Disclaimer of Expressed and implied Warranties:
The information presented in this Safety Data Sheet is based on data believed to be accurate as of the date this Safety Data Sheet was prepared. HOWEVER, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTY IS EXPRESSED OR IS TO BE IMPLIED REGARDING THE ACCURACY OR COMPLETENESS OF THE INFORMATION PROVIDED ABOVE, THE RESULTS TO BE OBTAINED FROM THE USE OF THIS INFORMATION OR THE PRODUCT, THE SAFETY OF THIS PRODUCT, OR THE HAZARDS RELATED TO ITS USE. No responsibility is assumed for any damage or injury resulting from abnormal use or from any failure to adhere to recommended practices. The information provided above, and the product, are furnished on the condition that the person receiving them shall make their own determination as to the suitability of the product for their particular purpose and on the condition that they assume the risk of their use. In addition, no authorization is given nor implied to practice any patented invention without a license.

Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Delo 400 Multigrade SAE 15W-40

Product Use: Diesel Engine Oil
Product Number(s): 219371, 235101
Company Identification
Chevron Products Company
a division of Chevron U.S.A. Inc.
6001 Bollinger Canyon Rd.
San Ramon, CA 94583
United States of America
www.chevronlubricants.com

Transportation Emergency Response
CHEMTREC: (800) 424-9300 or (703) 527-3887
Health Emergency
Chevron Emergency Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623
Product Information
email : lubemsds@chevron.com
Product Information: 1 (800) 582-3835, LUBETEK@chevron.com

SECTION 2 HAZARDS IDENTIFICATION

CLASSIFICATION: Not classified as hazardous according to 29 CFR 1910.1200 (2012).

SECTION 3 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Highly refined mineral oil (C15 - C50)	Mixture	70 - 99 %weight
Zinc dialkyldithiophosphate	68649-42-3	1 - 5 %weight
Branched alkylphenol	74499-35-7	0.1 - 1 %weight

SECTION 4 FIRST AID MEASURES

Description of first aid measures
Eye: No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and

flush eyes with water.
Skin: No specific first aid measures are required. As a precaution, remove clothing and shoes if contaminated. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.
Ingestion: No specific first aid measures are required. Do not induce vomiting. As a precaution, get medical advice.
Inhalation: No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.

Most important symptoms and effects, both acute and delayed
IMMEDIATE SYMPTOMS AND HEALTH EFFECTS
Eye: Not expected to cause prolonged or significant eye irritation.
Skin: Contact with the skin is not expected to cause prolonged or significant irritation. Contact with the skin is not expected to cause an allergic skin response. Not expected to be harmful to internal organs if absorbed through the skin.
Ingestion: Not expected to be harmful if swallowed.
Inhalation: Not expected to be harmful if inhaled. Contains a petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit. Symptoms of respiratory irritation may include coughing and difficulty breathing.

DELAYED OR OTHER SYMPTOMS AND HEALTH EFFECTS: Not classified.

Indication of any immediate medical attention and special treatment needed
Not applicable.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

PROTECTION OF FIRE FIGHTERS:
Fire Fighting Instructions: This material will burn although it is not easily ignited. See Section 7 for proper handling and storage. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.
Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in vicinity of spilled material.
Spill Management: Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.
Reporting: Report spills to local authorities as appropriate or required.

SECTION 7 HANDLING AND STORAGE

Precautionary Measures: Do not get in eyes, on skin, or on clothing. Keep out of the reach of children. Wash thoroughly after handling.
General Handling Information: Avoid contaminating soil or releasing this material into sewage and

drainage systems and bodies of water.
Static Hazard: Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures. For more information, refer to OSHA Standard 29 CFR 1910.106, 'Flammable and Combustible Liquids', National Fire Protection Association (NFPA 77, 'Recommended Practice on Static Electricity', and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents'.
Container Warnings: Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

GENERAL CONSIDERATIONS:
Consider the potential hazards of this material (see Section 3), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

ENGINEERING CONTROLS:
Use in a well-ventilated area.

PERSONAL PROTECTIVE EQUIPMENT
Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.
Skin Protection: No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested materials for protective gloves include: 4H (PE/EVAL), Nitrile Rubber, Silver Shield, Viton.
Respiratory Protection: No respiratory protection is normally required.
If user operations generate an oil mist, determine if airborne concentrations are below the occupational exposure limit for mineral oil mist. If not, wear an approved respirator that provides adequate protection from the measured concentrations of this material. For air-purifying respirators use a particulate cartridge. Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

Occupational Exposure Limits:

Component	Agency	TWA	STEL	Ceiling	Notation
Highly refined mineral oil (C15 - C50)	ACGIH	5 mg/m3	10 mg/m3	--	--
Highly refined mineral oil (C15 - C50)	OSHA Z-1	5 mg/m3	--	--	--

Consult local authorities for appropriate values.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Amber
Physical State: Liquid
Odor: Petroleum odor
Odor Threshold: No data available
pH: Not Applicable
Vapor Pressure: <0.01 mmHg Maximum @ 37.8 °C (100 °F)
Vapor Density (Air = 1): >1 Minimum
Initial Boiling Point: 315°C (599°F)
Solubility: Soluble in hydrocarbons; insoluble in water
Freezing Point: Not Applicable
Melting Point: Not Applicable
Density: 0.88 kg/l @ 15°C (59°F) (Typical)
Viscosity: 14.95 mm2/s @ 100°C (212°F) Minimum
Decomposition temperature: No Data Available
Octanol/Water Partition Coefficient: No data available

FLAMMABLE PROPERTIES:
Flammability (solid, gas): No Data Available
Flashpoint: (ASTM D92) 204 °C (399 °F) Minimum
Autoignition: No data available
Flammability (Explosive) Limits (% by volume in air): Lower: Not Applicable Upper: Not Applicable

SECTION 10 STABILITY AND REACTIVITY

Reactivity: This material is not expected to react.
Chemical Stability: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
Incompatibility With Other Materials: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
Hazardous Decomposition Products: None known (None expected)
Hazardous Polymerization: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

Information on toxicological effects
Serious Eye Damage/Irritation: The eye irritation hazard is based on evaluation of data for product components.

Skin Corrosion/Irritation: The skin irritation hazard is based on evaluation of data for product components.

Skin Sensitization: The skin sensitization hazard is based on evaluation of data for product components.

Acute Dermal Toxicity: The acute dermal toxicity hazard is based on evaluation of data for product components.

Acute Oral Toxicity: The acute oral toxicity hazard is based on evaluation of data for product components.

Acute Inhalation Toxicity: The acute inhalation toxicity hazard is based on evaluation of data for product components.

Acute Toxicity Estimate: Not Determined

Germ Cell Mutagenicity: The hazard evaluation is based on data for components or a similar material.
Carcinogenicity: The hazard evaluation is based on data for components or a similar material.
Reproductive Toxicity: The hazard evaluation is based on data for components or a similar material.

Specific Target Organ Toxicity - Single Exposure: The hazard evaluation is based on data for components or a similar material.
Specific Target Organ Toxicity - Repeated Exposure: The hazard evaluation is based on data for components or a similar material.

ADDITIONAL TOXICOLOGY INFORMATION:
This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or severe hydrotreating. None of the oils requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NTP) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as; carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B). These oils have not been classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as: confirmed human carcinogen (A1), suspected human carcinogen (A2), or confirmed animal carcinogen with unknown relevance to humans (A3). During use in engines, contamination of oil with low levels of cancer-causing combustion products occurs. Used motor oils have been shown to cause skin cancer in mice following repeated application and continuous exposure. Brief or intermittent skin contact with used motor oil is not expected to have serious effects in humans if the oil is thoroughly removed by washing with soap and water.

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICITY
This material is not expected to be harmful to aquatic organisms. The ecotoxicity hazard is based on an evaluation of data for the components or a similar material. The product has not been tested. The statement has been derived from the properties of the individual components.

MOBILITY
No data available.

PERSISTENCE AND DEGRADABILITY
This material is not expected to be readily biodegradable. The biodegradability of this material is based on an evaluation of data for the components or a similar material.The product has not been tested. The statement has been derived from the properties of the individual components.

POTENTIAL TO BIOACCUMULATE
Bioconcentration Factor: No data available.
Octanol/Water Partition Coefficient: No data available

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods.

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

DOT Shipping Description: PETROLEUM LUBRICATING OIL, NOT REGULATED AS A HAZARDOUS MATERIAL FOR TRANSPORTATION UNDER 49 CFR

IMO/IMDG Shipping Description: PETROLEUM LUBRICATING OIL; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER THE IMDG CODE

ICAO/IATA Shipping Description: PETROLEUM LUBRICATING OIL; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO TI OR IATA DGR

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code:
Not applicable

SECTION 15 REGULATORY INFORMATION

EPCRA 311/312 CATEGORIES:

1.	Immediate (Acute) Health Effects:	NO
2.	Delayed (Chronic) Health Effects:	NO
3.	Fire Hazard:	NO
4.	Sudden Release of Pressure Hazard:	NO
5.	Reactivity Hazard:	NO

REGULATORY LISTS SEARCHED:

01-1=IARC Group 1	03=EPCRA 313
01-2A=IARC Group 2A	04=CA Proposition 65
01-2B=IARC Group 2B	05=MA RTK
02=NTP Carcinogen	06=NJ RTK
	07=PA RTK

The following components of this material are found on the regulatory lists indicated.

Zinc dialkyldithiophosphate	03, 06

CHEMICAL INVENTORIES:
All components comply with the following chemical inventory requirements: AICS (Australia), DSL (Canada), EINECS (European Union), IECSC (China), KECI (Korea), PICCS (Philippines), TSCA (United States).

One or more components does not comply with the following chemical inventory requirements: ENCS (Japan).

NEW JERSEY RTK CLASSIFICATION:
Under the New Jersey Right-to-Know Act L. 1983 Chapter 315 N.J.S.A. 34:5A-1 et. seq., the product is to be identified as follows: PETROLEUM OIL (Motor oil)

SECTION 16 OTHER INFORMATION

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

HMIS RATINGS: Health: 1 Flammability: 1 Reactivity: 0
(0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme, PPE:- Personal Protection Equipment Index recommendation, *- Chronic Effect Indicator). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint and Coating Association (for HMIS ratings).

LABEL RECOMMENDATION:
Label Category : ENGINE OIL 1 - ENG1

REVISION STATEMENT: This revision updates the following sections of this Safety Data Sheet: 1-16
Revision Date: MARCH 14, 2014

ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:

TLV - Threshold Limit Value	TWA - Time Weighted Average
STEL - Short-term Exposure Limit	PEL - Permissible Exposure Limit
GHS - Globally Harmonized System	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Governmental Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	SDS - Safety Data Sheet
HMIS - Hazardous Materials Information System	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration
NCEL - New Chemical Exposure Limit	EPA - Environmental Protection Agency
SCBA - Self-Contained Breathing Apparatus	

Prepared according to the 29 CFR 1910.1200 (2012) by Chevron Energy Technology Company, 6001 Bollinger Canyon Road San Ramon, CA 94583.

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

SAFETY DATA SHEET

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT IDENTIFIER	XTRASORB PLUS
CHEMICAL NAME	Montmorillonite Clay, Calcined
CHEMICAL FAMILY	Clay
MATERIAL USE	Oil Absorbent
RESTRICTION ON USE	None Known
MANUFACTURER	EP Minerals, LLC., 9875 Gateway Dr., Reno, NV 89521
TELEPHONE NO.	(775) 824 7600 (Monday – Friday 8:00 am PST – 5:00 pm PST)
EMERGENCY TELEPHONE NO.	(775) 824 7600 (Monday – Friday 8:00 am PST – 5:00 pm PST)
SDS DATE OF PREPARATION	January 28, 2014

SECTION 2: HAZARDS IDENTIFICATION

OSHA GHS HAZARD CLASSIFICATION	Carcinogen Category 1A Specific Target Organ Toxicity, Repeated Exposure Category 1
HAZARDS NOT OTHERWISE CLASSIFIED	None
LABEL ELEMENTS	DANGER May cause cancer by inhalation. Causes damage to lungs through prolonged or repeated exposure. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe dust. Wear eye protection. If exposed or concerned: Get medical advice. Dispose of contents in accordance with local, state and federal regulations. 

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

INGREDIENT IDENTIFICATION	APPROXIMATE CONCENTRATION (%)	C.A.S. NUMBERS
Montmorillonite Clay, Calcined (contains 10-15% Crystalline Silica - Quartz)	100%	70892-59-0 14808-60-7

SECTION 4: FIRST AID MEASURES

EYE	Flush eyes with generous quantities of water or eye rinse solution. Consult physician if irritation persists.
SKIN	Use moisture renewing lotions if dryness occurs.
INGESTION	Drink generous amounts of water to reduce bulk and drying effects.
INHALATION	Remove to fresh air. Blow nose to evacuate dust.
Most important symptoms/effects, acute and delayed	Dust may cause abrasive irritation to eyes. Prolonged skin contact may cause dryness. Dust may cause nose, throat and upper respiratory tract irritation. Prolonged inhalation of respirable dust containing silica may cause a progressive lung disease, silicosis and lung cancer. See Section 11 for additional information.
Indication of immediate medical attention and special treatment, if necessary	Immediate medical attention is not normally required. If dust irritates the eyes, seek medical attention.

SECTION 5: FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA	Not applicable, the material is not combustible.
SPECIFIC HAZARDS ARISING FROM THE CHEMICAL	Not applicable, the material is not combustible.
SPECIAL PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIRE-FIGHTERS	Not applicable, the material is not combustible.

SECTION 6: ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS	If dust is present, use respirator fitted with particulate filter as specified in Section 8. Protect eyes with goggles. Do not breathe dust.
ENVIRONMENTAL PRECAUTIONS	This material is not a significant environmental concern.
METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP	Vacuum clean spillage or wet sweep. Avoid creating airborne dust. Place in a container for use or disposal.

SECTION 7: HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING	Minimize dust generation. Avoid contact with eyes. Do not breathe dust. Repair or dispose of broken bags. Observe all label precautions and warnings. Flammable or hazardous substances may retain such characteristics after absorption. Care should be taken to store and dispose of waste material in accordance with instructions of manufacturer of substance absorbed and applicable laws. Do not use with hydrofluoric acid or concentrated caustic solutions.
CONDITIONS FOR SAFE STORAGE	Store in a dry place to maintain packaging integrity and product quality. Store product separately from feed, food, pesticides and fertilizers so that cross contaminations does not occur. Do not store near hydrofluoric acid or concentrated caustic solutions.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE GUIDELINES:

Component	OSHA PEL	ACGIH TLV	MSHA PEL	NIOSH REL
Montmorillonite Clay, Calcined (as Particulates not otherwise classified)	5 mg/m^3 respirable dust 15 mg/m^3 total dust	None Established	5 mg/m^3 respirable dust 15 mg/m^3 total dust	None Established
Crystalline Silica (Quartz)	$\frac{30\ mg/m^3}{\%\ SiO_2+2}$ total dust $\frac{10\ mg/m^3}{\%\ SiO_2+2}$ Respirable dust	0.025 mg/ m^3 Respirable dust	$\frac{30\ mg/m^3}{\%\ SiO_2+2}$ total dust $\frac{10\ mg/m^3}{\%\ SiO_2+2}$ Respirable dust	0.05 mg/ m^3 Respirable dust

ENGINEERING CONTROLS	Use general or local exhaust ventilation to control dust within recommended exposure limits. Refer to ACGIH publication “Industrial Ventilation” or similar publications for design of ventilation systems.
PERSONAL PROTECTIVE EQUIPMENT:	
EYE / FACE PROTECTION	Goggles to protect from dust
SKIN PROTECTION	No special equipment is needed.
RESPIRATORY PROTECTION	Respirators fitted with filters certified to standard 42CFR84 under series N95 should be worn when dust is present. If the dust concentration is less than ten (10) times the Permissible Exposure Limit (PEL) use a quarter or half-mask respirator with a N95 dust filter or a single use dust mask rated N95. If dust concentration is greater than ten (10) times and less than fifty (50) times the PEL, a full-face piece respirator fitted with replaceable N95 filters is recommended. If dust concentration is greater than fifty (50) and less than two hundred (200) times the PEL use a power air-purifying (positive pressure) respirator with a replaceable N95 filter. If dust concentration is greater than two hundred (200) times the PEL use a type C, supplied air respirator (continuous flow, positive pressure), with full face piece, hood or helmet.
GENERAL HYGIENE	Avoid breathing dust. Avoid contact with eyes. Wash hands after handling and before eating or drinking.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE, COLOR	Tan to gray	**ODOR**	Odorless
PHYSICAL STATE	Solid	**ODOR THRESHOLD**	Not applicable
VAPOR PRESSURE	Not applicable	**VAPOR DENSITY**	Not applicable
BOILING POINT	Not applicable	**MELTING POINT**	Unknown
FLASH POINT	Not applicable	**pH (10% SUSPENSION)**	Unknown
FLAMMABILITY LIMITS	Not applicable	**EVAPORATION RATE**	Not applicable
DECOMPOSITION TEMPERATURE	Unknown	**SPEC. GRAVITY / RELATIVE DENSITY**	2.2
AUTOIGNITION TEMPERATURE	Not applicable	**PARTITION COEFFICIENT – n-OCTANOL/WATER**	Not applicable
FLAMMABILITY (solid/gas)	Not applicable	**SOLUBILITY – WATER**	< 1.0%
		VISCOSITY	Not applicable

SECTION 10: STABILITY AND REACTIVITY

REACTIVITY	Material is not reactive.
CHEMICAL STABILITY	Material is stable.
POSSIBILITY OF HAZARDOUS REACTIONS	Material is not reactive under normal conditions of handling unless mixed with incompatible substances below.
CONDITIONS TO AVOID	Not applicable
INCOMPATIBLE MATERIALS	Unsaturated organic compounds, such as turpentine and vegetable oil, hydrofluoric acid and concentrated caustic solutions may react violently with the product.
HAZARDOUS DECOMPOSITION PRODUCTS	Not applicable

SECTION 11: TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS	
Likely Routes of Exposure	See below
EYE	May cause irritation (tear formation and redness) if dust gets in eyes.
SKIN	Not absorbed by the skin, but may cause dryness if prolonged exposure.
INGESTION	Ingestion of small quantities is not considered harmful, but may cause irritation of the mouth, throat and stomach.
INHALATION	Acute inhalation can cause dryness of the nasal passage and lung congestion, coughing and general throat irritation. Acute inhalation of high concentrations of respirable crystalline silica may cause acute silicosis.
CHRONIC EFFECTS	This product contains naturally occurring crystalline silica. Respirable crystalline silica may cause lung cancer and lung disease (silicosis) if inhaled for prolonged periods. Symptoms of silicosis include wheezing, cough and shortness of breath.
CARCINOGENICITY	This natural product is composed predominantly of clay, but contains some crystalline silica. Respirable crystalline silica (quartz) is classified by IARC and NTP as a known human carcinogen. Crystalline silica is only known to cause cancer when inhaled in a respirable form. It is not known to cause cancer by any other route of exposure.
NTP	Respirable crystalline silica (quartz) is classified as a known human carcinogen.
IARC	Respirable crystalline silica (quartz) is classified as a known human carcinogen.
NUMERICAL MEASURES OF TOXICITY	No data available

CORROSIVENESS, SENSITIZATION, IRRITANCY	Not applicable
REPRODUCTIVE TOXICITY	Not available
TERATOGENICITY, MUTAGENICITY	Not available

SECTION 12: ECOLOGICAL INFORMATION

ECOTOXICITY:	No toxicity is expected
PERSISTENCE AND DEGRADABILITY	Non-biodegradable, inert.
BIOACCUMULATIVE POTENTIAL	Little potential for bioaccumulation
MOBILITY IN SOIL	No mobility
OTHER ADVERSE EFFECTS	None known

SECTION 13: DISPOSAL CONSIDERATIONS

WASTE DISPOSAL	If this material as supplied becomes a waste, use solid waste disposal common to landfill type operations or in slurry to sumps. Not considered a hazardous waste under RCRA (4OCFR Part 261).
PACKAGING DISPOSAL	Dispose of in accordance with applicable laws and regulations, typically solid waste disposal common to landfill type operations.

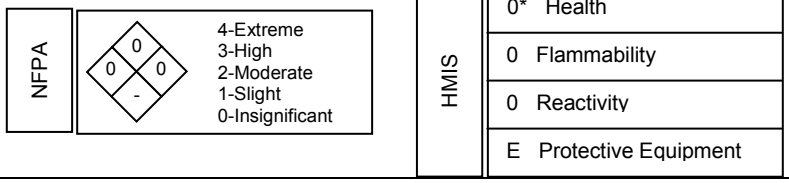
SECTION 14: TRANSPORT INFORMATION

BASIC SHIPPING INFORMATION	DOT shipping classification 55 (no restrictions). Technical name is “Calcined Clay”.
ADDITIONAL INFORMATION	No special requirements or placarding necessary.

SECTION 15: REGULATORY INFORMATION

U.S. FEDERAL:	
TSCA	Montmorillonite and Quartz appear on the EPA TSCA inventory list.
CERCLA	Montmorillonite is not classified as a hazardous substance under regulations of the Comprehensive Environmental Response Compensation and Liability Act (CERCLA), 40 CFR 302.
SARA TITLE III	Not listed.
California Proposition 65:	This product contains crystalline silica, a chemical known to the State of California to cause cancer.
INTERNATIONAL:	
WHMIS Classification	Class D-2-A
WHMIS Ingredient Disclosure List	Silica, crystalline, quartz

SECTION 16: OTHER INFORMATION



ORIGINAL ISSUE DATE	January 14, 2014
REVISION DATE	October 28, 2014
REVISION NO.	2

Disclaimer: As of the date of the preparation of this document, the foregoing information is believed to be accurate and is provided in good faith to comply with applicable federal and state laws. No warranty, representation or guaranty of any kind, express or implied, is hereby provided or intended with respect to the completeness of the information contained herein. We accept no responsibility and disclaim all liability for any harmful effects which may be caused by the purchase, resale, use or exposure to our product. Customer users of silica must comply with all applicable health and safety laws, regulations and orders, including OSHA Hazardous Communication Standard.

Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Havoline Automatic Transmission Fluid MD-3

Product Use: Automatic Transmission Fluid
Product Number(s): 221854
Company Identification
Chevron Canada Limited
1050 West Pender
Vancouver, BC V6E 3T4
Canada
www.chevronlubricants.com

Transportation Emergency Response
CHEMTREC: (800) 424-9300 or (703) 527-3887
Health Emergency
Chevron Emergency Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623
Product Information
email : lubemsds@chevron.com
Product Information: (800) LUBE TEK

SECTION 2 HAZARDS IDENTIFICATION

CLASSIFICATION: Acute aquatic toxicant: Category 3. Chronic aquatic toxicant: Category 3.

Environmental Hazards: Harmful to aquatic life (H402). Harmful to aquatic life with long lasting effects (H412).

PRECAUTIONARY STATEMENTS:
Prevention: Avoid release to the environment (P273).
Disposal: Dispose of contents/container in accordance with applicable local/regional/national/international regulations (P501).

SECTION 3 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Highly refined mineral oil (C15 - C50)	Mixture	70 - 99 %wt/wt

Information on ingredients that are considered Controlled Products and/or that appear on the WHMIS Ingredient Disclosure List (IDL) is provided as required by the Canadian Hazardous Products Act (HPA, Sections 13 and 14). Ingredients considered hazardous under the OSHA Hazard Communication Standard, 29 CFR 1910.1200, are also listed. See Section 15 for additional regulatory information.

SECTION 4 FIRST AID MEASURES

Description of first aid measures
Eye: No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.
Skin: No specific first aid measures are required. As a precaution, remove clothing and shoes if contaminated. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.
Ingestion: No specific first aid measures are required. Do not induce vomiting. As a precaution, get medical advice.
Inhalation: No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.

Most important symptoms and effects, both acute and delayed
IMMEDIATE HEALTH EFFECTS
Eye: Not expected to cause prolonged or significant eye irritation.
Skin: Contact with the skin is not expected to cause prolonged or significant irritation. Contact with the skin is not expected to cause an allergic skin response. Not expected to be harmful to internal organs if absorbed through the skin. High-Pressure Equipment Information: Accidental high-velocity injection under the skin of materials of this type may result in serious injury. Seek medical attention at once should an accident like this occur. The initial wound at the injection site may not appear to be serious at first; but, if left untreated, could result in disfigurement or amputation of the affected part.

Ingestion: Not expected to be harmful if swallowed.
Inhalation: Not expected to be harmful if inhaled. Contains a petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit. Symptoms of respiratory irritation may include coughing and difficulty breathing.

Indication of any immediate medical attention and special treatment needed
Note to Physicians: In an accident involving high-pressure equipment, this product may be injected under the skin. Such an accident may result in a small, sometimes bloodless, puncture wound. However, because of its driving force, material injected into a fingertip can be deposited into the palm of the hand.

Within 24 hours, there is usually a great deal of swelling, discoloration, and intense throbbing pain. Immediate treatment at a surgical emergency center is recommended.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

Unusual Fire Hazards: Leaks/ruptures in high pressure system using materials of this type can create a fire hazard when in the vicinity of ignition sources (eg. open flame, pilot lights, sparks, or electric arcs).

PROTECTION OF FIRE FIGHTERS:
Fire Fighting Instructions: This material will burn although it is not easily ignited. See Section 7 for proper handling and storage. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.
Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in vicinity of spilled material.
Spill Management: Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.
Reporting: Report spills to local authorities as appropriate or required.

SECTION 7 HANDLING AND STORAGE

General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.
Precautionary Measures: DO NOT USE IN HIGH PRESSURE SYSTEMS in the vicinity of flames, sparks and hot surfaces. Use only in well ventilated areas. Keep container closed.
Keep out of the reach of children.
Static Hazard: Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures.
Container Warnings: Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

GENERAL CONSIDERATIONS:
Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

ENGINEERING CONTROLS:
Use in a well-ventilated area.

PERSONAL PROTECTIVE EQUIPMENT
Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.
Skin Protection: No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested materials for protective gloves include: 4H (PE/EVAL), Nitrile Rubber, Silver Shield, Viton.
Respiratory Protection: No respiratory protection is normally required.
If user operations generate an oil mist, determine if airborne concentrations are below the occupational exposure limit for mineral oil mist. If not, wear an approved respirator that provides adequate protection from the measured concentrations of this material. For air-purifying respirators use a particulate cartridge. Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

Occupational Exposure Limits:

Component	Country/ Agency	TWA	STEL	Ceiling	Notation
Highly refined mineral oil (C15 - C50)	ACGIH	5 mg/m3	10 mg/m3	--	--

NOTE ON OCCUPATIONAL EXPOSURE LIMITS: Consult local authorities for acceptable provincial values in Canada. Consult the Canadian Standards Association Standard 94.4-2002 Selection, Use and Care of Respirators.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Red
Physical State: Liquid
Odor: Petroleum odor
Odor Threshold: No data available
pH: Not Applicable
Vapor Pressure: <0.01 mmHg @ 37.8 °C (100 °F)
Vapor Density (Air = 1): >1
Initial Boiling Point: 315°C (599°F)
Solubility: Soluble in hydrocarbons; insoluble in water

Freezing Point: Not Applicable
Density: 0.85 kg/l @ 15°C (59°F) (Typical)
Viscosity: 7 mm2/s @ 100°C (212°F) (Typical)
Decomposition temperature: No data available
Octanol/Water Partition Coefficient: No data available

FLAMMABLE PROPERTIES:
Flammability (solid, gas): No Data Available

Flashpoint: (Cleveland Open Cup) 178 °C (352 °F) Minimum
Autoignition: No data available
Flammability (Explosive) Limits (% by volume in air): Lower: Not Applicable Upper: Not Applicable

SECTION 10 STABILITY AND REACTIVITY

Reactivity: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
Chemical Stability: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
Incompatibility With Other Materials: Not applicable
Hazardous Decomposition Products: None known (None expected)
Hazardous Polymerization: Hazardous polymerization will not occur.
Sensitivity to Mechanical Impact: No.

SECTION 11 TOXICOLOGICAL INFORMATION

Information on toxicological effects
Serious Eye Damage/Irritation: The eye irritation hazard is based on evaluation of data for product components.

Skin Corrosion/Irritation: The skin irritation hazard is based on evaluation of data for product components.

Skin Sensitization: The skin sensitization hazard is based on evaluation of data for product components.

Acute Dermal Toxicity: The acute dermal toxicity hazard is based on evaluation of data for product components.

Acute Oral Toxicity: The acute oral toxicity hazard is based on evaluation of data for product components.

Acute Inhalation Toxicity: The acute inhalation toxicity hazard is based on evaluation of data for product components.
Acute Toxicity Estimate: Not Determined

Germ Cell Mutagenicity: The hazard evaluation is based on data for components or a similar material.

Carcinogenicity: The hazard evaluation is based on data for components or a similar material.

Reproductive Toxicity: The hazard evaluation is based on data for components or a similar material.

Specific Target Organ Toxicity - Single Exposure: The hazard evaluation is based on data for

components or a similar material.

Specific Target Organ Toxicity - Repeated Exposure: The hazard evaluation is based on data for components or a similar material.

ADDITIONAL TOXICOLOGY INFORMATION:
This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or severe hydrotreating. None of the oils requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NTP) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as; carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B).
These oils have not been classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as: confirmed human carcinogen (A1), suspected human carcinogen (A2), or confirmed animal carcinogen with unknown relevance to humans (A3).

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICITY
This material is expected to be harmful to aquatic organisms and may cause long-term adverse effects in the aquatic environment.
The product has not been tested. The statement has been derived from the properties of the individual components.

MOBILITY
No data available.

PERSISTENCE AND DEGRADABILITY
This material is not expected to be readily biodegradable. The biodegradability of this material is based on an evaluation of data for the components or a similar material.
The product has not been tested. The statement has been derived from the properties of the individual components.

POTENTIAL TO BIOACCUMULATE
Bioconcentration Factor: No data available.
Octanol/Water Partition Coefficient: No data available

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods. (See B.C. Reg. GY/92 Waste Management Act; R.R.O. 1990, Reg. 347 General-Waste Management; C.C.SM.c. W40 The Waste Reduction and Prevention Act; N.S. Reg. 51/95 and N.S. Reg. 179/96 for examples of Provincial legislation.)

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous

Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

TC Shipping Description: NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORTATION UNDER TDG REGULATIONS

IMO/IMDG Shipping Description: PETROLEUM LUBRICATING OIL; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER THE IMDG CODE

ICAO/IATA Shipping Description: PETROLEUM LUBRICATING OIL; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER THE ICAO TI OR IATA DGR

DOT Shipping Description: PETROLEUM LUBRICATING OIL, NOT REGULATED AS A HAZARDOUS MATERIAL FOR TRANSPORTATION UNDER 49 CFR

SECTION 15 REGULATORY INFORMATION

REGULATORY LISTS SEARCHED:

01-1=IARC Group 1	03=EPCRA 313
01-2A=IARC Group 2A	04=CA Proposition 65
01-2B=IARC Group 2B	05=MA RTK
02=NTP Carcinogen	06=NJ RTK
	07=PA RTK

No components of this material were found on the regulatory lists above.

CHEMICAL INVENTORIES:
All components comply with the following chemical inventory requirements: AICS (Australia), DSL (Canada), ENCS (Japan), IECSC (China), KECI (Korea), PICCS (Philippines), TSCA (United States).

One or more components does not comply with the following chemical inventory requirements: EINECS (European Union).

SECTION 16 OTHER INFORMATION

REVISION STATEMENT: This revision updates the following sections of this Material Safety Data Sheet: 1-16
Revision Date: JUNE 18, 2015

ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:

TLV - Threshold Limit Value	TWA - Time Weighted Average
STEL - Short-term Exposure Limit	PEL - Permissible Exposure Limit
GHS - Globally Harmonized System	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Governmental Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	SDS - Safety Data Sheet

HMIS - Hazardous Materials Information System	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration
NCEL - New Chemical Exposure Limit	EPA - Environmental Protection Agency
SCBA - Self-Contained Breathing Apparatus	

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

SAFETY DATA SHEET

SDS ID NO.: 0279MAR019
Revision Date: 05/14/2015

1. IDENTIFICATION

Product Name: Marathon Petroleum No. 2 Low Sulfur Diesel Dyed 500 ppm Sulfur Max

Synonym: Diesel No. 2 Dyed 500 ppm Sulfur Max; No. 2 Diesel, Non-Road Use, Dyed; No. 2 Diesel Dyed 500 ppm Sulfur Max; No. 2 NR 500 Diesel Dyed; No. 2 Diesel Dyed (0.05% Sulfur Max)

Chemical Family: Complex Hydrocarbon Substance

Recommended Use: Fuel.
Use Restrictions: All others.

Supplier Name and Address:

MARATHON PETROLEUM COMPANY LP
539 South Main Street
Findlay, OH 45840

SDS information: 1-419-421-3070

Emergency Telephone: 1-877-627-5463

2. HAZARD IDENTIFICATION

Classification

OSHA Regulatory Status
This chemical is considered hazardous according to the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 3
Acute toxicity - Inhalation (Dusts/Mists)	Category 4
Skin corrosion/irritation	Category 2
Carcinogenicity	Category 2
Specific target organ toxicity (single exposure)	Category 3
Specific target organ toxicity (repeated exposure)	Category 2
Aspiration toxicity	Category 1
Acute aquatic toxicity	Category 2
Chronic aquatic toxicity	Category 2

Hazards Not Otherwise Classified (HNOC)
Static accumulating flammable liquid

Label elements

EMERGENCY OVERVIEW

Danger

FLAMMABLE LIQUID AND VAPOR
May accumulate electrostatic charge and ignite or explode
May be fatal if swallowed and enters airways
Harmful if inhaled
Causes skin irritation
Suspected of causing cancer
May cause drowsiness or dizziness
May cause damage to organs (thymus, liver, bone marrow) through prolonged or repeated exposure
Toxic to aquatic life with long lasting effects

Appearance Red Liquid **Physical State** Liquid **Odor** Slight Hydrocarbon

Precautionary Statements - Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Keep away from heat/sparks/open flames/hot surfaces. — No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use only non-sparking tools
Use explosion-proof electrical/ventilating/lighting/equipment
Take precautionary measures against static discharge
Do not breathe mist/vapors/spray
Use only outdoors or in a well-ventilated area
Wear protective gloves/protective clothing/eye protection/face protection
Wash hands and any possibly exposed skin thoroughly after handling
Avoid release to the environment

Precautionary Statements - Response
IF exposed or concerned: Get medical attention
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
If skin irritation occurs: Get medical attention
Wash contaminated clothing before reuse
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor if you feel unwell
IF SWALLOWED: Immediately call a POISON CENTER or doctor
Do NOT induce vomiting
In case of fire: Use water spray, fog or regular foam for extinction
Collect spillage

Precautionary Statements - Storage
Store in a well-ventilated place. Keep container tightly closed
Keep cool
Store locked up

Precautionary Statements - Disposal
Dispose of contents/container at an approved waste disposal plant

3. COMPOSITION/INFORMATION ON INGREDIENTS

No. 2 Diesel is a complex mixture of parafffins, cycloparaffins, olefins, and aromatic hydrocarbons having hydrocarbon chain lengths predominately in the range of eleven to twenty carbons. May contain a trace amount of benzene (<0.01%). May contain small amounts of red dye and additives (<0.15%) which are not considered hazardous at the concentrations used.

Composition Information:

Name	CAS Number	Weight %
No. 2 Diesel Fuel	68476-34-6	50-100
Kerosine, Petroleum	8008-20-6	0-50
Fuels, Diesel, C9-18-Alkane Branched and Linear	1159170-26-9	0-5
Alkanes, C10-C20 branched and linear	928771-01-1	0-5
Naphthalene	91-20-3	0.01-0.5

4. FIRST AID MEASURES

First Aid Measures

General advice In case of accident or if you feel unwell, seek medical advice immediately (show directions for use or safety data sheet if possible).

Inhalation: Remove to fresh air. If not breathing, institute rescue breathing. If breathing is difficult, ensure airway is clear, give oxygen and continue to monitor. If heart has stopped, immediately begin cardiopulmonary resuscitation (CPR). Keep affected person warm and at rest. GET IMMEDIATE MEDICAL ATTENTION.

Skin Contact: Immediately wash exposed skin with plenty of soap and water while removing contaminated clothing and shoes. May be absorbed through the skin in harmful amounts. Get medical attention if irritation persists. Any injection injury from high pressure equipment should be evaluated immediately by a physician as potentially serious (See NOTES TO PHYSICIAN).

Place contaminated clothing in closed container until cleaned or discarded. If clothing is to be laundered, inform the person performing the operation of contaminant's hazardous properties. Destroy contaminated, non-chemical resistant footwear.

Eye Contact: Flush immediately with large amounts of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Gently remove contacts while flushing. GET IMMEDIATE MEDICAL ATTENTION.

Ingestion: Do not induce vomiting because of danger of aspirating liquid into lungs, causing serious damage and chemical pneumonitis. If spontaneous vomiting occurs, keep head below hips, or if patient is lying down, turn body and head to side to prevent aspiration and monitor for breathing difficulty. Never give anything by mouth to an unconscious person. Keep affected person warm and at rest. GET IMMEDIATE MEDICAL ATTENTION.

Most important signs and symptoms, both short-term and delayed with overexposure

Adverse Effects: Acute: Headache, drowsiness, dizziness, loss of coordination, disorientation and fatigue. Delayed: Dry skin and possible irritation with repeated or prolonged exposure.

Indication of any immediate medical attention and special treatment needed

NOTES TO PHYSICIAN:

SKIN: Leaks or accidents involving high-pressure equipment may inject a stream of material through the skin and initially produce an injury that may not appear serious. Only a small puncture wound may appear on the skin surface but, without proper treatment and depending on the nature, original pressure, volume, and location of the injected material, can compromise blood supply to an affected body part. Prompt surgical debridement of the wound may be necessary to prevent irreversible loss of function and/or the affected body part. High pressure injection injuries may be SERIOUS SURGICAL EMERGENCIES.

INGESTION: This material represents a significant aspiration and chemical pneumonitis hazard. Induction of emesis is not recommended.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
For small fires, Class B fire extinguishing media such as CO2, dry chemical, foam (AFFF/ATC) or water spray can be used. For large fires, water spray, fog or foam (AFFF/ATC) can be used. Firefighting should be attempted only by those who are adequately trained and equipped with proper protective equipment.

Unsuitable extinguishing media
Do not use straight water streams to avoid spreading fire.

Specific hazards arising from the chemical
This product has been determined to be a flammable liquid per the OSHA Hazard Communication Standard and should be handled accordingly. May accumulate electrostatic charge and ignite or explode. Vapors may travel along the ground or be moved by ventilation and ignited by many sources such as pilot lights, sparks, electric motors, static discharge, or other ignition sources at locations distant from material handling. Flashback can occur along vapor trail. For additional fire related information, see NFPA 30 or the North American Emergency Response Guide 128.

Hazardous combustion products
Smoke, carbon monoxide, and other products of incomplete combustion.

Explosion data
Sensitivity to Mechanical Impact No.
Sensitivity to Static Discharge Yes.

Special protective equipment and precautions for firefighters
Firefighters should wear full protective clothing and positive-pressure self-contained breathing apparatus (SCBA) with a full face-piece, as appropriate. Avoid using straight water streams. Water spray and foam (AFFF/ATC) must be applied carefully to avoid frothing and from as far a distance as possible. Avoid excessive water spray application. Keep surrounding area cool with water spray from a distance and prevent further ignition of combustible material. Keep run-off water out of sewers and water sources.

NFPA:	Health 1	Flammability 2	Instability 0	Special Hazards -

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Keep public away. Isolate and evacuate area. Shut off source if safe to do so. Eliminate all ignition sources. All contaminated surfaces will be slippery.

Protective Equipment: Use personal protection measures as recommended in Section 8.

Emergency Procedures: Advise authorities and National Response Center (800-424-8802) if the product has entered a water course or sewer. Notify local health and pollution control agencies, if appropriate.

Environmental precautions: Avoid release to the environment. Avoid subsoil penetration.

Methods and materials for containment: Contain liquid with sand or soil.

Methods and materials for cleaning up: Use suitable absorbent materials such as vermiculite, sand, or clay to clean up residual liquids. Recover and return free product to proper containers. When recovering free liquids ensure all equipment is grounded and bonded. Use only non-sparking tools.

7. HANDLING AND STORAGE

Safe Handling Precautions: NEVER SIPHON THIS PRODUCT BY MOUTH. Use appropriate grounding and bonding practices. Static accumulating flammable liquid. Bonding and grounding may be insufficient to eliminate the hazard from static electricity. Do not expose to heat, open flames, strong oxidizers or other sources of ignition. No smoking. Avoid repeated and prolonged skin contact. Use personal protection measures as recommended in Section 8. Use only non-sparking tools. Do not cut, drill, grind or weld on empty containers since explosive residues may remain. Refer to applicable EPA, OSHA, NFPA and consistent state and local requirements.

Hydrocarbons are basically non-conductors of electricity and can become electrostatically charged during mixing, filtering, pumping at high flow rates or loading and transfer operations. If this charge reaches a sufficiently high level, sparks can form that may ignite the vapors of flammable liquids. Sudden release of hot organic chemical vapors or mists from process equipment operating under elevated temperature and pressure, or sudden ingress of air into vacuum equipment may result in ignition of vapors or mists without the presence of obvious ignition sources. Nozzle spouts must be kept in contact with the containers or tank during the entire filling operation.

Portable containers should never be filled while in or on a motor vehicle or marine craft. Containers should be placed on the ground. Static electric discharge can ignite fuel vapors when filling non-grounded containers or vehicles on trailers. The nozzle spout must be kept in contact with the container before and during the entire filling operation. Use only approved containers.

A buildup of static electricity can occur upon re-entry into a vehicle during fueling especially in cold or dry climate conditions. The charge is generated by the action of dissimilar fabrics (i.e., clothing and upholstery) rubbing across each other as a person enters/exits the vehicle. A flash fire can result from this discharge if sufficient flammable vapors are present. Therefore, do not get back in your vehicle while refueling.

Cellular phones and other electronic devices may have the potential to emit electrical charges (sparks). Sparks in potentially explosive atmospheres (including fueling areas such as gas stations) could cause an explosion if sufficient flammable vapors are present. Therefore, turn off cellular phones and other electronic devices when working in potentially explosive atmospheres or keep devices inside your vehicle during refueling.

High-pressure injection of any material through the skin is a serious medical emergency even though the small entrance wound at the injection site may not initially appear serious. These injection injuries can occur from high-pressure equipment such as paint spray or grease or guns, fuel injectors, or pinhole leaks in hoses or hydraulic lines and should all be considered serious. High pressure injection injuries may be SERIOUS SURGICAL EMERGENCIES (See First Aid Section 4).

Storage Conditions: Store in properly closed containers that are appropriately labeled and in a cool, well-ventilated area.

Incompatible materials Strong oxidizing agents.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Name	ACGIH TLV	OSHA PELS:	OSHA - Vacated PELs	NIOSH IDLH

No. 2 Diesel Fuel 68476-34-6	100 mg/m³ TWA Skin - potential significant contribution to overall exposure by the cutaneous route	-	-	-
Kerosine, Petroleum 8008-20-6	200 mg/m³ TWA Skin - potential significant contribution to overall exposure by the cutaneous route	-	-	-
Fuels, Diesel, C9-18-Alkane Branched and Linear 1159170-26-9	-	-	-	-
Alkanes, C10-C20 branched and linear 928771-01-1	-	-	-	-
Naphthalene 91-20-3	10 ppm TWA Skin - potential significant contribution to overall exposure by the cutaneous route	TWA: 10 ppm TWA: 50 mg/m³	10 ppm TWA 50 mg/m³ TWA 15 ppm STEL 75 mg/m³ STEL	250 ppm

Notes: The manufacturer has voluntarily elected to provide exposure limits contained in OSHA's 1989 air contaminants standard in its SDSs, even though certain of those exposure limits were vacated in 1992.

Engineering measures: Local or general exhaust required in an enclosed area or with inadequate ventilation. Use mechanical ventilation equipment that is explosion-proof.

Personal protective equipment

Eye protection: Use goggles or face-shield if the potential for splashing exists.

Skin and body protection: Wear neoprene, nitrile or PVA gloves to prevent skin contact. Glove suitability is based on workplace conditions and usage. Contact the glove manufacturer for specific advice on glove selection and breakthrough times.

Respiratory protection: Use an approved organic vapor chemical cartridge or supplied air respirators when material produces vapors that exceed permissible exposure limits or excessive vapors are generated. Observe respirator assigned protection factors (APFs) criteria cited in federal OSHA 29 CFR 1910.134. Self-contained breathing apparatus should be used for fire fighting.

Hygiene measures: Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical State	Liquid
Appearance	Red Liquid
Color	Red
Odor	Slight Hydrocarbon
Odor Threshold	No available data.

Property	**Values (Method)**
Melting Point / Freezing Point	No available data.
Initial Boiling Point / Boiling Range	204-338 °C / 400-640 °F
Flash Point	54-88 °C / 130-190 °F
Evaporation Rate	No available data.
Flammability (solid, gas)	Not applicable.
Flammability Limit in Air (%)	

Upper Flammability Limit:	5.0
Lower Flammability Limit:	0.7
Vapor Pressure	1-10 mm Hg @ 20°C
Vapor Density	4-5
Specific Gravity / Relative Density	C.A. 0.8
Water Solubility	No available data.
Solubility in other solvents	Negligible
Partition Coefficient	No available data.
Decomposition temperature:	No available data.
pH:	Not applicable
Autoignition Temperature	336 °C / 637 °F
Kinematic Viscosity	1.9-3.4 @ 40°C
Dynamic Viscosity	No available data.
Explosive Properties	No available data.
Softening Point	No available data.
VOC Content (%)	10%
Density	6.76 lbs/gal
Bulk Density	Not applicable.

10. STABILITY AND REACTIVITY

Reactivity The product is non-reactive under normal conditions.

Chemical stability The material is stable at 70°F, 760 mmHg pressure.

Possibility of hazardous reactions None under normal processing.

Hazardous polymerization Will not occur.

Conditions to avoid Excessive heat, sources of ignition, open flame.

Incompatible materials Strong oxidizing agents.

Hazardous decomposition products None known under normal conditions of use.

11. TOXICOLOGICAL INFORMATION

Potential short-term adverse effects from overexposures

Inhalation Harmful if inhaled. Inhalation of high vapor concentrations may cause irritation of the respiratory system. May cause drowsiness or dizziness.

Eye contact Causes mild eye irritation.

Skin contact Irritating to skin. Effects may become more serious with repeated or prolonged contact. May be absorbed through the skin in harmful amounts.

Ingestion May be fatal if swallowed or vomited and enters airways. May cause irritation of the mouth, throat and gastrointestinal tract.

Acute Toxicological data

Name	Oral LD50	Dermal LD50	Inhalation LC50
No. 2 Diesel Fuel 68476-34-6	> 5000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	>1 - <5 mg/L (Rat) 4 h
Kerosine, Petroleum 8008-20-6	> 5000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	> 5.28 mg/L (Rat) 4 h

Fuels, Diesel, C9-18-Alkane Branched and Linear 1159170-26-9	-	-	>1 - <5 mg/l (Rat) 4 h
Alkanes, C10-C20 branched and linear 928771-01-1	-	-	>1 - <5 mg/l (Rat) 4 h
Naphthalene 91-20-3	490 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	> 340 mg/m^3 (Rat) 1 h

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Altered mental state, drowsiness, peripheral motor neuropathy, irreversible brain damage (so-called Petrol Sniffer's Encephalopathy), delirium, seizures, and sudden death have been reported from repeated overexposure to some hydrocarbon solvents, naphthas, and gasoline.

MIDDLE DISTILLATES, PETROLEUM: Long-term repeated (lifetime) skin exposure to similar materials has been reported to result in an increase in skin tumors in laboratory rodents. The relevance of these findings to humans is not clear at this time.

MIDDLE DISTILLATES WITH CRACKED STOCKS: Light cracked distillates have been shown to be carcinogenic in animal tests and have tested positive with in vitro genotoxicity tests. Repeated dermal exposures to high concentrations in test animals resulted in reduced litter size and litter weight, and increased fetal resorptions at maternally toxic doses. Dermal exposure to high concentrations resulted in severe skin irritation with weight loss and some mortality. Inhalation exposure to high concentrations resulted in respiratory tract irritation, lung changes/infiltration/accumulation, and reduction in lung function.

ISOPARAFFINS: Studies in laboratory animals have shown that long-term exposure to similar materials (isoparaffins) can cause kidney damage and kidney cancer in male laboratory rats. However, in-depth research indicates that these findings are unique to the male rat, and that these effects are not relevant to humans.

NAPHTHALENE: Severe jaundice, neurotoxicity (kernicterus) and fatalities have been reported in young children and infants as a result of hemolytic anemia from overexposure to naphthalene. Persons with glucose 6-phosphate dehydrogenase (G6PD) deficiency are more prone to the hemolytic effects of naphthalene. Adverse effects on the kidney have been reported in persons overexposed to naphthalene but these effects are believed to be a consequence of hemolytic anemia, and not a direct effect. Hemolytic anemia has been observed in laboratory animals exposed to naphthalene. Laboratory rodents exposed to naphthalene vapor for 2 years (lifetime studies) developed non-neoplastic and neoplastic tumors and inflammatory lesions of the nasal and respiratory tract. Cataracts and other adverse effects on the eye have been observed in laboratory animals exposed to high levels of naphthalene. Findings from a large number of bacterial and mammalian cell mutation assays have been negative. A few studies have shown chromosomal effects (elevated levels of Sister Chromatid Exchange or chromosomal aberrations) in vitro. Naphthalene has been classified as Possibly Carcinogenic to Humans (2B) by IARC, based on findings from studies in laboratory animals.

DIESEL EXHAUST: The combustion of diesel fuels produces gases including carbon monoxide, carbon dioxide, oxides of nitrogen and/or sulfur, and hydrocarbons that can be irritating and hazardous with overexposure. Long-term occupational overexposure to diesel exhaust and diesel exhaust particulate matter has been associated with an increased risk of respiratory disease, including lung cancer, and is characterized as a “known human carcinogen” by the International Agency for Research on Cancer (IARC), as “a reasonably anticipated human carcinogen” by the National Toxicology Program, and as “likely to be carcinogenic to humans” by the EPA, based upon animal and occupational exposure studies. However, uncertainty exists with these classifications because of deficiencies in the supporting occupational exposure/epidemiology studies, including reliable exposure estimates. Lifetime animal inhalation studies with pulmonary overloading exposure concentrations of diesel exhaust emissions have produced tumors and other adverse health effects. However, in more recent long-term animal inhalation studies of diesel exhaust emissions, no increase in tumor incidence and in fact a substantial reduction in adverse health effects along with significant reductions in the levels of hazardous material emissions were observed and are associated with fuel composition alterations coupled with new technology diesel engines.

Adverse effects related to the physical, chemical and toxicological characteristics

Signs & Symptoms Nausea, vomiting, signs of nervous system depression: headache, drowsiness, dizziness, loss of coordination, disorientation and fatigue.

Sensitization Not expected to be a skin or respiratory sensitizer.

Mutagenic effects None known.

Carcinogenicity Cancer designations are listed in the table below.

Name	ACGIH (Class)	IARC (Class)	NTP	OSHA
No. 2 Diesel Fuel 68476-34-6	Confirmed animal carcinogen (A3)	Not Classifiable (3)	Not Listed	Not Listed
Kerosine, Petroleum 8008-20-6	Confirmed animal carcinogen (A3)	Not Classifiable (3)	Not Listed	Not Listed
Fuels, Diesel, C9-18-Alkane Branched and Linear 1159170-26-9	Not Listed	Not Listed	Not Listed	Not Listed
Alkanes, C10-C20 branched and linear 928771-01-1	Not Listed	Not Listed	Not Listed	Not Listed
Naphthalene 91-20-3	Confirmed animal carcinogen (A3)	Possible human carcinogen (2B)	Reasonably anticipated to be a human carcinogen	Not Listed

Reproductive toxicity None known.

Specific Target Organ Toxicity (STOT) - single exposure Central nervous system.

Specific Target Organ Toxicity (STOT) - repeated exposure Thymus. Liver. Bone marrow.

Aspiration hazard May be fatal if swallowed or vomited and enters airways.

12. ECOLOGICAL INFORMATION

Ecotoxicity This product should be considered toxic to aquatic organisms, with the potential to cause long lasting adverse effects in the aquatic environment.

Name	Algae/aquatic plants	Fish	Toxicity to Microorganisms	Crustacea
No. 2 Diesel Fuel 68476-34-6	-	96-hr LC50 = 35 mg/l Fathead minnow (flow-through)	-	48-hr EL50 = 6.4 mg/l Daphnia magna
Kerosine, Petroleum 8008-20-6	72-hr EL50 = 5.0-11 mg/l Algae	96-hr LL50 = 18-25 mg/l Fish	-	48-hr EL50 = 1.4-21 mg/l Invertebrates
Fuels, Diesel, C9-18-Alkane Branched and Linear 1159170-26-9	-	-	-	-
Alkanes, C10-C20 branched and linear 928771-01-1	-	-	-	-
Naphthalene 91-20-3	-	96-hr LC50 = 0.91-2.82 mg/l Rainbow trout (static) 96-hr LC50 = 1.99 mg/l Fathead minnow (static)	-	48-hr LC50 = 1.6 mg/l Daphnia magna

Persistence and degradability Expected to be inherently biodegradable.

Bioaccummulation Has the potential to bioaccumulate.

Mobility in soil May partition into air, soil and water.

Other adverse effects No information available.

13. DISPOSAL CONSIDERATIONS

Description of Waste Residues
This material may be a flammable liquid waste.

Safe Handling of Wastes
Handle in accordance with applicable local, state, and federal regulations. Use personal protection measures as required. Use appropriate grounding and bonding practices. Use only non-sparking tools. Do not expose to heat, open flames, strong oxidizers or other sources of ignition. No smoking.

Disposal of Wastes / Methods of Disposal
The user is responsible for determining if any discarded material is a hazardous waste (40 CFR 262.11). Dispose of in accordance with federal, state and local regulations.

Methods of Contaminated Packaging Disposal
Empty containers should be completely drained and then discarded or recycled, if possible. Do not cut, drill, grind or weld on empty containers since explosive residues may be present. Dispose of in accordance with federal, state and local regulations.

14. TRANSPORT INFORMATION

DOT (49 CFR 172.101):

UN Proper shipping name:	Fuel Oil, No. 2
UN/Identification No:	NA 1993
Transport Hazard Class(es):	3
Packing group:	III

TDG (Canada):

UN Proper shipping name:	Fuel Oil, No. 2
UN/Identification No:	NA 1993
Transport Hazard Class(es):	3
Packing group:	III

15. REGULATORY INFORMATION

US Federal Regulatory Information:

US TSCA Chemical Inventory Section 8(b): This product and/or its components are listed on the TSCA Chemical Inventory.

EPA Superfund Amendment & Reauthorization Act (SARA):

SARA Section 302: This product does not contain any component(s) included on EPA's Extremely Hazardous Substance (EHS) List.

Name	CERCLA/SARA - Section 302 Extremely Hazardous Substances and TPQs
No. 2 Diesel Fuel	NA
Kerosine, Petroleum	NA
Fuels, Diesel, C9-18-Alkane Branched and Linear	NA
Alkanes, C10-C20 branched and linear	NA
Naphthalene	NA

SARA Section 304: This product may contain component(s) identified either as an EHS or a CERCLA Hazardous substance which in case of a spill or release may be subject to SARA reporting requirements:

Name	CERCLA/SARA - Hazardous Substances and their Reportable Quantities
No. 2 Diesel Fuel	NA
Kerosine, Petroleum	NA

Fuels, Diesel, C9-18-Alkane Branched and Linear	NA
Alkanes, C10-C20 branched and linear	NA
Naphthalene	100 lb final RQ 45.4 kg final RQ

SARA: The following EPA hazard categories apply to this product:

Acute Health Hazard
Fire Hazard
Chronic Health Hazard

SARA Section 313: This product may contain component(s), which if in exceedance of the de minimus threshold, may be subject to the reporting requirements of SARA Title III Section 313 Toxic Release Reporting (Form R).

Name	CERCLA/SARA 313 Emission reporting:
No. 2 Diesel Fuel	None
Kerosine, Petroleum	None
Fuels, Diesel, C9-18-Alkane Branched and Linear	None
Alkanes, C10-C20 branched and linear	None
Naphthalene	0.1 % de minimis concentration

State and Community Right-To-Know Regulations:
The following component(s) of this material are identified on the regulatory lists below:

No. 2 Diesel Fuel

Louisiana Right-To-Know:	Not Listed.
California Proposition 65:	Not Listed.
New Jersey Right-To-Know:	SN 2444
Pennsylvania Right-To-Know:	Not Listed.
Massachusetts Right-To Know:	Not Listed.
Florida Substance List:	Not Listed.
Rhode Island Right-To-Know:	Not Listed.
Michigan Critical Materials Register List:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed.
California - Regulated Carcinogens:	Not Listed.
Pennsylvania RTK - Special Hazardous Substances:	Not Listed.
New Jersey - Special Hazardous Substances:	Not Listed.
New Jersey - Environmental Hazardous Substances List:	SN 2444 TPQ: 10000 lb (Under N.J.A.C. 7:1G, environmental hazardous substances in mixtures such as gasoline or new and used petroleum oil may be reported under these categories)
Illinois - Toxic Air Contaminants	Not Listed.
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed.

Kerosine, Petroleum

Louisiana Right-To-Know:	Not Listed.
California Proposition 65:	Not Listed.
New Jersey Right-To-Know:	SN 1091
Pennsylvania Right-To-Know:	Present
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed.
Rhode Island Right-To-Know:	Not Listed.
Michigan Critical Materials Register List:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed.
California - Regulated Carcinogens:	Not Listed.
Pennsylvania RTK - Special Hazardous Substances:	Not Listed.
New Jersey - Special Hazardous Substances:	Not Listed.

New Jersey - Environmental Hazardous Substances List:	SN 1091 TPQ: 10000 lb (Under N.J.A.C. 7:1G, environmental hazardous substances in mixtures such as gasoline or new and used petroleum oil may be reported under these categories)
Illinois - Toxic Air Contaminants	Not Listed.
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed.

Fuels, Diesel, C9-18-Alkane Branched and Linear

Louisiana Right-To-Know:	Not Listed.
California Proposition 65:	Not Listed.
New Jersey Right-To-Know:	Not Listed.
Pennsylvania Right-To-Know:	Not Listed.
Massachusetts Right-To Know:	Not Listed.
Florida Substance List:	Not Listed.
Rhode Island Right-To-Know:	Not Listed.
Michigan Critical Materials Register List:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed.
California - Regulated Carcinogens:	Not Listed.
Pennsylvania RTK - Special Hazardous Substances:	Not Listed.
New Jersey - Special Hazardous Substances:	Not Listed.
New Jersey - Environmental Hazardous Substances List:	Not Listed.
Illinois - Toxic Air Contaminants	Not Listed.
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed.

Alkanes, C10-C20 branched and linear

Louisiana Right-To-Know:	Not Listed.
California Proposition 65:	Not Listed.
New Jersey Right-To-Know:	Not Listed.
Pennsylvania Right-To-Know:	Not Listed.
Massachusetts Right-To Know:	Not Listed.
Florida Substance List:	Not Listed.
Rhode Island Right-To-Know:	Not Listed.
Michigan Critical Materials Register List:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed.
California - Regulated Carcinogens:	Not Listed.
Pennsylvania RTK - Special Hazardous Substances:	Not Listed.
New Jersey - Special Hazardous Substances:	Not Listed.
New Jersey - Environmental Hazardous Substances List:	Not Listed.
Illinois - Toxic Air Contaminants	Not Listed.
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed.

Naphthalene

Louisiana Right-To-Know:	Not Listed.
California Proposition 65:	Carcinogen, initial date 4/19/02
New Jersey Right-To-Know:	SN 1322 SN 3758
Pennsylvania Right-To-Know:	Environmental hazard Present (particulate)
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed.
Rhode Island Right-To-Know:	Toxic; Flammable
Michigan Critical Materials Register List:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed.
California - Regulated Carcinogens:	Not Listed.
Pennsylvania RTK - Special Hazardous Substances:	Not Listed.
New Jersey - Special Hazardous Substances:	Carcinogen
New Jersey - Environmental Hazardous Substances List:	SN 1322 TPQ: 500 lb (Reportable at the de minimis quantity of >0.1%)

Illinois - Toxic Air Contaminants	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	100 lb RQ (air); 1 lb RQ (land/water)

Canada DSL/NDSL Inventory: This product contains the following component(s) that are listed on the Non-Domestic Substance List (NDSL): CAS# 1159170-26-9

Canadian Regulatory Information: "This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the (M)SDS contains all the information required by the Controlled Products Regulations."

Name	Canada - WHMIS: Classifications of Substances:	Canada - WHMIS: Ingredient Disclosure:
No. 2 Diesel Fuel	B3,D2A,D2B	0.1%
Kerosine, Petroleum	B3,D2B	1%
Fuels, Diesel, C9-18-Alkane Branched and Linear	B3,D2A,D2B	0.1%
Alkanes, C10-C20 branched and linear	B3,D2A,D2B	0.1%
Naphthalene	B4,D2A	0.1%

NOTE: Not Applicable.

16. OTHER INFORMATION

Prepared By Toxicology and Product Safety
Revision Date: 05/14/2015

Revision Note:

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is intended as guidance for safe handling, use, processing, storage, transportation, accidental release, clean-up and disposal and is not considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

SAFETY DATA SHEET

Prepared according to U.S. OSHA, CMA, ANSI, Canadian WHMIS regulations

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME:	**Phaser 3000**
PRODUCT NUMBER:	3000
PRODUCT DESCRIPTION:	Fuel Additive
U.N. NUMBER:	NA1993
U.N. DANGEROUS GOODS CLASS:	Combustible liquid, n.o.s. (Contains 2-Butoxyethanol)
SUPPLIER/MANUFACTURER'S NAME:	**Primrose Oil Company, Inc.**
ADDRESS:	11444 Denton Drive, P.O. Box 29665, Dallas, Texas 75229 USA
EMERGENCY PHONE:	1-800-633-8253 (For Emergencies Only)
BUSINESS PHONE:	1-972-241-1100 (For product information)
WEB SITE:	www.primrose.com
DATE OF PREPARATION:	June 5, 2013
DATE OF LAST REVISION:	November 12, 2010

SECTION 2 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:
This product is a clear to pale liquid with a slight odor.
HEALTH HAZARDS: Contact with skin may cause irritation. Harmful if absorbed through skin. Contact with eyes can cause irritation. Inhalation of vapors or mist can cause respiratory irritation. May be harmful if swallowed.
FLAMMABILITY: This product is a combustible product with a flash point >143°F
ENVIRONMENTAL EFFECTS: The Environmental effects of this product have not been investigated, however this product contains ingredients that may cause adverse effects to aquatic life.

US DOT SYMBOLS

CANADA (WHMIS) SYMBOLS

GHS HAZARD SYMBOL(S)

Signal Word: **Warning!**

COMPONENTS DETERMINING HAZARDS:
2-Butoxyethanol

GHS HAZARD CLASSIFICATION(S):
Combustible Liquid Category 4
Acute Inhalation Toxicity Category 4
Acute Dermal Toxicity Category 4
Acute Oral Toxicity Category 4
Serious eye Damage/Irritation Category 2A
Skin Corrosion/Irritation Category 2

HAZARD STATEMENTS:
Combustible liquid
Harmful if inhaled
Harmful in contact with skin
Harmful if swallowed
Causes serious eye irritation
Causes skin irritation

PRECAUTIONARY STATEMENTS:
Avoid exposure
Use only with adequate ventilation.
Wash thoroughly after handling.
In case of an accident or if you feel unwell – seek medical advice and show label

HEALTH HAZARDS OR RISKS FROM EXPOSURE:

ACUTE:

INHALATION: Harmful if inhaled. May cause respiratory tract irritation. May cause narcotic effects in high concentration. May cause lung damage. May cause anemia. May cause central nervous system effects such as nausea and headache.

EYE CONTACT: Causes eye irritation. Causes redness and pain.

SKIN CONTACT: Causes skin irritation. Harmful if absorbed through the skin. Substance is rapidly absorbed through the skin. Causes symptoms similar to those of inhalation.

INGESTION: Harmful if swallowed. May cause irritation of the digestive tract. May cause gastrointestinal irritation with nausea, vomiting and diarrhea.

CHRONIC: May cause liver and kidney damage.

TARGET ORGANS: ACUTE: Eye, Skin, Respiratory System CHRONIC: Liver, Kidney

SECTION 3 - COMPOSITION and INFORMATION ON INGREDIENTS

HAZARDS DISCLOSURE: This product does contain known hazardous materials in reportable levels as defined by the OSHA Hazard Communication Standard 29 CFR 1910.1200. As defined under Sara 311 and 312, this product contains known hazardous materials.

HAZARDOUS INGREDIENTS:	CAS #	WT %	HAZARD CLASSIFICATION; RISK PHRASES
2-Butoxyethanol	111-76-2	60-100%	HAZARD CLASSIFICATION: [Xn] Harmful, [Xi] Irritant RISK PHRASES: R20/21/22, R36/38

Each of the other components present are less than 1 percent concentration (0.1% concentration for potential carcinogens, reproductive toxins, respiratory tract sensitizers, and mutagens)

NOTE: ALL WHMIS required information is included in appropriate sections based on the ANSI Z400.1-2010 format.

SECTION 4 - FIRST-AID MEASURES

Contaminated individuals of chemical exposure must be taken for medical attention if any adverse effect occurs. Rescuers should be taken for medical attention, if necessary. Take copy of label and MSDS to health professional with contaminated individual.

EYE CONTACT: If product enters the eyes, open eyes while under gentle running water for at least 15 minutes. Seek medical attention.

SKIN CONTACT: Wash skin thoroughly after handling. Seek medical attention if irritation develops and persists.

INHALATION: If breathing becomes difficult, remove victim to fresh air. If necessary, use artificial respiration to support vital functions. Seek medical attention immediately.

INGESTION: If product is swallowed, call physician or poison control center for most current information. If professional advice is not available, do not induce vomiting. Never induce vomiting or give diluents (milk or water) to someone who is unconscious, having convulsions, or who cannot swallow. Seek medical advice. Take a copy of the label and/or MSDS with the victim to the health professional.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Individuals with pre-existing skin disorders should avoid contact with this product.

RECOMMENDATIONS TO PHYSICIANS: Treat symptoms and reduce over-exposure.

SECTION 5 - FIRE-FIGHTING MEASURES

FLASH POINT: >143°F

AUTOIGNITION TEMPERATURE: >460°F

FLAMMABLE LIMITS (in air by volume, %): Lower (LEL): 1.1% Upper (UEL): 12.7%

FIRE EXTINGUISHING MATERIALS: Use water spray, dry chemical, carbon dioxide, or chemical foam.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Will burn if involved in a fire. Combustible liquid and vapor.

Explosion Sensitivity to Mechanical Impact: Not Sensitive.

Explosion Sensitivity to Static Discharge: Sensitive

SPECIAL FIRE-FIGHTING PROCEDURES:

NFPA Rating System

Incipient fire responders should wear eye protection. Structural firefighters must wear Self-Contained Breathing Apparatus and full protective equipment. Isolate materials not yet involved in the fire and protect personnel. Move containers from fire area if this can be done without risk; otherwise, cool with carefully applied water spray. If possible, prevent runoff water from entering storm drains, bodies of water, or other environmentally sensitive areas.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

SPILL AND LEAK RESPONSE: Personnel should be trained for spill response operations. Contain and recover liquid if possible. Use non-sparking tools and equipment. Cover spilled liquid with sand, earth or other non-combustible absorbent material. Pickup spilled material immediately and place in appropriate containers. Dispose of in accordance with applicable Federal, State, and local procedures (see Section 13, Disposal Considerations).

Do not discharge to sewers and surface waters. Notify authorities if entry occurs.

U.S. Regulations (CERCLA) requires reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

SECTION 7 - HANDLING and STORAGE

WORK PRACTICES AND HYGIENE PRACTICES: As with all chemicals, avoid getting this product on you. Wash thoroughly after handling this product. Use in a well-ventilated location.

STORAGE AND HANDLING PRACTICES: Store containers in a cool, dry location. Keep away from sources of ignition. Keep container tightly closed when not in use. Protect from physical damage.

SECTION 8 - EXPOSURE CONTROLS - PERSONAL PROTECTION

EXPOSURE LIMITS/GUIDELINES:

Chemical Name	CAS#	ACGIH TWA	OSHA TWA
2-Butoxyethanol	111-76-2	20 ppm	50 ppm

Currently, International exposure limits are not established for all the components of this product. Please check with competent authority in each country for the most recent limits in place.

VENTILATION AND ENGINEERING CONTROLS: Use with adequate ventilation to ensure exposure levels are maintained below the limits provided above. Use local exhaust ventilation to control airborne vapors.

The following information on appropriate Personal Protective Equipment is provided to assist employers in complying with OSHA regulations found in 29 CFR Subpart I (beginning at 1910.132) or equivalent standard of Canada. Please reference applicable regulations and standards for relevant details.

RESPIRATORY PROTECTION: Not normally required when using this product. Maintain airborne contaminant concentrations below guidelines listed above, if applicable. If necessary, use only respiratory protection authorized in the U.S. Federal OSHA Respiratory Protection Standard (29 CFR 1910.134), equivalent U.S. State standards, Canadian CSA Standard Z94.4-93.

EYE PROTECTION: Wear safety glasses or chemical goggles as appropriate were splashing is possible. If necessary, refer to U.S. OSHA 29 CFR 1910.133 or appropriate Canadian Standards.

HAND PROTECTION: Wear chemical resistant gloves as appropriate to prevent skin contact. If necessary, refer to U.S. OSHA 29 CFR 1910.138 or appropriate Standards of Canada.

BODY PROTECTION: Use body protection appropriate to prevent skin contact (e.g. lab coat, overalls). If necessary, refer to appropriate Standards of Canada, or appropriate Standards of the EU, Australian Standards, or relevant Japanese Standards.

SECTION 9 - PHYSICAL and CHEMICAL PROPERTIES

PHYSICAL STATE:	Liquid
APPEARANCE & ODOR:	Clear to pale liquid with a slight odor.
ODOR THRESHOLD (PPM):	Mild
VAPOR PRESSURE (mmHg):	0.8 @ 68°F

VAPOR DENSITY (AIR=1):	4.7
EVAPORATION RATE (nBuAc = 1):	0.07
BOILING POINT (C°):	340ºF
FREEZING POINT (C°):	-94°F
pH:	Not Available
SPECIFIC GRAVITY 20°C: (WATER =1)	0.9
SOLUBILITY IN WATER (%)	Soluble
VOC:	Not Available

SECTION 10 - STABILITY and REACTIVITY

STABILITY: Product is stable
DECOMPOSITION PRODUCTS: When heated to decomposition this product produces Oxides of carbon (COx)
MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE: Strong oxidizers, strong bases
HAZARDOUS POLYMERIZATION: Will not occur.
CONDITIONS TO AVOID: Contact with incompatible materials and ignition sources

SECTION 11 - TOXICOLOGICAL INFORMATION

TOXICITY DATA: Toxicity data is available for the following components:
CAS# 111-76-2:
Dermal, guinea pig: LD50 = 230 uL/kg;
Draize test, rabbit, eye: 100 mg Severe;
Draize test, rabbit, eye: 100 mg/24H Moderate;
Inhalation, mouse: LC50 = 700 ppm/7H;
Inhalation, mouse: LC50 = 3380 mg/m3/7H;
Inhalation, rat: LC50 = 450 ppm/4H;
Inhalation, rat: LC50 = 2900 mg/m3/7H;
Oral, mouse: LD50 = 1230 mg/kg;
Oral, mouse: LD50 = 1167 mg/kg;
Oral, rabbit: LD50 = 300 mg/kg;
Oral, rabbit: LD50 = 320 mg/kg;
Oral, rat: LD50 = 470 mg/kg;
Oral, rat: LD50 = 917 mg/kg;

SUSPECTED CANCER AGENT: One or more of the ingredients are found on the following lists: FEDERAL OSHA Z LIST, NTP, CAL/OSHA, IARC and therefore is considered to be, or suspected to be a cancer-causing agent by these agencies.
CAS# 111-76-2: ACGIH: A3 - Confirmed animal carcinogen with unknown relevance to humans California: Not listed. NTP: Not listed. IARC: Not listed.

IRRITANCY OF PRODUCT: Contact with this product can be irritating to skin, respiratory system and eyes.
SENSITIZATION OF PRODUCT: Ingredients in this product are not considered a sensitizer.
REPRODUCTIVE TOXICITY INFORMATION: No information available

SECTION 12 - ECOLOGICAL INFORMATION

ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.
ENVIRONMENTAL STABILITY: Based on a recommended classification scheme, an estimated Koc value of 67, determined from an experimental log Kow and a recommended regression-derived equation, indicates that ethylene glycol mono-n-butyl ether is expected to have high mobility in soil. An estimated BCF value of 2.5 was calculated for ethylene glycol mono-n-butyl ether, using an experimental log Kow of 0.83 and a recommended regression-derived equation. According to a recommended classification scheme, this BCF value suggests that bioconcentration in aquatic organisms is low.
Physical: No information found.
EFFECT OF MATERIAL ON PLANTS or ANIMALS: No information found.
EFFECT OF CHEMICAL ON AQUATIC LIFE: 24-Hr. LC50; goldfish: 1650 mg/L 96-Hr. LC50; bluegill sunfish: 1490 mg/L96-Hr. LC50; tidewater silversides: 1250 mg/L.

SECTION 13 - DISPOSAL CONSIDERATIONS

PREPARING WASTES FOR DISPOSAL: Waste disposal must be in accordance with appropriate Federal, State, and local regulations, those of Canada, Australia, EU Member States and Japan.

SECTION 14 - TRANSPORTATION INFORMATION

US DOT; IATA; IMO; ADR:

THIS PRODUCT IS HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION.

NOTE: Non-bulk containers (≤ 119 Gallons/450L) shipped road or rail are non-regulated

PROPER SHIPPING NAME: Combustible liquid, n.o.s. (Contains 2-Butoxyethanol)
HAZARD CLASS NUMBER and DESCRIPTION: Class 3 Flammable Liquid
UN IDENTIFICATION NUMBER: NA1993
PACKING GROUP: PGIII
DOT LABEL(S) REQUIRED: Flammable Liquid
NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (2004): 128

MARINE POLLUTANT: None of the ingredients are classified by the DOT as a Marine Pollutant (as defined by 49 CFR 172.101, Appendix B)

U.S. DEPARTMENT OF TRANSPORTATION (DOT) SHIPPING REGULATIONS:
This product is classified as dangerous goods, per U.S. DOT regulations, under 49 CFR 172.101.

TRANSPORT CANADA, TRANSPORTATION OF DANGEROUS GOODS REGULATIONS:
This product is classified as Dangerous Goods, per regulations of Transport Canada.

INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA):
This product is classified as Dangerous Goods, by rules of IATA:

INTERNATIONAL MARITIME ORGANIZATION (IMO) DESIGNATION:
This product is classified as Dangerous Goods by the International Maritime Organization.

SECTION 15 - REGULATORY INFORMATION

UNITED STATES REGULATIONS

SARA REPORTING REQUIREMENTS: This product is subject to the reporting requirements of Sections 302, 304 and 313 of Title III of the Superfund Amendments and Reauthorization Act., as follows:
SARA 313: This material contains 2-Butoxyethanol (listed as Glycol ethers), 60-100%, (CAS# 111-76-2),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

TSCA: All components in this product are listed on the US Toxic Substances Control Act (TSCA) inventory of chemicals.

SARA 311/312:

Acute Health: Yes Chronic Health: Yes Fire: No Reactivity: No

U.S. SARA THRESHOLD PLANNING QUANTITY: There are no specific Threshold Planning Quantities for this product. The default Federal MSDS submission and inventory requirement filing threshold of 10,000 lb (4,540 kg) may apply, per 40 CFR 370.20.

U.S. CERCLA REPORTABLE QUANTITY (RQ): None

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65): None of the ingredients are on the California Proposition 65 lists.

CANADIAN REGULATIONS:

CANADIAN DSL/NDSL INVENTORY STATUS: All of the components of this product are on the DSL Inventory

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) PRIORITIES SUBSTANCES LISTS: No component of this product is on the CEPA First Priorities Substance Lists.

CANADIAN WHMIS CLASSIFICATION and SYMBOLS: This is considered to be a hazardous material under the Hazardous Products Act as defined by the Controlled Products Regulations and is therefore subject to the labeling and MSDS requirements of the Workplace Hazardous Materials Information System (WHMIS). Class B-3 Combustible liquid with a flash point between 100ºF and 200ºF,Class D2B Materials having other toxic effects.

INTERNATIONAL CHEMICAL INVENTORIES:

Listing of the components on individual country Chemical Inventories is as follows:

Asia-Pac:	Listed or Exempt
Australian Inventory of Chemical Substances (AICS):	Listed or Exempt
Korean Existing Chemicals List (ECL):	Listed or Exempt
Japanese Existing National Inventory of Chemical Substances (ENCS):	Listed or Exempt
Philippines Inventory if Chemicals and Chemical Substances (PICCS):	Listed or Exempt
Swiss Giftliste List of Toxic Substances:	Listed or Exempt
U.S. TSCA:	Listed

SECTION 16 - OTHER INFORMATION

PREPARED BY: Paul Eigbrett MSDS Authoring PLUS

Disclaimer:

This information is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of Primrose Oil Company, Inc. The data on this sheet is related only to the specific material designated herein. Primrose Oil Company, Inc. assumes no legal responsibility for use or reliance upon this data.

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

POWER SERVICE PRODUCTS, INC.
SAFETY DATA SHEET

SECTION 1 - IDENTIFICATION

PRODUCT NAME: DIESEL FUEL SUPPLEMENT +CETANE BOOST

Unless otherwise noted, all sections of this SDS apply to each of the following products and part numbers.

PART NUMBERS:

1:400 Treatment Ratio	1016-06, 1016-09, 1025-06, 1025-09, 1025-12, 1080-06, 11016-06, 11016-09, 11025-06, 11025-12, 11080-06
1:1,000 Treatment Ratio	1000, 1128-04, 1060-01
1:1,500 Treatment Ratio	1050-02, 1055-01, 1260-01

COMPANY IDENTIFICATION:
Power Service Products, Inc.
P.O. Box 1089
Weatherford, TX 76086
Email: psp@powerservice.com
Phone: 800-643-9089 or 817-599-9486
Fax: 817-599-4893

Emergency Phone Number: Within USA 1-800-424-9300. Outside USA 001-703-527-3887 (Call Collect).

RECOMMENDED USES: Diesel fuel additive

SECTION 2 – HAZARD(S) IDENTIFICATION

CLASSIFICATION UNDER 29 CFR 1910.1200(d)

(NC=product does not meet classification criteria)

	1:400 Treatment Ratio	**1:1000 Treatment Ratio**	**1:1500 Treatment Ratio**
Health Hazard Criteria	**Category**	**Category**	**Category**
Acute Toxicity, Oral:	NC	NC	NC
Acute Toxicity, Dermal:	NC	NC	NC
Acute Toxicity, Inhalation, Vapors:	3	3	3

	1:400 Treatment Ratio	1:1000 Treatment Ratio	1:1500 Treatment Ratio
Health Hazard Criteria	**Category**	**Category**	**Category**
Skin Corrosion/Irritation:	2	2	2
Serious Eye Damage/Eye Irritation:	2	2	2
Respiratory Sensitization:	NC	NC	NC
Skin Sensitization:	NC	NC	NC
Germ Cell Mutagenicity:	NC	NC	NC
Carcinogenicity:	2	2	2
Reproductive Toxicity:	NC	NC	NC
Specific Target Organ Toxicity, Single Exposure:	3	3	3
Specific Target Organ Toxicity, Repeated or Prolonged Exposure:	NC	NC	NC
Aspiration Hazard:	1	1	1

	1:400 Treatment Ratio	1:1000 Treatment Ratio	1:1500 Treatment Ratio
Physical Properties Criteria	**Category**	**Category**	**Category**
Explosives:	NC	NC	NC
Flammable Gases:	NC	NC	NC
Flammable Aerosols:	NC	NC	NC
Oxidizing Gases:	NC	NC	NC
Gases Under Pressure:	NC	NC	NC
Flammable Liquids:	3	3	3
Flammable Solids:	NC	NC	NC
Self-Reactive Chemicals:	NC	NC	NC
Pyrophoric Liquids:	NC	NC	NC
Pyrophoric Solids:	NC	NC	NC
Self-Heating Chemicals:	NC	NC	NC
Chemicals Which, in Contact with Water, Emit Flammable Gases:	NC	NC	NC
Oxidizing Liquids:	NC	NC	NC
Oxidizing Solids:	NC	NC	NC
Organic Peroxides:	NC	NC	NC
Corrosive to Metals:	NC	NC	NC

LABEL SIGNAL WORD, HAZARD STATEMENTS, SYMBOLS AND PRECAUTIONARY STATEMENTS UNDER 29 CFR 1910.1200(f):

Please see the Note regarding product labeling in Section 16.

	1:400 Treatment Ratio	1:1000 Treatment Ratio	1:1500 Treatment Ratio
Signal Word	**Danger**	**Danger**	**Danger**

Hazard Statement(s): Flammable liquid and vapor. Toxic if inhaled. May be fatal if swallowed and enters airways. Harmful if swallowed. Causes skin and serious eye irritation. May cause respiratory irritation and drowsiness or dizziness.

Symbols: The following symbols are for all treatment ratios.

Precautionary Statement(s): Keep away from sparks and open flames. No smoking. Keep container tightly closed. Use only non-sparking tools. Ground/Bond container and receiving equipment. Use explosion-proof pumps when pumping. Take precautionary measures against static discharge. Avoid breathing vapors. Use only outdoors or in a well-ventilated area. Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves and eye protection. Store locked up and in cool, well ventilated place. KEEP OUT OF REACH OF CHILDREN.

Hazards Not Otherwise Classified: None

SECTION 3 – COMPOSITION / INFORMATION ON INGREDIENTS

The specific chemical identity and exact concentration percentage has been withheld as a Trade Secret. Specific chemical information will be made available to health professionals in accordance with 29 CFR 1910.1200.

INGREDIENTS CLASSIFIED AS HEALTH HAZARDS

TREATMENT RATIO 1:400			
Chemical Name	**Common Name/Synonyms**	**CAS Number**	**Concentration (%)**
Petroleum Distillates	Trade secret	Trade secret	50 - 90
Hydroxy alkoxylate	Trade secret	Trade secret	4 - 10
Alkyl Nitrates	Trade secret	Trade secret	2 - 6
Naphthalene	Not available	91-20-3	0.05 – 0.2

TREATMENT RATIO 1:1000			
Chemical Name	**Common Name/Synonyms**	**CAS Number**	**Concentration (%)**
Petroleum Distillates	Trade secret	Trade secret	40 - 90
Alkyl Nitrates	Trade secret	Trade secret	5 - 15
Aromatic Hydrocarbons	Trade secret	Trade secret	2 - 5
Hexan-1-ol, 2-ethyl	Trade secret	Trade secret	1 - 4
Naphthalene	Not available	91-20-3	0.1 – 0.5

TREATMENT RATIO 1:1500			
Chemical Name	**Common Name/Synonyms**	**CAS Number**	**Concentration (%)**
Petroleum Distillates	Trade secret	Trade secret	20 - 55
Alkyl Nitrates	Trade secret	Trade secret	10 – 20
Aromatic Hydrocarbons	Trade secret	Trade secret	3 - 8
Hexan-1-ol, 2-ethyl	Trade secret	Trade secret	2 – 5
Naphthalene	Not available	91-20-3	0.2 – 0.9

SECTION 4 - FIRST AID MEASURES

As a precaution, exposure to liquids, vapors, mists and fumes should be minimized.

EYE CONTACT: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical advice.

SKIN CONTACT: Wash with plenty of water. Take off contaminated clothing and wash it before reuse. If skin irritation occurs get medical advice/attention.

INHALATION: Remove person to fresh air and keep comfortable for breathing. Call a doctor.

INGESTION: If swallowed, IMMEDIATELY call a doctor. Do NOT induce vomiting.

SECTION 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: Use water fog, alcohol-resistant foam, dry chemical or carbon dioxide (CO_2) to extinguish flames.

SPECIFIC HAZARDS: Vapors are heavier than air and may travel along the ground to a distant ignition source and flash back. See Section 10 for Stability and Reactivity. **NOTE:** EMPTY CONTAINERS CONTAIN COMBUSTIBLE VAPORS THAT CAN CAUSE FLASH FIRES OR EXPLOSIONS. CONTAINERS ARE SINGLE-TRIP CONTAINERS AND SHOULD NOT BE USED FOR ANY REASON AFTER BEING EMPTIED. DO NOT USE CUTTING TORCH

EQUIPMENT OR ANY OTHER FLAME OR OTHER SOURCES OF IGNITION ON ANY EMPTY CONTAINER.

PROTECTIVE EQUIPMENT AND PRECAUTIONS: Use standard protective equipment including self-contained breathing apparatus (SCBA).

SECTION 6 - ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT, AND EMERGENCY PROCEDURES: Avoid contact with spilled material. Warn or evacuate occupants in surrounding and downwind areas. Eliminate all sources of ignition in the vicinity of the spill or released vapor. See Section 2 for Hazards Identification. See Section 4 for First Aid Measures. See Section 5 for Fire Fighting Information. See Section 8 for Personal Protective Equipment.

SPILL CONTAINMENT AND CLEAN-UP: Eliminate potential sources of ignition. Stop leak if it can be done without risk. Dike and contain spill. Do not touch or walk through spilled material. Prevent entry into waterways, sewer, basements or confined areas. Remove with vacuum trucks or pump to storage/salvage vessels. Soak up residue with an absorbent such as clay, sand or other suitable material and dispose of properly. A vapor suppressing foam may be used to reduce vapors. Local, state and federal laws and/or regulations may apply to releases and disposal of this material, as well as those materials and items employed in the clean-up releases. The user/responder will need to determine which local, state and federal laws and/or regulations are applicable. The National Response Center can be reached at 1-800-424-8802.

SECTION 7 - HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING: Avoid contact with eyes and skin. Use only with adequate ventilation. Use proper bonding and/or grounding procedures. Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source). Keep away from ignition sources such as heat, sparks, and flames. No smoking.

CONDITIONS FOR SAFE STORAGE: DO NOT USE OR STORE near heat, sparks, or flame. USE AND STORE ONLY IN A WELL-VENTILATED AREA. Handle containers with care. Keep container tightly closed when not in use. Store locked up.

STORAGE TEMPERATURE:

Treatment Ratio	Part Numbers:	Storage Temperature:
1:400 Treatment Ratio	1016-06, 1016-09, 1025-06, 1025-12, 1080-06, 11016-06, 11016-09, 11025-06, 11025-12, 11041-04, 11080-06	-20°F to 104°F (-29°C to 40°C)
1:1,000 Treatment Ratio	1000, 1128-04, 1060-01	0°F to 104°F (-18°C to 40°C)

1:1,500 Treatment Ratio	1050-02, 1055-01, 1260-01	10°F to 104°F (-12°C to 40°C)

EMPTY CONTAINER WARNING: EMPTY CONTAINERS MAY CONTAIN COMBUSTIBLE VAPORS AND CAN BE DANGEROUS. SEE SECTION 5 FOR FIRE AND EXPLOSION HAZARD DATA.

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE GUIDELINES:

		OSHA	ACGIH	NIOSH				
	CAS #	**PEL**	**TLV**	**STEL**	**REL**	**STEL**	**IDLH**	**Note**
Ethylbenzene	100-41-4	100 ppm	20 ppm	not est.	100 ppm	125 ppm	800 ppm (LEL)	n/a
Naphthalene	91-20-3	10 ppm	10 ppm	not est.	10 ppm	15 ppm	250 ppm	skin
Petroleum Distillates	n/a	500 ppm	not est.	not est.	not est.	not est.	not est.	n/a
Cumene	98-82-8	50 ppm	50 ppm	not est.	50 ppm	not est.	900 ppm (LEL)	Skin
Toluene	108-88-3	100 ppm	20 ppm	not est.	100 ppm	150 ppm	500 ppm	Skin
Hydroxy Alkoxylate	Proprietary	50 ppm	20 ppm	not est.	5 ppm	not est.	not est.	skin

ENGINEERING CONTROLS: The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Local exhaust ventilation is recommended to control exposure.

PERSONAL PROTECTIVE EQUIPMENT (PPE):

Eyes and Face: Eye protection such as safety glasses or chemical goggles is recommended if contact is likely.

Skin: Protective chemical/oil resistant gloves are recommended. Wear additional protective clothing as appropriate.

Respiratory: Wear a NIOSH/MSHA approved respirator as necessary.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Practice good housekeeping.

NOTE: These precautions are for room temperature handling.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

	1:400 Treatment Ratio	1:1000 Treatment Ratio	1:1500 Treatment Ratio
Appearance	Liquid, brown	Liquid, brown	Liquid, brown
Odor	Aromatic solvent	Aromatic solvent	Aromatic solvent
Odor Threshold	Not available	Not available	Not available
pH	7 – 8 (slightly basic)	7 – 8 (slightly basic)	7 – 8 (slightly basic)
Melting point/Freezing point	Not available	Not available	Not available
Initial Boiling Point and Boiling Range	300°F (149°C)	300°F (149°C)	300°F (149°C)
Flash Point	105°F (40.5°C)	116°F (46.6°C)	121°F (49.4°C)
Evaporation Rate	Not available	Not available	Not available
Flammability	Not available	Not available	Not available
Upper / lower Flammability or Explosive Limits	Not available	Not available	Not available
Vapor Pressure	0.2 – 0.95	0.2 – 0.95	0.2 – 0.95
Vapor Density	>5.0	>5.0	>5.0
Relative Density/Specific Gravity (at 60°F)	0.910	0.912	0.896
Solubility	Not available	Not available	Not available
Partition Coefficient; n-octanol / water	Not available	Not available	Not available
Auto-ignition Temperature	Not available	Not available	Not available
Decomposition temperature	Not available	Not available	Not available
Viscosity	Not available	Not available	Not available
Pour Point	-55°F (-13°C)	-30°F (1.1°C)	-15°F (9.4°C)

SECTION 10 - STABILITY AND REACTIVITY

REACTIVITY: see Incompatible Materials below

CHEMICAL STABILITY: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

POSSIBILITY OF HAZARDOUS REACTION: Hazardous polymerization will not occur.

CONDITIONS TO AVOID: Flames, high energy ignition sources, and elevated temperatures.

INCOMPATIBLE MATERIALS: May react with strong oxidizing agents, such as; chlorates, nitrates, peroxides, nitrogen oxides, sulfur oxides, etc.; alkalis; nitric acid; sulfuric acid; aluminum; brass; copper; reducing agents.

HAZARDOUS DECOMPOSITION PRODUCTS: Carbon oxides, products of incomplete combustion.

SECTION 11 - TOXICOLOGICAL INFORMATION

LIKELY ROUTES OF EXPOSURE

	INGESTION	INHALATION	SKIN CONTACT	EYE CONTACT	SKIN ABSORPTION
1:400 Treatment Ratio		**X**	**X**	**X**	**X**
1:1000 Treatment Ratio		**X**	**X**	**X**	**X**
1:1500 Treatment Ratio		**X**	**X**	**X**	**X**

SYMPTOMS RELATED TO PHYSICAL, CHEMICAL AND TOXICOLOGICAL CHARACTERISTICS: Breathing of high vapor concentrations may cause dizziness, light-headedness, headache, nausea and loss of coordination. Continued inhalation may result in unconsciousness. The vapor or fumes from this material may cause respiratory irritation. Breathing this material at elevated concentrations causes central nervous system effects. Central nervous system effects may include headache, dizziness, nausea, vomiting, weakness, loss of coordination, blurred vision, drowsiness, confusion or disorientation. At extreme exposures, central nervous system effects may include respiratory depression, tremors, or convulsions, loss of consciousness, coma or death.

DELAYED AND IMMEDIATE EFFECTS AND CHRONIC EFFECTS FROM SHORT- AND LONG-TERM EXPOSURE: Repeated skin exposure to a component of this product may cause irritation, even a burn; may cause a more severe response on covered skin, such as under clothing or gloves. Inhalation exposure to a component of this product has caused fetotoxicity in the presence of maternal toxicity in animals.

NUMERICAL MEASURES OF TOXICITY

Note: the information provided below are estimates; testing of the product is not available.

Treatment Ratio	Acute Oral Toxicity (ATE_{mix} estimate)	Acute Dermal Toxicity (ATE_{mix} estimate)	Acute Inhalation (ATE_{mix} estimate)
1:400 Treatment Ratio	Does not meet criteria	Does not meet criteria	7.10 (vapors)
1:1,000 Treatment Ratio	Does not meet criteria	Does not meet criteria	8.56 (vapors)
1:1,500 Treatment Ratio	Does not meet criteria	Does not meet criteria	7.48 (vapors)

SENSITIZATION: No information available.

MUTAGENICITY: No information available.

CARCINOGENICITY LISTINGS – the following chemicals are listed as indicated:

Chemical	List
Cumene	IARC, NTP
Ethylbenzene	IARC
Naphthalene	IARC, NTP

REPODUCTIVE TOXICITY: No information available.

TERATOGENICITY/EMBRYOTOXICITY: Hydroxy Alkoxylate has caused fetotoxicity with maternal toxicity. This product contains a component of a complex mixture (Xylenes (1330-20-7)) that has been shown to cause teratogenicity and/or embryotoxicity.

SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE): Respiratory tract irritation, drowsiness/dizziness.

SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE): No information available

ASPIRATION HAZARD: Aspiration hazard identified.

SECTION 12 - ECOLOGICAL INFORMATION

ECOTOXICITY: This material is expected to be toxic to aquatic organisms.

PERSISTENCE AND DEGRADABILITY: No information available.

BIOACCUMULATIVE POTENTIAL: No information available.

MOBILITY IN SOIL: No information available.

OTHER ADVERSE EFFECTS: No information available.

SECTION 13 - DISPOSAL CONSIDERATIONS

RCRA Information: Disposal of unused product may be subject to RCRA hazardous waste regulations (40 CFR Part 261). Disposal of the used product may also be regulated as hazardous waste due to resulting mixture characteristics, mixture components or product use. Such changes to the product may result in different and/or additional hazardous waste codes. Potential RCRA waste code based on the product as shipped: D001 IGNITABILITY

State or local laws may impose additional regulatory requirements regarding disposal. *Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator.*

EMPTY CONTAINER WARNING: EMPTY CONTAINERS MAY CONTAIN COMBUSTIBLE VAPORS AND CAN BE DANGEROUS. SEE SECTION 5 FOR FIRE AND EXPLOSION

HAZARD DATA. Dispose or recycle empty containers appropriately per local, state and federal regulations.

SECTION 14 - TRANSPORTATION INFORMATION

The following part numbers are not regulated by DOT:

1:400 Treatment Ratio	1016-06, 1016-09, 1025-06, 1025-09, 1025-12, 1080-06, 11016-06, 11016-09, 11025-06, 11025-12, 1080-06
1:1,000 Treatment Ratio	1128-04
1:1,500 Treatment Ratio	1050-02, 1055-01

The following part numbers are regulated by DOT:

1:1,000 Treatment Ratio	1060-01

PROPER SHIPPING NAME: Combustible Liquid, N.O.S., (Petroleum Distillates) Marine Pollutant (2-Ethylhexyl Nitrate)
HAZARD CLASS: Combustible Liquid
I.D. NUMBER: NA 1993
PACKING GROUP: III
PLACARDING: Combustible Liquid
MARINE POLLUTANT: Yes

1:1,000 Treatment Ratio	1000

PROPER SHIPPING NAME: Combustible Liquid, N.O.S., (Petroleum Distillates) Marine Pollutant (2-Ethylhexyl Nitrate) RQ (Xylene, Naphthalene)
HAZARD CLASS: Combustible Liquid
I.D. NUMBER: NA 1993
PACKING GROUP: III
PLACARDING: Combustible Liquid
MARINE POLLUTANT: Yes
PRODUCT RQ: 100 lbs. (45.45 kg) – Xylene, Naphthalene

1:1,500 Treatment Ratio	1260-01

PROPER SHIPPING NAME: Combustible Liquid, N.O.S., (Petroleum Distillates) Marine Pollutant (2-Ethylhexyl Nitrate)
HAZARD CLASS: Combustible Liquid
I.D. NUMBER: NA 1993
PACKING GROUP: III
PLACARDING: Combustible Liquid
MARINE POLLUTANT: Yes

SECTION 15 - REGULATORY INFORMATION

§14(a) Consumer Product Safety Act General Certificate of Conformity

Power Service Products, Inc. certifies that this product meets the statutory and regulatory requirements of the US Consumer Products Safety Act, the Federal Hazardous Substances Act, and the Poison Prevention Packaging Act of 1970, as applicable. The Power Service products are manufactured in the United States in Weatherford, Texas, unless otherwise indicated on the product label. The product manufacture lot code is stamped on the product container. This Certification is based upon a reasonable testing program conducted by Power Service Products, Inc. which includes a quality control program incorporating, as necessary, confirmation of compliance by component suppliers. Third-party testing is not required to certify compliance. Further details may be obtained by contacting the Power Service Products, Inc. EHS Manager at 1-800-643-9089.

Contents of this SDS comply with the OSHA Hazard Communication Standard 29 CFR 1910.1200.

TSCA STATUS:
All chemical substances found in this product comply with the Toxic Substances Control Act inventory reporting requirements.

EPA SARA TITLE III CHEMICAL LISTINGS:

Section 302 Extremely Hazardous Substances: None

Sections 311/ 312 Hazard Class:
Acute Health Effects: Yes Sudden Release of Pressure Hazard: No
Chronic Health Effects: Yes Reactivity Hazard: No
Fire Hazard: Yes

NFPA (NATIONAL FIRE PROTECTION ASSOCIATION) RATING:
HEALTH: **2**
FIRE: **2**
REACTIVITY: **0**

Section 313:
Specific chemical information is being withheld as a Trade Secret. The following chemicals subject to the reporting requirements of EPCRA Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (40 CFR Part 372) may be present in this product at a concentration that does not exceed the specified upper weight percentage.

Treatment Ratio	CAS Number	Chemical Name	Max %
1:400 Treatment Ratio	100-41-4	Ethylbenzene	24.0
	NA	Glycol Ether Category	8.0

Treatment Ratio	CAS Number	Chemical Name	Max %
	91-20-3	Naphthalene	1.0
	98-82-8	Cumene	4.0
	108-88-3	Toluene	4.0
1:1000 Treatment Ratio	100-41-4	Ethylbenzene	19.0
	91-20-3	Naphthalene	1.0
	98-82-8	Cumene	3.5
	108-88-3	Toluene	3.5
1:1,500 Treatment Ratio	100-41-4	Ethylbenzene	12.0
	91-20-3	Naphthalene	1.0
	98-82-8	Cumene	2.0
	108-88-3	Toluene	2.0

State or local laws may impose additional regulatory requirements for components of this material. It is the responsibility solely of the Employer to maintain compliance with State and Local reporting.

This product contains a chemical known to the state of California to cause cancer and/or birth defects or other reproductive harm: ethylbenzene, toluene, cumene, naphthalene.

SECTION 16 – OTHER INFORMATION

DATE OF PREPARATION / REVISION: May 30, 2015

NOTE regarding product labeling: The OSHA Hazard Communication Standard applies to hazardous chemicals known to be present in the workplace. However, the labeling and Safety Data Sheet requirements do not apply to consumer products when they are used in the workplace for the purposes intended by the manufacturer and the use results in a duration and frequency of exposure which is not greater than the range of exposures that could reasonably be experienced by consumers when used for the intended purpose. Power Service Products intends for product packaged in 1 gallon or smaller containers to be used by consumers and has labeled those containers as required under the Consumer Product Safety Commission regulations. Power Service Products intends for product packaged in containers larger than 1 gallon to be used in the workplace and has labeled those products as required by the OSHA Hazard Communication Standard. The Consumer Product Safety Commission and OSHA Hazard Communication Standard labeling requirements are different and variations between the consumer and industrial labels may occur. It is the employer's responsibility to purchase the appropriate product for use in the workplace.

The information contained herein is offered in good faith and is believed to be accurate based on the data available to us as of the date of SDS preparation. The information in this document applies to this specific product as supplied. It may not be appropriate for this product if the product is used in combination with other materials. The information in this document is not intended to constitute product performance information. Some of the information presented and conclusions drawn herein are from sources other than direct test data on the product. No statement shall be construed as an endorsement of any product or process. The recommended

industrial hygiene and safe handling procedures are believed to be valid in the context of the intended use as described in product labeling. However, each user should review these recommendations in the specific context of the intended use and determine whether they are appropriate. You are urged to obtain material safety data sheets for all products you buy, process, use or distribute, and are encouraged to advise those who may come in contact with such products of the information contained therein. Regulatory requirements are subject to change and may differ between locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. No warranty or guarantee is expressed or implied with respect to this product, the accuracy and sufficiency of the data or recommendations herein, or the results to be obtained from the use of this product. IN NO EVENT SHALL POWER SERVICE PRODUCTS, INC. BE LIABLE FOR ANY LOSS, CLAIM, DAMAGE OR LIABILITY OF ANY KIND, WHICH MAY ARISE FROM OR IN CONNECTION WITH THE INFORMATION CONTAINED IN THIS DOCUMENT OR FROM THE USE, HANDLING OR STORAGE OF THE PRODUCT BY THE BUYER/USER, WHETHER DIRECT, INDIRECT, OR CONSEQUENTIAL, OR FOR ANY CLAIM BY ANY THIRD PARTY, BEYOND THE PURCHASE PRICE OR REPLACEMENT OF THE PRODUCT IN CONNECTION WITH WHICH SUCH LOSS, CLAIM, DAMAGE OR LIABILITY AROSE.

THE FOREGOING LIMITATIONS APPLY REGARDLESS OF THE CAUSES OR CIRCUMSTANCES GIVING RISE TO SUCH LOSS, CLAIM, DAMAGE OR LIABILITY, EVEN IF SUCH LOSS, CLAIM, DAMAGE, OR LIABILITY IS BASED ON NEGLIGENCE OR OTHER TORTS OR BREACH OF CONTRACT.

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

GHS Product Identifier	**Rapid Remover**
Chemical Name	Not applicable
Trade name	**Rapid Remover**
CAS No.	Mixture
EINECS No.	Mixture
REACH Registration No.	Not available

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified use(s)	Users are recommended to seek further advice.
Uses advised against	Users are recommended to seek further advice.

1.3 Supplier's details

Company Identification	**Rapid Tac**
Address	**186 Combs Dr, Merlin, OR 97532 USA**
Telephone	**(541) 474-1113**
E-Mail (competent person)	mail@rapidtac.com

1.4 Emergency telephone number – ChemTel Inc.

Emergency Phone No. (800) 255-3924 (US/Canada), (813) 248-0585 (Elsewhere)

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

2.1.1 Regulation (EC) No. 1272/2008 (CLP) - Flammable Liquid 3, Skin Irritant 2, Eye Irritant 2, Skin Sensitizer 1, Aspirant Hazard 1, Environment Acute 1, Environment Chronic 1 (2.6/3, 3.2/2, 3.3/2, 3.4/1, 3.10/1, 4.1/1)

2.1.2 Directive 67/548/EEC & Directive 1999/45/EC – Flammable, Harmful, Harmful to Environment

2.2 Label elements

2.2.1 Label elements ***According to Regulation (EC) No. 1272/2008 (CLP)***

GHS Product Identifier **(EU)**

Hazard pictogram(s)

Signal word(s) **WARNING**

Hazard statement(s)

H226: Flammable liquid and vapour.
H304: May be fatal if swallowed and enters airways.
H315: Causes skin irritation.
H317: May cause an allergic skin reaction.
H319: Causes serious eye irritation.
H335: May cause respiratory irritation.
H400: Very toxic to aquatic life.
H410: Very toxic to aquatic life with long lasting effects.

Precautionary Statement(s)

P210: Keep away from heat, sparks, open flame, hot surfaces - No smoking.
P261: Avoid breathing dust/fume/gas/mist/vapours/spray.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P302 + P352: IF ON SKIN: Wash with plenty of soap and water.
P304 + P341: IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

2.2.2 Label elements ***According to Directive 67/548/EEC & Directive 1999/45/EC***

Hazard Symbol 

Risk Phrases R10: Flammable.
R36/37/38: Irritating to eyes, respiratory system and skin.
R43: May cause sensitization by skin contact.
R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R65: Harmful: may cause lung damage if swallowed.

Safety Phrases S16: Keep away from sources of ignition - No smoking.
S24/25: Avoid contact with skin and eyes.
S36: Wear suitable protective clothing.
S45: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S53: Avoid exposure - obtain special instructions before use.
S60: This material and its container must be disposed of as hazardous waste.
S61: Avoid release to the environment. Refer to special instructions/Safety Data Sheets.

2.3 Other hazards **Hazardous under OSHA Hazard Communication Standard (USA) –**
Flammable Liquid, Irritant, Sensitizer, Aspirant Hazard
HMIS: Health-2*, Flammability-2 Reactivity – 0

WHMIS Classification (Canada): Hazardous under WHMIS
Class B, Division 3, Combustible Liquid
Class D, Division 1, Subdivision B, Toxic Material
Class D, Division 2, Subdivision A, Very Toxic Material
Class D, Division 2, Subdivision B, Toxic Material

GHS Classification (USA/Canada):
H227: Combustible liquid and vapour.
H303: May be harmful if swallowed.
H304: May be fatal if swallowed and enters airways.
H315: Causes skin irritation.
H317: May cause an allergic skin reaction.
H319: Causes serious eye irritation.
H410: Very toxic to aquatic life with long lasting effects.

2.4 Additional Information

Potential Health Effects

Inhalation	May cause irritation, drowsiness or dizziness. Aspiration hazard
Eye Contact	May cause serious eye irritation.
Skin Contact	May cause skin irritation. Sensitizer.
Ingestion	May be harmful if swallowed. Causes nausea, vomiting, and diarrhea. May be harmful if swallowed and enters airways.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

EC Classification No. 1272/2008/EC

Hazardous ingredient(s)	% W/W	CAS No.	EC No.	REACH Registration No.	Hazard pictogram(s) and Hazard statement(s)
d-Limonene	20-40	5989-27-5	227-813-5	NA	 2.6/3, 3.2/2, 3.4/1, 4.1/1, 4.2/1 : H226, H315, H317, H400, H410
Blended Naphtha	40-60	64742-47-8 64742-89-8 8052-41-3	265-149-8 265-192-2 232-489-3	NA	 2.6/3, 3.10/1 : H226, H304
Glycol Ether	10-30	1569-01-3	216-372-4	NA	 2.6/3, 3.2/2, 3.3/2, 3.8/3 : H226, H315, H319, H335
Non-hazardous Ingredients	<10	NA	NA	NA	None None

EC Classification No. 67/548/EEC

Hazardous ingredient(s)	% W/W	CAS No.	EC No.	REACH Registration No.	EC Classification and Risk Phrases
d-Limonene	20-40	5989-27-5	227-813-5	NA	 F, Xi, Xn, N: R10, R38, R43, R50/53
Blended Naphtha	40-60	64742-47-8 64742-89-8 8052-41-3	265-149-8 265-192-2 232-489-3	NA	 F, Xn: R10, R65
Glycol Ether	10-30	1569-01-3	216-372-4	NA	 F: R10, R36/37/38
Non-hazardous Ingredients	<10	NA	NA	NA	None None

3.3 Additional Information

- For full text of H/P phrases see section 16. For full text of R phrases see section 16. Non-Hazardous ingredients are not listed and make up the balance of the product.

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

Inhalation	Remove patient from exposure. Keep patient at rest and give oxygen if breathing difficult. If symptoms develop, obtain medical attention.
Skin Contact	Wash affected skin with soap and water. If symptoms develop, obtain medical attention.
Eye Contact	Irrigate with eyewash solution or clean water, holding the eyelids apart, for at least 15 minutes. Obtain immediate medical attention.
Ingestion	Do not induce vomiting. Make victim drink plenty of water. Obtain immediate medical attention.

4.2 Most important symptoms and effects, both acute and delayed

Acute: May cause irritation to eyes and skin. May cause drowsiness and dizziness. May cause headache, nausea and vomiting. Aspiration of droplets may cause pulmonary oedema.

Delayed and chronic effects: Generally similar to acute effects. Allergic contact dermatitis may be seen in sensitive individuals following repeated exposures. Repeated and/or prolonged contact may cause dermatitis.

4.3 Indication of the immediate medical attention and special treatment needed

Treat symptomatically. No data available.

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable Extinguishing Media	Extinguish preferably with foam, carbon dioxide or dry chemical.
Unsuitable Extinguishing Media	Water streams.

5.2 Special hazards arising from the substance or mixture Product is flammable and a slip hazard.

5.3 Advice for fire-fighters A self contained breathing apparatus and suitable protective clothing should be worn in fire conditions.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures Ensure full personal protection (including respiratory protection) during removal of spillages. Eliminate all ignition sources if safe to do so.

6.2 Environmental precautions Do not release large quantities into the surface water or into drains.Avoid release to the environment.

6.3 Methods and material for containment and cleaning up Wear suitable protective clothing, gloves and eye/face protection. Remove or make safe all sources of ignition. Absorb remaining liquid in sand or inert absorbent and remove to safe place. Do NOT absorb in saw-dust or other combustible absorbents. Treat absorbed product as flammable.

6.4 Reference to other sections See Also Section 7, 8, 13.

6.5 Additional Information None

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling Avoid breathing fumes. Avoid ingestion. Use only in well-ventilated areas. Avoid inhalation of high concentrations of vapours. Keep away from oxidising agents. Keep away from fire, sparks and heated surfaces - no smoking.

7.2 Conditions for safe storage, including any incompatibilities Store in a well-ventilated place. Do not use or store near heat or open flame. Do not store and transport with oxidizers etc.

Storage Temperature	Ambient temperatures.
Storage Life	Not available
Incompatible materials	Oxidizing agents, Strong Acids

7.3 Specific end use(s) Consult the supplier.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

8.1.1 Occupational Exposure Limits

SUBSTANCE	CAS No.	LTEL (8 hr TWA ppm)	LTEL (8 hr TWA mg/m³)	STEL (ppm)	STEL (mg/m³)	Note:
d-Limonene	5989-27-5	NE	NE	NE	NE	None
		NE	NE	NE	NE	None
Blended Naphtha	64742-47-8 64742-89-8 8052-41-3	100 (8052-41-3)	NE	NE	NE	ACGIH TLV
		500 (8052-41-3)	2900 (8052-41-3)	NE	NE	OSHA
Glycol Ether	1569-01-3	NE	NE	NE	NE	None
		NE	NE	NE	NE	None

8.1.2 Biological limit value

Biological limit values are not available for this product.

8.1.3 PNECs and DNELs

No PNECs and/or DNELs are available for this product.

8.2 Exposure controls

8.2.1 Appropriate engineering controls Guarantee sufficient ventilation during and after use, in order to prevent vapour accumulation.

8.2.2 Personal protection equipment

Eye/face protection: Safety spectacles.

Skin protection (Hand protection/ Other): Plastic or synthetic rubber gloves. Wear chemical resistant apron.

Respiratory protection: Wear suitable respiratory protective equipment if exposure to levels above the occupational exposure limit is likely.

Thermal hazards: Flammable liquid.

8.2.3 Environmental Exposure Controls Adequate ventilation must be used. Guarantee sufficient ventilation during and after use, in order to prevent vapour accumulation.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	Clear Liquid	Colour	Clear.
Odour	Citrus	Odour Threshold (ppm)	Not available
Melting Point (°C) / Freezing Point (°C)	Not available	Boiling point/boiling range (°C):	Not available
Flash Point (°C)	48°C / 110°F	Explosive limit ranges	Not available
Auto Ignition Temperature (°C)	Not available	Decomposition Temperature (°C)	Not available
Explosive properties	Not available	Oxidising properties	Not available
Flammability (solid, gas)	Flammable	pH (Value)	7.5-9.0
Evaporation rate	Not available	Vapour Pressure (mm Hg)	Not available
Vapour Density (Air=1)	Not available	Density (g/ml)	0.833
Solubility (Water)	Dispersible in water..	Solubility (Other)	Complete (hydrocarbons)
Partition Coefficient (n-Octanol/water)	Not available	Viscosity (mPa.s)	Not available

9.2 Other information VOC = 783 g/L

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity Slight

10.2 Chemical stability Stable under normal conditions.

10.3 Possibility of hazardous reactions Can react violently if in contact with - Oxidizing agents.

10.4 Conditions to avoid Avoid contact with heat and ignition sources.

10.5 Incompatible materials Bleaching products and comparable oxidisers,

10.6 Hazardous Decomposition Product(s) Carbon monoxide, Carbon dioxide.

SECTION 11: TOXICOLOGICAL INFORMATION

Ingredient	CAS No.	LD_{50} (Oral, Rat)	LC_{50} (Inhalation, Rat)
d-Limonene	5989-27-5	4400 mg/kg	NE
Blended Naphtha	64742-47-8 64742-89-8 8052-41-3	>5000 mg/kg Estimated	1400 ppm / 8H (8052-41-3)
Glycol Ether	1569-01-3	2500 mg/kg	NE

11.1 Information on toxicological effects

11.1.2 Mixtures

Acute toxicity	May be harmful if swallowed. May cause drowsiness and dizziness.
Irritation	Causes serious eye irritation. Causes skin irritation. Sensitizer to skin.
Corrosivity	Not to be expected.
Sensitisation	Sensitizer to skin.
Repeated dose toxicity	Moderate probability to contact dermatitis through repeated exposures..
Carcinogenicity	Slight hazard due to trace compounds in Naphtha.
Mutagenicity	Slight hazard due to trace compounds in Naphtha
Toxicity for reproduction	Slight hazard due to trace compounds in Naphtha

11.2 Other information None

SECTION 12: ECOLOGICAL INFORMATION

12.1	**Toxicity**	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment..Special toxicity noted for crustacean species.
12.2	**Persistence and degradability**	Moderate.
12.3	**Bioaccumulative potential**	Moderate.
12.4	**Mobility in soil**	Moderate.
12.5	**Results of PBT and vPvB assessment**	No data.
12.6	**Other adverse effects**	Poses slight to moderate risk to waterfowl.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1	**Waste treatment methods**	Send to a licensed recycler, reclaimer or incinerator. Avoid release to the environment. Incineration may be used to recover energy value.
13.2	**Additional Information**	None

SECTION 14: TRANSPORT INFORMATION

Land transport (ADR/RID) (a)(b)(c)

UN number	UN1263
Proper Shipping Name	Paint related material
Transport hazard class(es)	3
Packing Group	III
Hazard label(s)	Flammable Liquid
Environmental hazards	None
Special precautions for user	None

Land transport (Within USA) (a)(b)(c)

UN number	Exempt under 49CFR173.150(f)
Proper Shipping Name	Not regulated
Transport hazard class(es)	None
Packing Group	None
Hazard label(s)	None
Environmental hazards	None
Special precautions for user	

Sea transport (IMDG) (a)(b)(c)

UN number	UN1263
Proper Shipping Name	Paint related material
Transport hazard class(es)	3
Packing Group	III
Marine Pollutant	Yes
Special precautions for user	None

Air transport (ICAO/IATA) (a)(b)(c)

UN number	UN1263
Proper Shipping Name	Paint related material
Transport hazard class(es)	3
Packing Group	III
Environmental hazards	None
Special precautions for user	None

(a)– Consult with transport provider.

(b)- Exemptions may apply to products in non-bulk (<450L or 119 US gal) packages only..

(c)– Consult with shipper regarding large quantities of product.

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1 EU regulations

Authorisations and/or restrictions on use	Consult the supplier.
European Union (EINECS/ELINCS)	All chemicals listed
WGK number	Not Applicable.

15.1.2 National regulations

USA

TSCA (Toxic Substance Control Act)	All chemicals listed
SARA 311/312 - Hazard Categories	Flammable, Acute Health.
SARA 302 - Extremely Hazardous Substances	Listed – None
SARA 313 - Toxic Chemicals	Listed as Glycol Ethers.
CERCLA (Comprehensive Environmental Response Compensation and Liability Act)	Listed as Glycol Ethers. RQ = 24000 lbs. for product.
CAA (Clean Air Act 1990)	Listed – None
CWA (Clean Water Act)	Listed – None
State Right to Know Lists	Listed – MA, NJ, PA

Proposition 65 (California) **- WARNING: This product contains benzene and ethylbenzene, chemicals known to the state of California to cause cancer. TRACE AMOUNTS <0.01%**

Canada

WHMIS Classification	Class B, Division 3, Combustible Liquid Class D, Division 1, Subdivision B, Toxic Material Class D Division 2, Subdivision A, Very Toxic Material Class D, Division 2, Subdivision B, Toxic Material
Canada (DSL/NDSL)	Listed - DSL
Canada Ingredient Disclosure List (CIDL)	Listed as required.

15.2 Chemical Safety Assessment: COMBUSTIBLE LIQUID, EYE & SKIN IRRITANT, SKIN SENSITIZER, RESPIRATORY IRRITANT, ASPIRATION HAZARD< ENVIRONMENTAL HAZARD

SECTION 16: OTHER INFORMATION

The following sections contain revisions or new statements: 1-16.

LEGEND

ACGIH	American Conference of Governmental Industrial Hygienists	NA	not applicable, not available
AICS	Australian Inventory of Chemical Substances	NIOSH	National Institute for Occupational Safety and Health
ANSI	American National Standards Institute	ND	not determined
atm	atmosphere (pressure unit)	NFPA	National Fire Prevention Association
BOD	biological oxygen demand	NTP	National Toxicology Program
CAS	Chemical Abstracts Service	OC	open cup
CC	closed cup	OSHA	Occupational Safety and Health Administration
CDTA	Chemical Drug and Trafficking Act	Part	partition
COC	Cleveland Open Cup	PEL	permissible exposure limits
COD	chemical oxygen demand	ppb	parts per billion
coeff.	coefficient	PPE	personal protective equipment
CFR	Code of Federal Regulations	ppm	parts per million
CPR	cardio-pulmonary resuscitation	psi	pounds per square inch
DEA	Drug Enforcement Agency	RCRA	Resource Conservation and Recovery Act
DOT	Department of Transportation	RQ	Reportable quantity
DSCL	Dangerous Substances Classification and Labeling	RTK	Right to Know
EEC	European Economic Community	SARA	Superfund Amendments and Reauthorization Act
FDA	Food and Drug Administration	STEL	short-term exposure limit
HMIS	Hazardous Materials Information System	SUSDP	Standard for the Uniform Scheduling of Drugs and Poisons (Australia)
IARC	International Agency for Research on Cancer	TCC	Tagliabue Closed Cup
IDLH	immediate danger to life or health	TDG	Transportation of Dangerous Goods
kg	kilogram	TPQ	threshold planning quantity
L	liter	TQ	threshold quantity
LC50	median lethal concentration	TSCA	Toxic Substances Control Act
LD50	median lethal dose	TWA	time-weighted average
LEL	lower explosive limit	UEL	upper explosive limit
mg	milligram	WES	Workplace Exposure Standard (New Zealand)
mL	milliliter	WHMIS	Workplace Hazardous Material Information System

References: RTECS, CAS Registry, EINECS/ESIS, *Casarett & Doull's Toxicology*, *Goldfranks's Toxicologica Emergencies*, Manufacturer Information

Risk Phrases and Safety Phrases
R10: Flammable.
R36/37: Irritating to eyes and respiratory system.
R36/37/38: Irritating to eyes, respiratory system and skin.
R43: May cause sensitization by skin contact.
R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R65: Harmful: may cause lung damage if swallowed.
S16: Keep away from sources of ignition - No smoking.
S24/25: Avoid contact with skin and eyes.
S25: Avoid contact with eyes.
S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S28: After contact with skin, wash immediately with plenty of water.
S36: Wear suitable protective clothing
S45: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S53: Avoid exposure - obtain special instructions before use.
S60: This material and its container must be disposed of as hazardous waste.
S61: Avoid release to the environment. Refer to special instructions/Safety Data Sheets.

Hazard statement(s) and Precautionary statement(s)
H226: Flammable liquid and vapour.
H227: Combustible liquid and vapour.
H304: May be fatal if swallowed and enters airways.
H315: Causes skin irritation.
H317: May cause an allergic skin reaction.
H319: Causes serious eye irritation.
H335: May cause respiratory irritation.
H400: Very toxic to aquatic life.
H410: Very toxic to aquatic life with long lasting effects.
P210: Keep away from heat, sparks, open flame, hot surfaces - No smoking.
P261: Avoid breathing dust/fume/gas/mist/vapours/spray.
P264: Wash (hands and exposed skin) thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P281: Use personal protective equipment as required.
P302 + P352: IF ON SKIN: Wash with plenty of soap and water.
P304 + P341: IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P307 + P311: If exposed: Call a POISON CENTRE or doctor/physician.

Training advice: None

Additional Information: None

MATERIAL SAFETY DATA SHEET

Review Date: 08/29/2005

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT: SHELLZONE® ALL-SEASON Antifreeze/Coolant

MSDS NUMBER: 80070L - 16
PRODUCT CODE(S): 94010, 9401000001, 9401000055, 9401006021, 9401012031

MANUFACTURER
SOPUS Products
P.O. Box 4427
Houston, TX. 77210-4427

TELEPHONE NUMBERS
Spill Information: (877) 242-7400
Health Information: (877) 504-9351
MSDS Assistance Number: (877) 276-7285

SECTION 2 PRODUCT/INGREDIENTS

INGREDIENTS	CAS#	CONCENTRATION
Antifreeze/Coolant		
Ethylene Glycol	107-21-1	90 - 98 %weight
Deionized Water	7732-18-5	1 - 3 %weight
Phosphoric acid	7664-38-2	1 - 3 %weight

SECTION 3 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW
Appearance & Odor: Fluorescent green liquid. Mild odor.
Health Hazards: May be harmful or fatal if swallowed. May cause acidosis, cardiopulmonary and kidney effects. May cause CNS depression.
NFPA Rating (Health, Fire, Reactivity): 2, 1, 0
Hazard Rating: Least - 0 Slight - 1 Moderate - 2 High - 3 Extreme - 4

Inhalation:
In applications where vapors (caused by high temperature) or mists (caused by mixing or spraying) are created, breathing may cause a mild burning sensation in the nose, throat and lungs.

Eye Irritation:
If irritation occurs, a temporary burning sensation, minor redness, swelling, and/or blurred vision may result.

Skin Contact:
May cause slight irritation of the skin. If irritation occurs, a temporary burning sensation and minor redness and/or swelling may result. Other adverse effects not expected from brief skin contact.

Ingestion:

May be harmful or fatal if swallowed. Contains ethylene glycol and/or diethylene glycol which are toxic when swallowed. A lethal dose for an adult is 1 ml per kilogram or about 4 ounces (1/2 cup). Severe kidney damage can occur as a result of ingestion. Ingestion may result in nausea, vomiting and abdominal cramps. Metabolic acidosis and cardiopulmonary effects can occur following ingestion. May cause Central Nervous System (CNS) depression.

Other Health Effects:
Refer to Section 11, Toxicological Information, for specific information on the following effects:
Developmental Toxicity

Primary Target Organs:
The following organs and/or organ systems may be damaged by overexposure to this material and/or its components:
Cardiovascular System, Kidney, Liver, Lungs

Signs and Symptoms:
May cause cardiopulmonary effects including rapid respiration and heartbeat, cyanosis and in severe cases, pulmonary edema and pneumonia. Early to moderate CNS depression may be evidenced by giddiness, headache, dizziness and nausea. In extreme cases, unconsciousness and death may occur. Kidney damage may be indicated by changes in urine output or appearance, pain upon urination or in the lower back or general edema (swelling from fluid retention). Liver damage may be indicated by loss of appetite, jaundice (yellowish skin and eye color), fatigue and sometimes pain and swelling in the upper right abdomen.

Aggravated Medical Conditions:
Pre-existing eye, skin, respiratory, liver and kidney disorders and may be aggravated by exposure to this product.

For additional health information, refer to section 11.

SECTION 4 FIRST AID MEASURES

Inhalation:
Move victim to fresh air and provide oxygen if breathing is difficult. Get medical attention.

Skin:
Flush exposed area with water and follow by washing with soap if available. If skin irritation persists after washing, get medical advice.

Eye:
Flush eyes with plenty of water while holding eyelids open. Rest eyes for 30 minutes. If eye irritation persists, seek medical advice.

Ingestion:
DO NOT take internally. If swallowed, IMMEDIATELY contact a poison control center, emergency treatment center, or physician. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs.

Note to Physician:
IMMEDIATE TREATMENT IS EXTREMELY IMPORTANT! Ethylene Glycol (EG) and Diethylene Glycol (DEG) intoxication may initially produce behavioral changes, drowsiness, vomiting, diarrhea, thirst, and convulsions. EG and DEG are nephrotoxic. End stages of poisoning may include renal damage or failure with acidosis. Supportive measures, supplemented with hemodialysis if indicated, may limit the progression and severity of toxic effects. May cause cardiopulmonary effects. For ETHYLENE GLYCOL POISONING, intravenous ethanol is a recognized antidotal treatment; other antidotal treatments also exist for ethylene glycol poisoning.

SECTION 5 FIRE FIGHTING MEASURES

Flash Point [Method]: 260 °F/126.67 °C [Pensky-Martens Closed Cup]

Extinguishing Media:
Prevent run off from fire control or dilution from entering streams, sewers or drinking water supply. Use water fog, 'alcohol foam', dry chemical or carbon dioxide (CO2) to extinguish flames. Do not use a direct stream of water.

Fire Fighting Instructions:
Do not enter confined fire space without full bunker gear (helmet with face shield, bunker coats, gloves and rubber boots), including a positive pressure, NIOSH approved, self-contained breathing apparatus.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures:
May burn although not readily ignitable.

Wear appropriate personal protective equipment when cleaning up spills. Refer to Section 8.

Spill Management:
Shut off source of leak if safe to do so. Dike and contain spill.

FOR LARGE SPILLS: Remove with vacuum truck or pump to storage/salvage vessels.

FOR SMALL SPILLS: Soak up residue with an absorbent such as clay, sand or other suitable material. Place in non-leaking container and seal tightly for proper disposal.

Reporting:
U.S. regulations require reporting releases of this material to the environment which exceed the reportable quantity to the National Response Center at (800)424-8802.

SECTION 7 HANDLING AND STORAGE

Precautionary Measures:
Do not ingest. Avoid prolonged or repeated contact with eyes, skin or clothing. Avoid breathing of vapors, fumes or mists. Use with adequate ventilation. Wash thoroughly after handling.

Storage:
Do not store in open or unlabeled containers. Store in a cool, dry place with adequate ventilation. Keep away from open flames and high temperatures.

Container Warnings:
Keep containers closed when not in use. Containers, even those that have been emptied, can contain explosive vapors. Do not cut, drill, grind, weld or perform similar operations on or near containers.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Chemical	Limit	TWA	STEL	Ceiling	Notation
Ethylene Glycol	ACGIH TLV			100 mg/m3	

Ethylene Glycol	OSHA PEL - 1989(revoked)			50 ppmv	
Phosphoric acid	ACGIH TLV	1 mg/m3			
Phosphoric acid	OSHA PEL - 1989(revoked)	1 mg/m3	3 mg/m3		

Exposure Controls

Provide adequate ventilation to control airborne concentrations below the exposure guidelines/limits. Eye washes and showers for emergency use.

Personal Protection

Personal protective equipment (PPE) selections vary based on potential exposure conditions such as handling practices, concentration and ventilation. Information on the selection of eye, skin and respiratory protection for use with this material is provided below.

Eye Protection:
Chemical Goggles - If liquid contact is likely., or Safety glasses with side shields

Skin Protection:
Use protective clothing which is chemically resistant to this material. Selection of protective clothing depends on potential exposure conditions and may include gloves, boots, suits and other items. The selection(s) should take into account such factors as job task, type of exposure and durability requirements.

Published literature, test data and/or glove and clothing manufacturers indicate the best protection is provided by:
Neoprene, or Nitrile Rubber

Respiratory Protection:
If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, an approved respirator must be worn. Respirator selection, use and maintenance should be in accordance with the requirements of the OSHA Respiratory Protection Standard, 29 CFR 1910.134.

Types of respirator(s) to be considered in the selection process include:
For Mist: Air Purifying, R or P style NIOSH approved respirator.
For Vapors: Air Purifying, R or P style prefilter & organic cartridge, NIOSH approved respirator. Self-contained breathing apparatus for use in environments with unknown concentrations or emergency situations.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance & Odor: Fluorescent green liquid. Mild odor.
Substance Chemical Family: Ethylene Glycols

Boiling Point	226 °F	**Flash Point**	260 °F [Pensky-Martens Closed Cup]
Freezing Point	-34 °F	**Odor**	Mild odor.
Specific Gravity	1.12 - 1.14	**Stability**	Stable

NOTE: The freezing and boiling point values reflect a 50% solution in water at atmospheric pressure.

SECTION 10 REACTIVITY AND STABILITY

Stability:
Material is stable under normal conditions.

Hazardous Decomposition Products:

Thermal decomposition products are highly dependent on combustion conditions. A complex mixture of airborne solids, liquids and gases will evolve when this material undergoes pyrolysis or combustion. Acids, Aldehydes, Carbon Monoxide, Carbon Dioxide. Ketonesand other unidentified organic compounds may be formed upon combustion.

SECTION 11 TOXICOLOGICAL INFORMATION

Acute Toxicity

TEST	Result	OSHA Classification	Material Tested
Dermal LD50	> 2 g/kg(Rabbit)	Non-Toxic	Based on components(s)

Carcinogenicity Classification

Chemical Name	NTP	IARC	ACGIH	OSHA
Antifreeze/Coolant	No	Not Reviewed	No	No

Cardiovascular System	Ingestion of large doses can cause metabolic acidosis that results in cardiopulmonary effects.
Developmental Toxicity	Oral exposure of pregnant rats and mice to ethylene glycol has produced birth defects in the offspring
Kidney	Ingestion of ethylene glycol can cause bladder stones and kidney damage which can be fatal.
Liver	Prolonged and repeated ingestion of ethylene glycol has produced liver damage in rats.
Lungs	Ingestion of large doses can cause metabolic acidosis that results in cardiopulmonary effects.
Whole Animal	Orally, humans are more sensitive to ethylene glycol than rodents. The reported lethal dose range for an adult human is 1 -2 ml/kg, or 1/4 to 1/2 cup. Ingestion can result in metabolic acidosis.

SECTION 12 ECOLOGICAL INFORMATION

Environmental Fate:

The toxicity of this material to aquatic organisms has not been fully evaluated. This material must not be discharged or allowed to come into contact with sewage and drainage systems and any surface water body.

SECTION 13 DISPOSAL CONSIDERATIONS

RCRA Information:

Under RCRA, it is the responsibility of the user of the material to determine, at the time of the disposal, whether the material meets RCRA criteria for hazardous waste. This is because material uses, transformations, mixtures, processes, etc. may affect the classification. Refer to the latest EPA, state and local regulations regarding proper disposal. Follow all applicable laws and regulations. Used antifreeze recycling is recommended. Do not drain on the ground or into storm drainage systems. Do not dispose in sanitary sewer systems except where permitted by law.

SECTION 14 TRANSPORT INFORMATION

US Department of Transportation Classification
This material is not regulated under 49 CFR if in a container of 119 gallon capacity or less. If shipped in a container of over 119 gallon capacity then the DOT information must be accompanied with RQ notation, or, an otherwise 'Not Regulated' product will be classified as Environmentally Hazardous (solid/liquid) N.O.S., Class 9, Packing group III unless the product qualifies for the petroleum exemption (49 CFR 171.8).

Hazardous Substance/Material RQ: Ethylene glycol / 5209.3481 lbs

International Air Transport Association
Hazard Class/Division: 9 (Miscellaneous)
Identification Number: UN3082
Packing Group: III
Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S.
Technical Name(s): Ethylene Glycol

International Maritime Organization Classification
Hazard Class/Division: 9 (Miscellaneous)
Identification Number: UN3082
Packing Group: III
Proper Shipping Name: Environmentally Hazardous Substances, Liquid, N.O.S.
Technical Name(s): Ethylene Glycol

SECTION 15 REGULATORY INFORMATION

Federal Regulatory Status

OSHA Classification:
Product is hazardous according to the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Comprehensive Environmental Release, Compensation & Liability Act (CERCLA):

Ethylene Glycol	RQ 5000 lbs	Reportable Spill => 5209.348071 lbs or 624.85 gal
Potassium hydroxide	RQ 1000 lbs	Reportable Spill => 139664.804469

lbs or 16752.41 gal

Ozone Depleting Substances (40 CFR 82 Clean Air Act):
This material does not contain nor was it directly manufactured with any Class I or Class II ozone depleting substances.

Superfund Amendment & Reauthorization Act (SARA) Title III:
There are no components in this product on the SARA 302 list.

SARA Hazard Categories (311/312):

Immediate Health	Delayed Health	Fire	Pressure	Reactivity
YES	YES	NO	NO	NO

SARA Toxic Release Inventory (TRI) (313):
. Ethylene Glycol

Toxic Substances Control Act (TSCA) Status:
All component(s) of this material is(are) listed on the EPA/TSCA Inventory of Chemical Substances.

Other Chemical Inventories:
Component(s) of this material is (are) listed on the Australian AICS, Canadian DSL, Chinese Inventory, European EINECS, Korean Inventory, Philippines PICCS.

State Regulation

The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the MSDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

New Jersey Right-To-Know Chemical List:

Ethylene Glycol (0878)	90 - 98 %weight	Special Hazard
Phosphonic acid	1 - 3 %weight	Environmental Hazard

Pennsylvania Right-To-Know Chemical List:

1,2-Ethanediol (107-21-1)	90 - 98 %weight	Environmental Hazard
Phosphoric acid	1 - 3 %weight	Environmental Hazard

SECTION 16 OTHER INFORMATION

Revision#: 16
Review Date: 08/29/2005
Revision Date: 09/30/2004
Revisions since last change (discussion): This Material Safety Data Sheet (MSDS) has been reviewed to fully comply with the guidance contained in the ANSI MSDS standard (ANSI Z400.1-2003). We encourage you to take the opportunity to read the MSDS and review the information contained therein.

SECTION 17 LABEL INFORMATION

READ AND UNDERSTAND MATERIAL SAFETY DATA SHEET BEFORE HANDLING OR DISPOSING OF PRODUCT. THIS LABEL COMPLIES WITH THE REQUIREMENTS OF THE OSHA HAZARD COMMUNICATION STANDARD (29 CFR 1910.1200) FOR USE IN THE WORKPLACE. THIS LABEL IS NOT INTENDED TO BE USED WITH PACKAGING INTENDED FOR SALE TO CONSUMERS AND MAY NOT CONFORM WITH THE REQUIREMENTS OF THE CONSUMER PRODUCT SAFETY ACT OR OTHER RELATED REGULATORY REQUIREMENTS.

PRODUCT CODE(S): 94010, 9401000001, 9401000055, 9401006021, 9401012031

SHELLZONE® ALL-SEASON Antifreeze/Coolant

WARNING!

MAYBE HARMFUL OR FATAL IF SWALLOWED. MAY CAUSE ACIDOSIS, CARDIOPULMONARY AND KIDNEY EFFECTS. MAY CAUSE CENTRAL NERVOUS SYSTEM DEPRESSION. The following organs and/or organ systems may be damaged by overexposure to this material and/or its components.

MAY CAUSE DAMAGE TO: Cardiovascular System, Kidney, Liver, Lungs

Refer to Section 11, Toxicological Information, for specific information on the following effects: Developmental Toxicity

Precautionary Measures:
Avoid prolonged or repeated contact with eyes, skin and clothing. Avoid breathing of vapors, fumes, or mist. Use only with adequate ventilation. Keep container closed when not in use. Wash thoroughly after handling.

FIRST AID

Inhalation: Move victim to fresh air and provide oxygen if breathing is difficult. Get medical attention.
Skin Contact: Flush exposed area with water and follow by washing with soap if available. If skin irritation persists after washing, get medical advice.
Eye Contact: Flush eyes with plenty of water while holding eyelids open. Rest eyes for 30 minutes. If eye irritation persists, seek medical advice.
Ingestion: DO NOT take internally. If swallowed, IMMEDIATELY contact a poison control center, emergency treatment center, or physician. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs.

FIRE

In case of fire, Use water fog, 'alcohol foam', dry chemical or carbon dioxide (CO_2) to extinguish flames. Do not use a direct stream of water.

SPILL OR LEAK

Dike and contain spill.
FOR LARGE SPILLS: Remove with vacuum truck or pump to storage/salvage vessels.

FOR SMALL SPILLS: Soak up residue with an absorbent such as clay, sand or other suitable material. Place in non-leaking container and seal tightly for proper disposal.

CONTAINS: Ethylene Glycol, 107-21-1; Deionized Water, 7732-18-5; Phosphoric acid, 7664-38-2

NFPA Rating (Health, Fire, Reactivity): 2, 1, 0

TRANSPORTATION

US Department of Transportation Classification
This material is not regulated under 49 CFR if in a container of 119 gallon capacity or less. If shipped in a container of over 119 gallon capacity then the DOT information must be accompanied with RQ notation, or, an otherwise 'Not Regulated' product will be classified as Environmentally Hazardous (solid/liquid) N.O.S., Class 9, Packing group III unless the product qualifies for the petroleum exemption (49 CFR 171.8).

Hazardous Substance/Material RQ: Ethylene glycol / 5209.3481 lbs

CAUTION: Misuse of empty containers can be hazardous. Empty containers can be hazardous if used to store toxic, flammable, or reactive materials. Cutting or welding of empty containers might cause fire, explosion or toxic fumes from residues. Do not pressurize or expose to open flames or heat. Keep container closed and drum bungs in place.

Name and Address

SOPUS Products
P.O. Box 4427
Houston, TX 77210-4427

ADMINISTRATIVE INFORMATION	
MANUFACTURER ADDRESS:	SOPUS Products, P.O. Box 4427, Houston, TX. 77210-4427

THE INFORMATION CONTAINED IN THIS DATA SHEET IS BASED ON THE DATA AVAILABLE TO US AT THIS TIME, AND IS BELIEVED TO BE ACCURATE BASED UPON THAT : IT IS PROVIDED INDEPENDENTLY OF ANY SALE OF THE PRODUCT, FOR PURPOSE OF HAZARD COMMUNICATION. IT IS NOT INTENDED TO CONSTITUTE PRODUCT PERFORMANCE INFORMATION, AND NO EXPRESS OR IMPLIED WARRANTY OF ANY KIND IS MADE WITH RESPECT TO THE PRODUCT, UNDERLYING DATA OR THE INFORMATION CONTAINED HEREIN. YOU ARE URGED TO OBTAIN DATA SHEETS FOR ALL PRODUCTS YOU BUY, PROCESS, USE OR DISTRIBUTE, AND ARE ENCOURAGED TO ADVISE THOSE WHO MAY COME IN CONTACT WITH SUCH PRODUCTS OF THE INFORMATION CONTAINED HEREIN.

TO DETERMINE THE APPLICABILITY OR EFFECT OF ANY LAW OR REGULATION WITH RESPECT TO THE PRODUCT, YOU SHOULD CONSULT WITH YOUR LEGAL ADVISOR OR THE APPROPRIATE GOVERNMENT AGENCY. WE WILL NOT PROVIDE ADVICE ON SUCH MATTERS, OR BE RESPONSIBLE FOR ANY INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN. THE UNDERLYING DATA, AND THE INFORMATION PROVIDED HEREIN AS A RESULT OF THAT DATA, IS THE PROPERTY OF SOPUS PRODUCTS AND IS NOT TO BE THE SUBJECT OF SALE OR EXCHANGE WITHOUT THE EXPRESS WRITTEN CONSENT OF SOPUS PRODUCTS.

43716-11586-100R-08/22/2005

SD

Piedmont Natural Gas

Material Safety Data Sheet

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION (rev. 9-04)

Trade Number: Natural Gas (odorized)
CAS Number: 68410-63-9
Synonyms: Natural Gas (dry), Natural Gas (CNG), Methane, Pipeline Spec Gas, Processed Gas, Residue Gas, Sweet Natural Gas, Treated Gas
Use/Description: Fuel for combustion applications, raw material for chemical reactions

Corporate Identification Physical	Company Identification Mailing	Emergency Telephone Numbers
Piedmont Natural Gas 1915 Rexford Road Charlotte, NC 28211	Piedmont Natural Gas PO Box 33068 Charlotte, NC 28233	Safety Officer [8:00 am – 5:00 pm]: 1(704)-731-4376 CIC: 1(704) 525-3882 Gas Control [24 hour]: 1(704) 731-4253 or 1(800)-694-0750

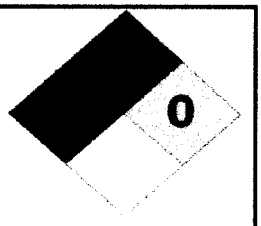
2. COMPOSITION/INFORMATION ON INGREDIENTS (rev. 9-04)

Components	CAS No.	Mole %	Exposure Limits			
			ACGIH TLV (ppm)		OSHA PEL (ppm)	
Base Gas: Methane	78-82-8	87.0-96%	None established by OSHA or ACGIH Simple asphyxiant; exposure limited by oxygen and flammability			
Balance Gases:						
Ethane	78-84-0	1.8-5.1%	None established by OSHA or ACGIH Simple asphyxiant; exposure limited by oxygen and flammability			
Propane	74-98-6	0.1-1.5%	2500	TWA	1000	TWA
Nitrogen	7727-37-9	1.3-5.6	1000	TWA		
Carbon Dioxide	124-38-9	0.1-1.0	5000	TWA	5000	TWA

NOTE: No permissible exposure limits (PEL) or threshold limit values (TLV) exist for natural gas. The above listing is a summary of the gases in natural gas which can be found at concentrations greater than 1 mole % . Because natural gas is a natural product, composition can vary greatly.

3. HAZARDS IDENTIFICATION (rev. 9-04)

EMERGENCY OVERVIEW
DANGER!
EXTREMELY FLAMMABLE GAS – MAY CAUSE FLASH FIRE OR EXPLOSION!!
Keep away from heat, sparks, flames, or other sources of ignition (e.g. static electricity, pilot lights, mechanical / electrical equipment)



Revision Date: 9/24/2004

WARNING: This product is a simple asphyxiant. In high concentrations it will displace oxygen from the breathing atmosphere, particularly in confined spaces. Signs of asphyxiation will be noticed when oxygen is reduced to below 16%, and may occur in several stages. Symptoms may include rapid breathing and pulse rate, headache, dizziness, visual disturbances, mental confusion, incoordination, mood changes, muscular weakness, tremors, cyanosis, narcosis and numbness of the extremities. Unconsciousness leading to central nervous system injury and possibly death will occur when the atmospheric oxygen concentration is reduced to about 6% to 8% or less.

WARNING: The burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

4. HEALTH HAZARDS IDENTIFICATION (rev. 9-04)

Potential Health Effects
Note: Natural gas in its gaseous state under normal conditions and at very low concentrations, does not present an inhalation, ingestion or skin hazard. At high concentrations, natural gas will reduce the available oxygen in the air, thus resulting in symptoms of headache, nausea, dizziness, fatigue and possibly coma and / or death. In situations where natural gas is not completely combusted, carbon monoxide will accumulate which can cause an explosion hazard and a suffocation hazard.

Special note:
Using natural gas for cutting, annealing, as a chemical ingredient, or as a raw material in chemical manufacturing may cause exposure to other unknown hazards. See manufacturer of other materials for potential exposures.

Primary Route of Exposure
Inhalation.

EYES
Not irritating. Under most circumstances, exposure to natural gas will not affect the eyes. Use of natural gas to heat, cut, or anneal materials should require the use of safety glasses to insure that no foreign materials enter the eye.

SKIN
Not irritating. When natural gas is being combusted, heat is generated which may burn the skin. Under most other circumstances, exposure to natural gas will not affect the skin. Use of natural gas to heat, cut, or anneal materials may require the use of protective clothing to insure that no parts of the body are burned or foreign materials enter the skin.

INGESTION
Risk of ingestion is extremely unlikely.

INHALATION
This product is considered to be non-toxic by inhalation.

The effects of inhalation of high concentrations may cause the same effects as asphyxiation. This includes central nervous system depression such as dizziness, drowsiness, headache, and similar narcotic symptoms, but no long-term effects if removed from exposure area. Numbness, a "chilly" feeling, and vomiting have been reported from accidental exposures to high concentrations.

Carbon Monoxide poisoning can occur as a result of poor installation, poor maintenance or failure or damage to an appliance in service, the fuel is not burned properly, or when rooms are poorly ventilated and the carbon monoxide is unable to escape. Carbon monoxide poisoning occurs when carbon monoxide

enters the lungs via the normal breathing mechanism and displacing oxygen from the bloodstream. Interruption of the normal supply of oxygen puts at risk the functions of the heart, brain and other vital functions of the body.

CHRONIC and CARCINOGENICITY
Methane and ethane, the main components of natural gas, are considered practically inert in terms of physiological effects. At high concentrations these materials act as simple asphyxiants and may cause death due to lack of oxygen. Exposure to carbon monoxide concentrations can cause the following:

Concentration of CO in air	Inhalation time and toxic developed
50 parts per million (ppm)	Safety level as specified by the Health and Safety Executive
200 PPM	Slight headache within 2-3 hours
400 PPM	Frontal headache within 1-2 hours, becoming widespread in 3 hours
800 PPM	Dizziness, nausea, convulsions within 45 minutes, insensible in 2 hours
1200 PPM	Immediately Dangerous to Life and Health (IDLH)

CARCINOGENICITY:

OSHA: NO **IARC:** NO **NTP:** NO **ACGIH:** NO

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE
Individuals with pre-existing conditions of the heart, lungs, and blood may have increased susceptibility to symptoms of asphyxia.

5. FIRST AID MEASURES (rev. 9-04)

EYES
In case of a burn to the eye due to combustion of natural gas, cover eyes to protect from light. Seek immediate medical attention.

During cutting, annealing, or heating materials, dusts or particulates may cause mechanical irritation including pain, tearing, and redness. Scratching of the cornea can occur if eye is rubbed. Fumes may be irritating. Contact with the heated material may cause thermal burns.

SKIN
In case of burn due to combustion of natural gas, seek immediate medical attention.
Contact with heated material or products of combustion may cause thermal burns.

INGESTION
Although risk of ingestion is extremely unlikely, in case of oral exposure, seek immediate medical attention.

INHALATION
If exposed to excessive amounts of natural gas due to a leak, remove person to fresh air using proper protective equipment. If person is not breathing, provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. DO NOT USE ANY EQUIPMENT THAT

MAY SERVE AS A SOURCE OF IGNITION UNTIL NATURAL GAS HAS COMPLETELY DISIPATED. Seek medical attention immediately.

If exposed to excessive amounts of carbon monoxide due to products of incomplete combustion, remove person to fresh air using proper protective equipment. If person is not breathing, provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. DO NOT USE ANY EQUIPMENT THAT MAY SERVE AS A SOURCE OF IGNITION UNTIL CARBON MONOXIDE HAS COMPLETELY DISIPATED. Seek medical attention immediately.

6. FIRE FIGHTING MEASURES (rev. 9-04)

FLAMMABLE PROPERTIES: (NFPA Natural Gas)

FLASH POINT:	Flammable gas
AUTOIGNITION POINT:	900 - 1170 °F (482 - 632 °C)
OSHA/NFPA FLAMMABILITY CLASS:	FLAMMABLE GAS
LOWER EXPLOSIVE LIMIT (%):	3.8 - 6.5
UPPER EXPLOSIVE LIMIT (%):	13 - 17

FIRE AND EXPLOSION HAZARDS
Dangerous fire and explosion hazard when exposed to heat, sparks or flame. Natural gas is lighter than air and may travel long distances to a point of ignition and flash back. Containers containing or which have contained natural gas may explode in heat or fire.

EXTINGUISHING MEDIA
To extinguish a natural gas fire, stop the flow of natural gas, use dry chemical, carbon dioxide, halon or water. Special note, the fire should not be extinguished unless flow of gas can be immediately stopped.

FIRE FIGHTING INSTRUCTIONS
Gas fires should not be extinguished unless flow of gas can be immediately stopped. Shut off gas source and allow gas to burn out. If spill or leak has not ignited, determine if water spray may assist in dispersing gas or vapor to protect personnel attempting to stop leak.
Use water to cool equipment, surfaces and containers exposed to fire and excessive heat. For large fire the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure.

Isolate area, particularly around ends of storage vessels. Let vessel, tank car or container burn unless leak can be stopped. Withdraw immediately in the event of a rising sound from a venting safety device. Large fires typically require specially trained personnel and equipment to isolate and extinguish the fire.
Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus with full face piece and full protective clothing.

See Section 16 for the NFPA 704 Hazard Rating.

7. ACCIDENTAL RELEASE MEASURES (rev. 9-04)

ACTIVATE FACILITY'S EMERGENCY RESPONSE PLAN.
EVACUATE NONESSENTIAL PERSONNEL and secure all ignition sources. No road flares, smoking or flames in hazard area. Consider wind direction, stay upwind, if possible. Evaluate the direction of product travel. Cold vapor cloud may be white, but color will dissipate as cloud disperses - fire and explosion hazard is still present!

Stop the source of the release, if safe to do so. Consider the use of water spray to disperse vapors. Isolate the area until gas has dispersed. Ventilate and gas test area before entering.

8. HANDLING AND STORAGE (rev. 9-04)

HANDLING and STORAGE PRECAUTIONS
Keep away from flame, sparks and excessive temperatures. Store only in approved containers. These containers must meet the requirements as specified in 49 CFR 173.302.

Containers should be bonded and ground when filling or discharging. Use only in well ventilated areas. See also applicable OSHA regulations for the handling and storage of this product, including, but not limited to, 29 CFR 1910.110 Storage and Handling of Liquefied Petroleum Gases.

When storing natural gas, use explosion proof or intrinsically safe electrical equipment designed for the atmosphere in accordance with applicable codes, industrial recommended practices, and local, state and federal regulations. Do not smoke or use spark-producing tools in the area of use.

9. EXPOSURE CONTROLS AND PERSONAL PROTECTION (rev. 9-04)

WARNING: The natural gas when combusted releases products of combustion including carbon dioxide, and oxides of nitrogen. If combustion is not complete, natural gas may release carbon monoxide. Where appropriate, use carbon monoxide detectors when burning natural gas to insure that all natural gas is being combusted completely. If the carbon monoxide detector alarms, discontinue use of the appliance until a Piedmont Natural Gas employee or other authorized natural gas technician can service the appliance.

ENGINEERING CONTROLS
When using gas at home or in an industrial setting, use adequate ventilation to keep gas concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

When appropriate, use explosion-proof equipment and lighting in classified/controlled areas.

When using natural gas, insure that natural gas concentration has not built up prior to adding ignition source. Failure to insure that natural gas concentration has not built up may result in an explosion.

EYE/FACE PROTECTION
When lighting natural gas, use eye protection to protect from burns.

SKIN PROTECTION
Where appropriate, wear proper personal protective equipment (PPE) including flame retardant clothing to protect against burns.

RESPIRATORY PROTECTION
Use a NIOSH/MSHA approved positive-pressure, supplied air respirator with escape bottle or self-contained breathing apparatus (SCBA) for gas concentrations above occupational exposure limits, for potential for uncontrolled release, if exposure levels are not known, high carbon monoxide concentration, or in an oxygen-deficient atmosphere.

HEARING
During a high-pressure release, the release may cause a whistling noise. Hearing protection may be required for high-pressure releases of natural gas.

CAUTION: Flammability limits (i.e., explosion hazard) should be considered when assessing the need to expose personnel to concentrations requiring respiratory protection.
Refer to OSHA 29 CFR 1910.134, ANSI Z88.2-1992, NIOSH Respirator Decision Logic, and the manufacturer for additional guidance on respiratory protection selection.

10. PHYSICAL AND CHEMICAL PROPERTIES (rev. 9-04)

APPEARANCE
Colorless gas. The lack of visible gas cloud does not indicate absence of gas.

ODOR
Natural gas has a distinctive, disagreeable "natural gas" type odor when treated with an odorizing agent (typically < 0.1% ethyl mercaptan).

BASIC PHYSICAL PROPERTIES (for methane)

BOILING POINT:	-259 ^{o}F (-162 ^{o}C)
VAPOR PRESSURE:	40 atm. @ -187 ^{o}F (-86 ^{o}C)
VAPOR DENSITY (air = 1):	0.6
SPECIFIC GRAVITY (H_2O = 1):	0.4 @ -263 ^{o}F (-164 ^{o}C)
SOLUBILITY (H_2O):	3.5%

11. STABILITY AND REACTIVITY (rev. 9-04)

CONDITIONS TO AVOID and INCOMPATIBLE MATERIALS
Keep away from strong oxidizers, ignition sources and heat.

STABILITY: Stable. Hazardous polymerization will not occur.

CONDITIONS TO AVOID and INCOMPATIBLE MATERIALS
Keep away from strong oxidizers. Oxidizers to avoid include bromine pentafluoride, oxygen difluoride, and nitrogen trifluoride, and hydrogen peroxide at concentrations greater than 30%.
Thermal decomposition may release toxic oxides of carbon dioxide and carbon monoxide.
Keep away from chlorine gas. Natural gas will spontaneously ignite when mixed with chlorine gas. In addition, the products of the reaction of methane and chlorine are carbon, hydrogen chloride, and various chlorocarbons. Hydrogen chloride is otherwise known as hydrochloric acid.

HAZARDOUS DECOMPOSITION PRODUCTS
Thermal decomposition may release carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).
Chemical decomposition (chlorine) may release carbon and hydrogen chloride.

12. ECOLOGICAL INFORMATION (rev. 9-04)

This product is expected to exist entirely in the vapor phase in ambient air.

13. DISPOSAL CONSIDERATIONS (rev. 9-04)

Consult federal, state and local waste regulations to determine appropriate disposal methods.

14. TRANSPORTATION INFORMATION (rev. 9-04)

PROPER SHIPPING NAME:	NATURAL GAS, COMPRESSED *(with high methane content)*
HAZARD CLASS:	2.1
DOT IDENTIFICATION NUMBER:	UN 1971
DOT SHIPPING LABEL:	FLAMMABLE GAS
CONTAINERS:	AS SPECIFIED IN 49 CFR 173.302, 49 CFR 173.306 OR 49 CFR 173.318 WHERE APPLICABLE
QUANTITY LIMITATIONS:	AS SPECIFIED IN THE HAZARDOUS MATERIALS TABLE LISTED IN PART 49 OF THE CODE OF FEDERAL REGULATIONS (49 CFR)
PASSENGER AIRCRAFT:	FORBIDDEN
PASSENGER RAILCAR:	FORBIDDEN
CARGO AIRPLANE:	FORBIDDEN EXCEPT AS SPECIFIED IN THE HAZARDOUS MATERIALS TABLE LISTED IN 49 CFR.

15. REGULATORY INFORMATION (rev. 9-04)

U.S. FEDERAL, STATE, and LOCAL REGULATORY INFORMATION
This product and its constituents listed herein are on the EPA TSCA Inventory. Any spill or uncontrolled release of this product, including any substantial threat of release, may be subject to federal, state and/or local reporting requirements. This product and/or its constituents may also be subject to other regulations at the state and/or local level. Consult those regulations applicable to your facility/operation.

CERCLA SECTION 103 and SARA SECTION 304 (RELEASE TO THE ENVIRONMENT)
This product does not contain any chemicals subject to the reporting requirements of CERCLA Section 103 or SARA 304. In addition, the CERCLA definition of hazardous substances contains a "petroleum exclusion" clause which exempts natural gas and synthetic gas usable for fuel and any indigenous components of such from the CERCLA Section 103 reporting requirements.

SARA SECTION 311/312 - HAZARD CLASSES

ACUTE HEALTH	CHRONIC HEALTH	FIRE	SUDDEN RELEASE OF PRESSURE	REACTIVE
		APPLIES	APPLIES	

SARA SECTION 313 - SUPPLIER NOTIFICATION
This product does not contain any chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372.

CANADIAN REGULATORY INFORMATION
Class A (Compressed Gas) Class B, Division 1 (Flammable Gas)

16. OTHER INFORMATION (rev. 9-04)

NFPA® 704 HAZARD RATING:
HEALTH: 1 Slight
FIRE: 4 Extreme
REACTIVITY: 0 Negligible

HMIS® HAZARD RATING
HEALTH: 1 Slight
FIRE: 4 Severe
REACTIVITY: 0 Minimal

SUPERSEDES MSDS DATED: none

DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES AND LIABILITY

Information presented herein has been compiled from sources considered to be dependable, and is accurate and reliable to the best of our knowledge and belief, but is not guaranteed to be so. Since conditions of use are beyond our control, we make no warranties, expressed or implied, except those that may be contained in our written contract of sale or acknowledgment. Vendor assumes no responsibility for injury to user or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, vendor assumes no responsibility for injury to user or third persons proximately caused by abnormal use of the material, even if reasonable safety procedures are followed. Furthermore, user assumes the risk in their use of the material.

The information in this Material Safety Data Sheet (MSDS) was obtained from sources which we believe are reliable; however, the information is provided without any representation of warranty, expressed or implied, regarding the accuracy or correctness.

The conditions or methods of handling, storage, and / or use of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage, or expense arising out of or in any way connected with the handling, storage, and / or use of this product.

Material Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Texaco Anti-Freeze/Coolant

Product Use: Antifreeze/Coolant
Product Number(s): 02353, CPS222353
Company Identification
Chevron Global Lubricants
Global Lubricants
6975-A Pacific Circle
Mississauga, ONT L5T 2H3
Canada
www.chevronlubricants.com

Transportation Emergency Response
CHEMTREC: (800) 424-9300 or (703) 527-3887
Health Emergency
Chevron Emergency Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623
Product Information
email : lubemsds@chevrontexaco.com
Product Information: (800) LUBE TEK
MSDS Requests: (800) 414-6737

SECTION 2 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Ethylene Glycol	107-21-1	90 - 97 %weight
Diethylene glycol	111-46-6	1 - 5 %weight

Information on ingredients that are considered Controlled Products and/or that appear on the WHMIS Ingredient Disclosure List (IDL) is provided as required by the Canadian Hazardous Products Act (HPA, Sections 13 and 14). Ingredients considered hazardous under the OSHA Hazard Communication Standard, 29 CFR 1910.1200, are also listed. See Section 15 for additional regulatory information.

SECTION 3 HAZARDS IDENTIFICATION

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EMERGENCY OVERVIEW

- HARMFUL OR FATAL IF SWALLOWED
- POSSIBLE BIRTH DEFECT HAZARD - CONTAINS MATERIAL THAT MAY CAUSE BIRTH DEFECTS BASED ON ANIMAL DATA
- MAY CAUSE DAMAGE TO:
- KIDNEY

****
****

IMMEDIATE HEALTH EFFECTS
Eye: Not expected to cause prolonged or significant eye irritation.

Skin: Contact with the skin is not expected to cause prolonged or significant irritation. Not expected to be harmful to internal organs if absorbed through the skin.
Ingestion: Toxic; may be harmful or fatal if swallowed.
Inhalation: The vapor or fumes from this material may cause respiratory irritation. Symptoms of respiratory irritation may include coughing and difficulty breathing. Breathing this material at concentrations above the recommended exposure limits may cause central nervous system effects. Central nervous system effects may include headache, dizziness, nausea, vomiting, weakness, loss of coordination, blurred vision, drowsiness, confusion, or disorientation. At extreme exposures, central nervous system effects may include respiratory depression, tremors or convulsions, loss of consciousness, coma or death.

DELAYED OR OTHER HEALTH EFFECTS:

Reproduction and Birth Defects: Contains material that may cause birth defects based on animal data.
Target Organs: Contains material that may cause damage to the following organ(s) following repeated ingestion based on animal data: Kidney
See Section 11 for additional information. Risk depends on duration and level of exposure.

SECTION 4 FIRST AID MEASURES

Eye: No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.
Skin: No specific first aid measures are required. As a precaution, remove clothing and shoes if contaminated. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.
Ingestion: If swallowed, get immediate medical attention. Do not induce vomiting. Never give anything by mouth to an unconscious person.
Inhalation: Move the exposed person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if breathing difficulties continue.

SECTION 5 FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:

Flashpoint: (Pensky-Martens Closed Cup) 127 °C (260 °F)
Autoignition: No Data Available
Flammability (Explosive) Limits (% by volume in air): Lower: 3.2 Upper:

EXTINGUISHING MEDIA: Dry Chemical, CO2, AFFF Foam or alcohol resistant foam.

PROTECTION OF FIRE FIGHTERS:

Fire Fighting Instructions: This material will burn although it is not easily ignited. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.
Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion. Combustion may form oxides of: Phosphorus, Potassium .

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in vicinity of spilled material.
Spill Management: Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.
Reporting: Report spills to local authorities as appropriate or required.

SECTION 7 HANDLING AND STORAGE

Precautionary Measures: Do not taste or swallow. Do not breathe vapor or fumes. Wash thoroughly after handling.
General Handling Information: Do not taste or swallow antifreeze or solution. Keep out of the reach of children and animals.
Static Hazard: Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient.

Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures. For more information, refer to OSHA Standard 29 CFR 1910.106, 'Flammable and Combustible Liquids', National Fire Protection Association (NFPA 77, 'Recommended Practice on Static Electricity', and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents'.

General Storage Information: Do not store in open or unlabeled containers.

Container Warnings: Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

GENERAL CONSIDERATIONS:

Consider the potential hazards of this material (see Section 3), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

ENGINEERING CONTROLS:

Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below the recommended exposure limits.

PERSONAL PROTECTIVE EQUIPMENT

Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.

Skin Protection: No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested materials for protective gloves include: Natural rubber, Neoprene, Nitrile Rubber, Polyvinyl Chloride (PVC or Vinyl).

Respiratory Protection: Determine if airborne concentrations are below the recommended occupational exposure limits for jurisdiction of use. If airborne concentrations are above the acceptable limits, wear an approved respirator that provides adequate protection from this material, such as: Air-Purifying Respirator for Organic Vapors, Dusts and Mists.

Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

Occupational Exposure Limits:

Component	Country/ Agency	TWA	STEL	Ceiling	Notation
Ethylene Glycol	ACGIH	--	--	100 mg/m3	--

NOTE ON OCCUPATIONAL EXPOSURE LIMITS: Consult local authorities for acceptable provincial values in Canada. Consult the Canadian Standards Association Standard 94.4-2002 Selection, Use and Care of Respirators.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Green
Physical State: Liquid
Odor: Faint or Mild
pH: 10.2 - 11
Vapor Pressure: <0.1 mmHg @ 20 °C (68 °F)

Vapor Density (Air = 1): 2.1 (Typical)
Boiling Point: 196.1°C (385°F)
Solubility: Miscible
Freezing Point: -36.7°C (-34°F)
Specific Gravity: 1.13 @ 15.6°C (60.1°F) / 15.6°C (60.1°F)
Viscosity: No data available
Evaporation Rate: No Data Available
Odor Threshold: No Data Available
Coefficient of Water/Oil Distribution: No Data Available

SECTION 10 STABILITY AND REACTIVITY

Chemical Stability: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
Incompatibility With Other Materials: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
Hazardous Decomposition Products: Ketones (Elevated temperatures), Aldehydes (Elevated temperatures)
Hazardous Polymerization: Hazardous polymerization will not occur.
Sensitivity to Mechanical Impact: No.

SECTION 11 TOXICOLOGICAL INFORMATION

IMMEDIATE HEALTH EFFECTS
Eye Irritation: The eye irritation hazard is based on evaluation of data for similar materials or product components.
Skin Irritation: The skin irritation hazard is based on evaluation of data for similar materials or product components.
Skin Sensitization: No product toxicology data available.
Acute Dermal Toxicity: The acute dermal toxicity hazard is based on evaluation of data for similar materials or product components.
Acute Oral Toxicity: LDLo-Lowest Lethal Dose: 1.56 g/kg (human) The acute oral toxicity hazard is based on evaluation of data for similar materials or product components.
Acute Inhalation Toxicity: The acute inhalation toxicity hazard is based on evaluation of data for similar materials or product components.For additional information on the acute toxicity of the components, call the technical information center.
ADDITIONAL TOXICOLOGY INFORMATION:
This product contains diethylene glycol (DEG). The estimated oral lethal dose is about 50 cc (1.6 oz) for an adult human. DEG has caused the following effects in laboratory animals: liver abnormalities, kidney damage and blood abnormalities. It has been suggested as a cause of the following effects in humans: liver abnormalities, kidney damage, lung damage and central nervous system damage.
This product contains ethylene glycol (EG). The toxicity of EG via inhalation or skin contact is expected to be slight at room temperature. The estimated oral lethal dose is about 100 cc (3.3 oz.) for an adult human. Ethylene glycol is oxidized to oxalic acid which results in the deposition of calcium oxalate crystals mainly in the brain and kidneys. Early signs and symptoms of EG poisoning may resemble those of alcohol intoxication. Later, the victim may experience nausea, vomiting, weakness, abdominal and muscle pain, difficulty in breathing and decreased urine output. When EG was heated above the boiling point of water, vapors formed which reportedly caused unconsciousness, increased lymphocyte count, and a rapid, jerky movement of the eyes in persons chronically exposed. When EG was administered orally to pregnant rats and mice, there was an increase in fetal deaths and birth defects. Some of these effects occurred at doses that had no toxic effects on the mothers. We are not aware of any reports that EG causes reproductive toxicity in human beings.

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICITY
The toxicity of this material to aquatic organisms has not been evaluated. Consequently, this material should be kept out of sewage and drainage systems and all bodies of water.
ENVIRONMENTAL FATE
This material is expected to be readily biodegradable.

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by USEPA under RCRA (40CFR261), Environment Canada, or other State, Provincial, and local regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility.

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

TC Shipping Description: NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORTATION UNDER TDG REGULATIONS

IMO/IMDG Shipping Description: NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORTATION UNDER THE IMDG CODE

ICAO/IATA Shipping Description: Anti-freeze Preparations, Proprietary; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO

DOT Shipping Description: Anti-freeze Preparations, Proprietary

Additional Information: Bulk shipments with a reportable quantity (5000 pounds) of ethylene glycol are a hazardous material. The Proper Shipping Name is: Environmentally Hazardous Substance, Liquid, N.O.S. (ethylene glycol), 9, UN3082, III, RQ (ethylene glycol).

SECTION 15 REGULATORY INFORMATION

REGULATORY LISTS SEARCHED:

01-1=IARC Group 1
01-2A=IARC Group 2A
01-2B=IARC Group 2B
35=WHMIS IDL

The following components of this material are found on the regulatory lists indicated.
Ethylene Glycol 35

CHEMICAL INVENTORIES:

All components comply with the following chemical inventory requirements: AICS (Australia), DSL (Canada), EINECS (European Union), IECSC (China), KECI (Korea), PICCS (Philippines), TSCA (United States).
One or more components does not comply with the following chemical inventory requirements: ENCS (Japan).

WHMIS CLASSIFICATION:

Class D, Division 1, Subdivision B: Toxic Material -
Acute Lethality
Class D, Division 2, Subdivision A: Very Toxic Material -
Teratogenicity and Embryotoxicity
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations. (See Hazardous Products Act (HPA), R.S.C. 1985, c.H-3,s.2).

MSDS PREPARATION:

This Material Safety Data Sheet has been prepared by the Toxicology and Health Risk Assessment Unit, ERTC, P.O. Box 1627, Richmond, CA 94804, (888)676-6183.

Revision Date: September 21, 2007

SECTION 16 OTHER INFORMATION

HMIS RATINGS: Health: 2* Flammability: 1 Reactivity: 0

LABEL RECOMMENDATION:

Label Category : ANTIFREEZE/COOLANT 1 - AFC1

REVISION STATEMENT: This revision updates the following sections of this Material Safety Data Sheet: 9

ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:

TLV - Threshold Limit Value	TWA - Time Weighted Average
STEL - Short-term Exposure Limit	PEL - Permissible Exposure Limit
	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Government Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	MSDS - Material Safety Data Sheet
CVX - Chevron	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Starplex EP 1, 2

Product Use: Grease
Product Number(s): 219579, 277110, 277111
Company Identification
Chevron Products Company
a division of Chevron U.S.A. Inc.
6001 Bollinger Canyon Rd.
San Ramon, CA 94583
United States of America
www.chevronlubricants.com

Transportation Emergency Response
CHEMTREC: (800) 424-9300 or (703) 527-3887
Health Emergency
Chevron Emergency Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623
Product Information
email : lubemsds@chevron.com
Product Information: 1 (800) 582-3835, LUBETEK@chevron.com

SECTION 2 HAZARDS IDENTIFICATION

CLASSIFICATION: Acute aquatic toxicant: Category 3. Chronic aquatic toxicant: Category 3.

Environmental Hazards: Harmful to aquatic life. Harmful to aquatic life with long lasting effects.

PRECAUTIONARY STATEMENTS:
Prevention: Avoid release to the environment.
Disposal: Dispose of contents/container in accordance with applicable local/regional/national/international regulations.

HAZARDS NOT OTHERWISE CLASSIFIED: Not Applicable

SECTION 3 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Highly refined mineral oil (C15 - C50)	Mixture	70 - 99 %wt/wt
Zinc dialkyldithiophosphate	68649-42-3	1 - < 2.5 %wt/wt
Phosphoric acid ester, amine salt	Confidential	0.1 - 1 %wt/wt

SECTION 4 FIRST AID MEASURES

Description of first aid measures
Eye: No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.
Skin: No specific first aid measures are required. As a precaution, remove clothing and shoes if contaminated. To remove the material from skin, apply a waterless hand cleaner, mineral oil, or petroleum jelly. Then wash with soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.
Ingestion: No specific first aid measures are required. Do not induce vomiting. As a precaution, get medical advice.
Inhalation: No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.

Most important symptoms and effects, both acute and delayed
IMMEDIATE SYMPTOMS AND HEALTH EFFECTS
Eye: Not expected to cause prolonged or significant eye irritation.
Skin: Contact with the skin is not expected to cause prolonged or significant irritation. Contact with the skin is not expected to cause an allergic skin response. Not expected to be harmful to internal organs if absorbed through the skin. High-Pressure Equipment Information: Accidental high-velocity injection under the skin of materials of this type may result in serious injury. Seek medical attention at once should an accident like this occur. The initial wound at the injection site may not appear to be serious at first; but, if left untreated, could result in disfigurement or amputation of the affected part.

Ingestion: Not expected to be harmful if swallowed.
Inhalation: Not expected to be harmful if inhaled. Contains a petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit. Symptoms of respiratory irritation may include coughing and difficulty breathing.

DELAYED OR OTHER SYMPTOMS AND HEALTH EFFECTS: Not classified.

Indication of any immediate medical attention and special treatment needed
Note to Physicians: In an accident involving high-pressure equipment, this product may be injected under the skin. Such an accident may result in a small, sometimes bloodless, puncture wound. However, because of its driving force, material injected into a fingertip can be deposited into the palm of the hand. Within 24 hours, there is usually a great deal of swelling, discoloration, and intense throbbing pain. Immediate treatment at a surgical emergency center is recommended.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

PROTECTION OF FIRE FIGHTERS:
Fire Fighting Instructions: This material will burn although it is not easily ignited. See Section 7 for proper handling and storage. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.
Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in vicinity of spilled material.
Spill Management: Clean up spills immediately, observing precautions in Exposure Controls/Personal Protection section. Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.
Reporting: Report spills to local authorities as appropriate or required.

SECTION 7 HANDLING AND STORAGE

Precautionary Measures: Do not get in eyes, on skin, or on clothing. Keep out of the reach of children. Wash thoroughly after handling.
General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.
Static Hazard: Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures. For more information, refer to OSHA Standard 29 CFR 1910.106, 'Flammable and Combustible Liquids', National Fire Protection Association (NFPA 77, 'Recommended Practice on Static Electricity', and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents'.
Container Warnings: Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

GENERAL CONSIDERATIONS:
Consider the potential hazards of this material (see Section 3), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually

provided for a limited time or under certain circumstances.

ENGINEERING CONTROLS:
Use in a well-ventilated area.

PERSONAL PROTECTIVE EQUIPMENT
Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.
Skin Protection: No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested materials for protective gloves include: Neoprene, Nitrile Rubber, Silver Shield, Viton.
Respiratory Protection: No respiratory protection is normally required.
If user operations generate an oil mist, determine if airborne concentrations are below the occupational exposure limit for mineral oil mist. If not, wear an approved respirator that provides adequate protection from the measured concentrations of this material. For air-purifying respirators use a particulate cartridge. Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

Occupational Exposure Limits:

Component	Agency	TWA	STEL	Ceiling	Notation
Highly refined mineral oil (C15 - C50)	ACGIH	5 mg/m3	10 mg/m3	--	--
Highly refined mineral oil (C15 - C50)	OSHA Z-1	5 mg/m3	--	--	--
Zinc dialkyldithiophosphate	Not Applicable	--	--	--	--
Phosphoric acid ester, amine salt	Not Applicable	--	--	--	--

Consult local authorities for appropriate values.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Red
Physical State: Semi-solid
Odor: Petroleum odor
Odor Threshold: No data available
pH: Not Applicable
Vapor Pressure: <0.01 mmHg Maximum @ 37.8 °C (100 °F)
Vapor Density (Air = 1): >1 Minimum
Initial Boiling Point: 315°C (599°F) Minimum
Solubility: Soluble in hydrocarbons; insoluble in water
Freezing Point: Not Applicable
Melting Point: No data available
Specific Gravity: 0.9 @ 15.6°C (60.1°F) (Typical)
Density: 0.9 (Typical)
Viscosity: 18 mm2/s @ 100°C (212°F) Minimum

Evaporation Rate: No data available
Decomposition temperature: " "No Data Available
Octanol/Water Partition Coefficient: No data available

FLAMMABLE PROPERTIES:
Flammability (solid, gas): No Data Available

Flashpoint: (Cleveland Open Cup) 200 °C (392 °F) (Estimated)
Autoignition: No data available
Flammability (Explosive) Limits (% by volume in air): Lower: Not Applicable Upper: Not Applicable

SECTION 10 STABILITY AND REACTIVITY

Reactivity: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
Chemical Stability: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
Incompatibility With Other Materials: Not applicable
Hazardous Decomposition Products: None known (None expected)
Hazardous Polymerization: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

Information on toxicological effects
Serious Eye Damage/Irritation: The eye irritation hazard is based on evaluation of data for similar materials.

Skin Corrosion/Irritation: The skin irritation hazard is based on evaluation of data for similar materials.

Skin Sensitization: The skin sensitization hazard is based on evaluation of data for product components.

Acute Dermal Toxicity: The acute dermal toxicity hazard is based on evaluation of data for product components.

Acute Oral Toxicity: The acute oral toxicity hazard is based on evaluation of data for product components.

Acute Inhalation Toxicity: The acute inhalation toxicity hazard is based on evaluation of data for product components.

Acute Toxicity Estimate: Not Determined

Germ Cell Mutagenicity: The hazard evaluation is based on data for components or a similar material.

Carcinogenicity: The hazard evaluation is based on data for components or a similar material.

Reproductive Toxicity: The hazard evaluation is based on data for components or a similar material.

Specific Target Organ Toxicity - Single Exposure: The hazard evaluation is based on data for components or a similar material.

Specific Target Organ Toxicity - Repeated Exposure: The hazard evaluation is based on data for components or a similar material.

ADDITIONAL TOXICOLOGY INFORMATION:
This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or severe hydrotreating. None of the oils requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NTP) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as; carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B).
These oils have not been classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as: confirmed human carcinogen (A1), suspected human carcinogen (A2), or confirmed animal carcinogen with unknown relevance to humans (A3).

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICITY
This material is expected to be harmful to aquatic organisms. The ecotoxicity hazard is based on an evaluation of data for the components or a similar material. The product has not been tested. The statement has been derived from the properties of the individual components.

MOBILITY
No data available.

PERSISTENCE AND DEGRADABILITY
This material is not expected to be readily biodegradable. The biodegradability of this material is based on an evaluation of data for the components or a similar material.The product has not been tested. The statement has been derived from products of a similar structure and composition.

POTENTIAL TO BIOACCUMULATE
Bioconcentration Factor: No data available.
Octanol/Water Partition Coefficient: No data available

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods.

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

DOT Shipping Description: PETROLEUM LUBRICATING GREASE; NOT REGULATED AS A HAZARDOUS MATERIAL FOR TRANSPORTATION UNDER 49 CFR

IMO/IMDG Shipping Description: PETROLEUM LUBRICATING GREASE; NOT REGULATED AS

DANGEROUS GOODS FOR TRANSPORT UNDER THE IMDG CODE

ICAO/IATA Shipping Description: PETROLEUM LUBRICATING GREASE; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code:
Not applicable

SECTION 15 REGULATORY INFORMATION

EPCRA 311/312 CATEGORIES:

1.	Immediate (Acute) Health Effects:	NO
2.	Delayed (Chronic) Health Effects:	NO
3.	Fire Hazard:	NO
4.	Sudden Release of Pressure Hazard:	NO
5.	Reactivity Hazard:	NO

REGULATORY LISTS SEARCHED:

01-1=IARC Group 1	03=EPCRA 313
01-2A=IARC Group 2A	04=CA Proposition 65
01-2B=IARC Group 2B	05=MA RTK
02=NTP Carcinogen	06=NJ RTK
	07=PA RTK

The following components of this material are found on the regulatory lists indicated.

Zinc dialkyldithiophosphate	03, 06

CHEMICAL INVENTORIES:
All components comply with the following chemical inventory requirements: AICS (Australia), DSL (Canada), ENCS (Japan), IECSC (China), KECI (Korea), PICCS (Philippines), TSCA (United States).

NEW JERSEY RTK CLASSIFICATION:
Under the New Jersey Right-to-Know Act L. 1983 Chapter 315 N.J.S.A. 34:5A-1 et. seq., the product is to be identified as follows: PETROLEUM OIL (Grease)

SECTION 16 OTHER INFORMATION

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

HMIS RATINGS: Health: 0 Flammability: 1 Reactivity: 0
(0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme, PPE:- Personal Protection Equipment Index recommendation, *- Chronic Effect Indicator). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint and Coating Association (for HMIS ratings).

LABEL RECOMMENDATION:
Label Category : GREASE 1 - GRS1

REVISION STATEMENT: This revision updates the following sections of this Safety Data Sheet: 1-16
Revision Date: SEPTEMBER 17, 2014

ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:

TLV - Threshold Limit Value	TWA - Time Weighted Average
STEL - Short-term Exposure Limit	PEL - Permissible Exposure Limit
GHS - Globally Harmonized System	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Governmental Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	SDS - Safety Data Sheet
HMIS - Hazardous Materials Information System	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration
NCEL - New Chemical Exposure Limit	EPA - Environmental Protection Agency
SCBA - Self-Contained Breathing Apparatus	

Prepared according to the 29 CFR 1910.1200 (2012) by Chevron Energy Technology Company, 6001 Bollinger Canyon Road San Ramon, CA 94583.

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

Material Safety Data Sheet

Texaco TDH Oil

MSDS: 8656 Revision #: 1 Revision Date: 9/24/2002

Click here to search the product data sheet database

Material Safety Data Sheet

24-Hour Emergency Telephone Numbers
HEALTH : ChevronTexaco Emergency Information Center (800) 231-0623 or (510) 231-0623
TRANSPORTATION : CHEMTREC (800) 424-9300 or (703) 527-3887
Emergency Information Centers are located in the U.S.A. International collect calls accepted.

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

TEXACO TDH Oil

Product Number(s): CPS221893

Company Identification
ChevronTexaco Global Lubricants
6001 Bollinger Canyon Road
San Ramon, CA 94583
United States of America

Product Information
Product Information: 800-LUBE-TEK
email : lubemsds@chevron.com

SECTION 2 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Highly refined mineral oil (C15-C50)	Mixture	75 - 94.99 %weight
Additives including	Mixture	10 - 19.99 %weight
Zinc alkyl dithiophosphate	68649-42-3	1 - 4.99 %weight

SECTION 3 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

IMMEDIATE HEALTH EFFECTS
Eye: Not expected to cause prolonged or significant eye irritation.
Skin: Contact with the skin is not expected to cause prolonged or significant irritation. Not expected to be harmful to internal organs if absorbed through the skin. High-Pressure Equipment Information: Accidental high-velocity injection under the skin of materials of this type may result in serious injury. Seek medical attention at once should an accident like this occur. The initial wound at the injection site may not appear to be serious at first; but, if left untreated, could result in disfigurement or amputation of the affected part.
Ingestion: Not expected to be harmful if swallowed.
Inhalation: Not expected to be harmful if inhaled. Contains a petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit. Symptoms of respiratory irritation may include coughing and difficulty breathing.

SECTION 4 FIRST AID MEASURES

Eye: No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.
Skin: No specific first aid measures are required. As a precaution, remove clothing and shoes if contaminated. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.
Ingestion: No specific first aid measures are required. Do not induce vomiting. As a precaution, get medical advice.
Inhalation: No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.
Note to Physicians: In an accident involving high-pressure equipment, this product may be injected under the skin. Such an accident may result in a small, sometimes bloodless, puncture wound. However, because of its driving force, material injected into a fingertip can be deposited into the palm of the hand. Within 24 hours, there is usually a great deal of swelling, discoloration, and intense throbbing pain. Immediate treatment at a surgical emergency center is recommended.

SECTION 5 FIRE FIGHTING MEASURES

Leaks/ruptures in high pressure system using materials of this type can create a fire hazard when in the vicinity of ignition sources (eg. open flame, pilot lights, sparks, or electric arcs).

FIRE CLASSIFICATION:
OSHA Classification (29 CFR 1910.1200): Not classified by OSHA as flammable or combustible.

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

FLAMMABLE PROPERTIES:
Flashpoint: 392 °F (200 °C) (Min)
Autoignition: NDA
Flammability (Explosive) Limits (% by volume in air): Lower: NA Upper: NA

EXTINGUISHING MEDIA: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

PROTECTION OF FIRE FIGHTERS:
Fire Fighting Instructions: This material will burn although it is not easily ignited. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.
Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion. Combustion may form oxides of: Calcium, Phosphorus, Sulfur, Zinc, Nitrogen .

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in vicinity of spilled material.
Spill Management: Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.
Reporting: Report spills to local authorities and/or the U.S. Coast Guard's National Response Center at (800) 424-8802 as appropriate or required.

SECTION 7 HANDLING AND STORAGE

Precautionary Measures: DO NOT USE IN HIGH PRESSURE SYSTEMS in the vicinity of flames, sparks and hot surfaces. Use only in well ventilated areas. Keep container closed. Keep out of the reach of children.
General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.
Static Hazard: Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating an accumulation of electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures. For more information, refer to OSHA Standard 29 CFR 1910.106, 'Flammable and Combustible Liquids', National Fire Protection Association (NFPA 77, 'Recommended Practice on Static Electricity', and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents'.
Container Warnings: Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

GENERAL CONSIDERATIONS:
Consider the potential hazards of this material (see Section 3), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

ENGINEERING CONTROLS:
Use in a well-ventilated area.

PERSONAL PROTECTIVE EQUIPMENT

Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.

Skin Protection: No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances. Suggested materials for protective gloves include: Nitrile Rubber, Silver Shield, Viton.

Respiratory Protection: No respiratory protection is normally required.

If user operations generate an oil mist, determine if airborne concentrations are below the occupational exposure limit for mineral oil mist. If not, wear an approved respirator that provides adequate protection from the measured concentrations of this material. For air-purifying respirators use a particulate cartridge.

Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

Occupational Exposure Limits:

Component	Limit	TWA	STEL	Ceiling	Notation
Highly refined mineral oil (C15-C50)	OSHA_PEL	5 mg/m3			
Highly refined mineral oil (C15-C50)	ACGIH_TLV	5 mg/m3	10 mg/m3		

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Orange
Physical State: Liquid
Odor: Petroleum odor
pH: NA
Vapor Pressure: <0.01 mmHg @ 100 °F
Vapor Density (Air = 1): >1
Boiling Point: >600 °C (>315 C)
Solubility: Soluble in hydrocarbons; insoluble in water
Freezing Point: NA
Melting Point: NA
Specific Gravity: 0.88 @ 15.6 °C / 15.6 °C
Viscosity: 9.1 cSt @ 100 °C (Min)

SECTION 10 STABILITY AND REACTIVITY

Chemical Stability: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
Incompatibility With Other Materials: May react with strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
Hazardous Decomposition Products: Hydrogen Sulfide (Temperatures > 185 °F)
Hazardous Polymerization: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

IMMEDIATE HEALTH EFFECTS

Eye Irritation: The eye irritation hazard is based on evaluation of data for similar materials or product components.
Skin Irritation: The skin irritation hazard is based on evaluation of data for similar materials or product components.
Skin Sensitization: No product toxicology data available.
Acute Dermal Toxicity: The acute dermal toxicity hazard is based on evaluation of data for similar materials or product components.
Acute Oral Toxicity: The acute oral toxicity hazard is based on evaluation of data for similar materials or product components.
Acute Inhalation Toxicity: The acute inhalation toxicity hazard is based on evaluation of data for similar materials or product components.

ADDITIONAL TOXICOLOGY INFORMATION:
This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or severe hydrotreating. None of the oils requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NTP) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as; carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B).

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICITY
The toxicity of this material to aquatic organisms has not been evaluated. Consequently, this material should be kept out of sewage and drainage systems and all bodies of water.

ENVIRONMENTAL FATE
This material is not expected to be readily biodegradable.

SECTION 13 DISPOSAL CONSIDERATIONS

Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods.

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

DOT Shipping Name: NOT REGULATED AS A HAZARDOUS MATERIAL FOR TRANSPORTATION UNDER 49 CFR
DOT Hazard Class: NOT APPLICABLE
DOT Identification Number: NOT APPLICABLE
DOT Packing Group: NOT APPLICABLE
Additional Information: NOT HAZARDOUS BY U.S. DOT. ADR/RID HAZARD CLASS NOT APPLICABLE.

SECTION 15 REGULATORY INFORMATION

SARA 311/312 CATEGORIES:
1. Immediate (Acute) Health Effects: NO
2. Delayed (Chronic) Health Effects: NO
3. Fire Hazard: NO

4. Sudden Release of Pressure Hazard: NO
5. Reactivity Hazard: NO

REGULATORY LISTS SEARCHED:

4_I1=IARC Group 1	15=SARA Section 313
4_I2A=IARC Group 2A	16=CA Proposition 65
4_I2B=IARC Group 2B	17=MA RTK
05=NTP Carcinogen	18=NJ RTK
06=OSHA Carcinogen	19=DOT Marine Pollutant
09=TSCA 12(b)	20=PA RTK

The following components of this material are found on the regulatory lists indicated.

Zinc alkyl dithiophosphate 15, 18

CHEMICAL INVENTORIES:
CANADA: All the components of this material are on the Canadian DSL or have been notified under the New Substance Notification Regulations, but have not yet been published in the Canada Gazette.
EUROPEAN UNION: All the components of this material are in compliance with the EU Seventh Amendment Directive 92/32/EEC.
UNITED STATES: All of the components of this material are on the Toxic Substances Control Act (TSCA) Chemical Inventory.

NEW JERSEY RTK CLASSIFICATION:
Under the New Jersey Right-to-Know Act L. 1983 Chapter 315 N.J.S.A. 34:5A-1 et. seq., the product is to be identified as follows:
PETROLEUM OIL (Hydraulic oil)
WHMIS CLASSIFICATION:
This product is not considered a controlled product according to the criteria of the Canadian Controlled Products Regulations.

SECTION 16 OTHER INFORMATION

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0
HMIS RATINGS: Health: 1 Flammability: 1 Reactivity: 0

(0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme, PPE:- Personal Protection Equipment Index recommendation, *- Chronic Effect Indicator). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint and Coating Association (for HMIS ratings).

REVISION STATEMENT: TEXACO TDH Oil SS has been moved to MSDS . TEXACO TDH Oil W has been moved to MSDS . Changes have been made throughout this Material Safety Data Sheet. Please read the entire document.

ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:

TLV	·	Threshold Limit Value	TWA	·	Time Weighted Average
STEL	·	Short-term Exposure Limit	PEL	·	Permissible Exposure Limit
			CAS	·	Chemical Abstract Service Number
NDA	·	No Data Available	NA	·	Not Applicable
<=	·	Less Than or Equal To	>=	·	Greater Than or Equal To

Prepared according to the OSHA Hazard Communication Standard (29 CFR 1910.1200) and the ANSI MSDS Standard (Z400.1).

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: CH Air Compressor Oil 100
Product Code: 04214
Generic Name: Industrial oil
Chemical Family: Petroleum hydrocarbon

Responsible Party: 76 Products Company
Union Oil Company of California
555 Anton Blvd.
Costa Mesa, California
92626

For further information contact Help Desk
8am - 4pm Pacific Time, Mon-Fri: 1-800-762-0942

EMERGENCY OVERVIEW

24 Hour Emergency Telephone Numbers:

For Chemical Emergencies:
Spill, Leak, Fire or Accident
Call CHEMTREC
North America: (800)424-9300
Others: (703)527-3887 (collect)

For Health Emergencies:
Los Angeles Poison
Control Center
Cont. US: (800)356-3129
Outside US: (213)222-3212

Health Hazards: Avoid contact with eyes, skin and clothing. Wash thoroughly after handling.

Physical Hazards: This material may burn, but will not ignite readily. Keep away from all sources of ignition.

- Physical Form: Liquid
- Appearance: Clear yellow
- Odor: Characteristic petroleum

NFPA HAZARD CLASS: Health: 1 (Slight)
Flammability: 1 (Slight)
Reactivity: 0 (Least)

2. COMPOSITION/INFORMATION ON INGREDIENTS

HAZARDOUS COMPONENTS	% Volume	EXPOSURE GUIDELINE		
		Limits	Agency	Type
Oil Mist, If Generated CAS# None		5 mg/m3	ACGIH	TWA
		10 mg/m3	ACGIH	STEL
		5 mg/m3	OSHA	TWA
		5 mg/m3	MSHA	TWA
		5 mg/m3	Cal.OSHA	TWA

OTHER COMPONENTS	% Volume	EXPOSURE GUIDELINE
		Limits / Agency / Type
Hydrotreated Distillate, Heavy Paraffin CAS# 64742-54-7	0-99	(See: Oil Mist, If Generated)
Solvent Dewaxed Distillate, Heavy Paraffin CAS# 64742-65-0	0-99	(See: Oil Mist, If Generated)
Solvent Dewaxed Residual Oil CAS# 64742-62-7	0-43	(See: Oil Mist, If Generated)
Hydrotreated Bottoms CAS# 64742-57-0	0-24	(See: Oil Mist, If Generated)
Additives CAS# Proprietary	0-1	Not Established

Note: OSHA exposure limits adopted in 1989 were vacated by the U.S. Court of Appeals. OSHA PEL's listed above (if any) may be included in those that were overturned, but are provided as guidance. Enforceable limits may be less stringent or not yet established.

3. HAZARDS IDENTIFICATION

POTENTIAL HEALTH EFFECTS:

Eye: Contact may cause mild eye irritation including stinging, watering, and redness.

Skin: Contact may cause mild skin irritation including redness, burning, and drying and cracking of the skin. No harmful

effects from skin absorption have been reported.

Inhalation (Breathing): No information available. Studies by other exposure routes suggest a low degree of toxicity by inhalation.

Ingestion (Swallowing): No harmful effects reported.

Signs and Symptoms: Effects of overexposure may include irritation of the nose and throat and irritation of the digestive tract.

Cancer: Inadequate data available to evaluate the cancer hazard of this material.

Target Organs: Inadequate data available for this material.

Developmental: No data available.

Pre-Existing Medical Conditions: Conditions aggravated by exposure may include skin disorders.

4. FIRST AID MEASURES

Eye: If irritation or redness develops, move victim away from exposure and into fresh air. Flush eyes with clean water. If symptoms persist, seek medical attention.

Skin: Wipe material from skin and remove contaminated shoes and clothing. Cleanse affected area(s) thoroughly by washing with mild soap and water and, if necessary, a waterless skin cleanser. If irritation or redness develops and persists, seek medical attention.

Inhalation (Breathing): If respiratory symptoms develop, move victim away from source of exposure and into fresh air. If symptoms persist, seek medical attention. If victim is not breathing, immediately begin artificial respiration. If breathing difficulties develop, oxygen should be administered by qualified personnel. Seek immediate medical attention.

Ingestion (Swallowing): First aid is not normally required; however, if swallowed and symptoms develop, seek medical attention.

Note To Physicians: Acute aspiration of large amounts of oil-laden material may produce a serious aspiration pneumonia. Patients who aspirate these oils should be followed for the development

of long-term sequelae. Repeated aspiration of small quantities of mineral oil may produce chronic inflammation of the lung (i.e., lipoid pneumonia) that may progress to pulmonary fibrosis. Symptoms often are subtle and radiological changes appear worse than clinical abnormalities. Occasionally, persistent cough, irritation of the upper respiratory tract, shortness of breath with exertion, fever, and bloody sputum occur. Inhalation exposure to oil mists below current workplace exposure limits is unlikely to cause pulmonary abnormalities.

5. FIRE FIGHTING MEASURES

Flammable Properties: Flash Point: >442°F/>228°C (COC)
OSHA Flammability Class: Not regulated
LEL/UEL: No Data
Autoignition Temperature: No Data

Unusual Fire & Explosion Hazards: This material may burn, but will not ignite readily. If container is not properly cooled, it can rupture in the heat of a fire.

Extinguishing Media: Dry chemical, carbon dioxide, foam or water spray is recommended. Water or foam may cause frothing of materials heated above 212°F. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces.

Fire Fighting Instructions: Emergency responders in the danger area should wear bunker gear and self-contained breathing apparatus for fires beyond the incipient stage (29CFR 1910.156). In addition, wear other appropriate protective equipment as conditions warrant (see Section 8). Isolate danger area, keep unauthorized personnel out. Stop spill/release if it can be done with minimal risk. Move undamaged containers from danger area if it can be done with minimal risk. Water spray may be useful in minimizing or dispersing vapors. Cool equipment exposed to fire with water, if it can be done with minimal risk. Avoid spreading burning liquid with water used for cooling purposes.

6. ACCIDENTAL RELEASE MEASURES

This material may burn, but will not ignite readily. Keep all sources of ignition away from spill/release. Stay upwind and away

from spill/release. Isolate danger area and keep unauthorized personnel out. Stop spill/release if it can be done with minimal risk. Wear appropriate protective equipment including respiratory protection as conditions warrant (see Section 8). Prevent spilled material from entering sewers, storm drains, other unauthorized treatment drainage systems, and natural waterways. Dike far ahead of spill for later recovery or disposal. Spilled material may be absorbed into an appropriate absorbent material. Notify fire authorities and appropriate federal, state, and local agencies. Immediate cleanup of any spill is recommended. If spill of any amount is made into or upon navigable waters, the contiguous zone, or adjoining shorelines, notify the National Response Center (phone number 800-424-8802).

7. HANDLING AND STORAGE

Handling: Do not enter confined spaces such as tanks or pits without following proper entry procedures such as ASTM D-4276 and 29CFR 1910.146. The use of respiratory protection is advised when concentrations exceed any established exposure limits (see Sections 2 and 8). Wash thoroughly after handling. Do not wear contaminated clothing or shoes. Use good personal hygiene practice.

"Empty" containers retain residue (liquid and/or vapor) and may be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury or death. "Empty" drums should be completely drained, properly bunged, and promptly shipped to the supplier or a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations. Before working on or in tanks which contain or have contained this material, refer to Occupational Safety and Health Administration Regulations, ANSI Z49.1 and other governmental and industrial references pertaining to cleaning, repairing, welding, or other contemplated operations.

Storage: Keep container(s) tightly closed. Use and store this material in cool, dry, well-ventilated areas away from heat and all sources of ignition. Store only in approved containers. Keep away from any incompatible material (see Section 10). Protect container(s) against physical damage.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls: If current ventilation practices are not adequate to maintain airborne concentrations below the established exposure limits (see Section 2), additional ventilation or exhaust systems may be required.

Personal Protective Equipment (PPE):

Respiratory: A NIOSH/MSHA approved air purifying respirator with a dust/mist filter may be used under conditions where airborne concentrations are expected to exceed exposure limits (see Section 2). Protection provided by air purifying respirators is limited (see manufacturer's respirator selection guide). Use a positive pressure air supplied respirator if there is potential for uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection. A respiratory protection program that meets OSHA's 29 CFR 1910.34 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use.

Skin: The use of gloves impermeable to the specific material handled is advised to prevent skin contact and possible irritation.

Eye/Face: Approved eye protection to safeguard against potential eye contact, irritation, or injury is recommended.

Other Protective Equipment: A source of clean water should be available in the work area for flushing eyes and skin. Impervious clothing should be worn as needed.

9. PHYSICAL AND CHEMICAL PROPERTIES

Note: Unless otherwise stated, values are determined at 20°C (68°F) and 760 mm Hg (1 atm).

Flash Point: >442°F / >228°C (COC)
Flammable/Explosive Limits (%): No Data
Autoignition Temperature: No Data
Appearance: Clear yellow
Physical State: Liquid
Odor: Characteristic petroleum
pH: No Data
Vapor Pressure (mm Hg): Not determined
Vapor Density (air=1): >1

Boiling Point: >600°F / >316°C
Freezing/Melting Point: No Data
Solubility in Water: Negligble
Specific Gravity: 0.88 @ 15°C
Percent Volatile: Negligible
Evaporation Rate (nBuAc=1): <1
Viscosity: 99.7 cSt @ 40°C
Bulk Density: 7.33 lbs/gal

10. STABILITY AND REACTIVITY

Chemical Stability: Stable under normal conditions of storage and handling.

Conditions To Avoid: Extended exposure to high temperatures can cause decomposition.

Incompatible Materials: Avoid contact with strong oxidizing agents.

Hazardous Decomposition Products: Combustion can yield major amounts of oxides of carbon and minor amounts of oxides of sulfur and nitrogen.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

No definitive information available on carcinogenicity, mutagenicity, target organs or developmental toxicity.

12. DISPOSAL CONSIDERATIONS

This material under most intended uses would become used oil due to contamination by physical or chemical impurities. RECYCLE ALL USED OIL. While being recycled, used oil is regulated by 40 CFR 279. Use resulting in chemical or physical change or contamination may also subject it to regulation as hazardous waste. Under federal regulations, used oil is a solid waste managed under 40 CFR 279. However, in California, used oil is managed as hazardous waste until tested to show it is not hazardous. Consult state and local regulations regarding the proper handling of used oil. In the case of used oil, the intent to discard it may cause the used oil to be regulated as hazardous waste.

Contents should be completely used and containers emptied prior to discard. Rinsate may be considered a RCRA hazardous waste and must be disposed of with care and in compliance with federal, state and local regulations. Large empty containers, such as drums, should be returned to the distributor or a drum reconditioner. To assure proper disposal of small empty containers, consult with state and local regulations and disposal authorities.

13. TRANSPORT INFORMATION

Hazard Class or Division: Not classified as hazardous

14. REGULATORY INFORMATION

This material contains the following chemicals subject to the reporting requirements of **SARA 313** and 40 CFR 372:

--None--

Warning: This material contains the following chemicals which are known to the State of California to cause cancer, birth defects or other reproductive harm, and are subject to the requirements of **California Proposition 65** (CA Health & Safety Code Section 25249.5):

--None Known--

This material has not been identified as a carcinogen by NTP, IARC, or OSHA.

EPA (CERCLA) Reportable Quantity: --None--

15. DOCUMENTARY INFORMATION

Issue Date: 01/10/97
Previous Issue Date: 09/10/96
Product Code: 04214
Previous Product Code: 04214

16. DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES

The information in this document is believed to be correct as of the date issued. **HOWEVER, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE,** OR ANY OTHER WARRANTY IS EXPRESSED OR

IS TO BE IMPLIED REGARDING THE ACCURACY OR COMPLETENESS OF THIS INFORMATION, THE RESULTS TO BE OBTAINED FROM THE USE OF THIS INFORMATION OR THE PRODUCT, THE SAFETY OF THIS PRODUCT, OR THE HAZARDS RELATED TO ITS USE. This information and product are furnished on the condition that the person receiving them shall make his own determination as to the suitability of the product for his particular purpose and on the condition that he assume the risk of his use thereof.

RECOMMENDED HAZARD LANGUAGE FOR MATERIAL LABEL

Product Name: CH Air Compressor Oil 100
Product Code No: 04214
Vendor: UNION76
Date: 01/10/97

NFPA HAZARD CLASS:
Health: 1
Flammability: 1
Reactivity: 0

SIGNAL WORD:
None

STATEMENT OF HAZARD:
This material may burn, but will not ignite readily.

PRECAUTIONARY MEASURES:
Keep away from all sources of ignition. Do not pressurize, cut, weld, braze, solder, grind, or drill on or near container. "Empty" container retains residue (liquid and/or vapor) and may explode in heat of a fire. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling.

FIRST AID EYE:
In case of eye contact, flush eyes with plenty of water.

FIRST AID SKIN:
In case of skin contact, flush skin with plenty of water.

FIRST AID INHALATION:
None

FIRST AID INGESTION:
If swallowed, first aid is not normally required.

FIRST AID NOTES TO PHYSICIAN:
None

OTHER:
None

NOTE: SEE UNOCAL LABELING GUIDELINES FOR ADDITIONAL REQUIREMENTS.

SAFETY DATA SHEET
WD40 AEROSOL

According to Regulation (EC) No 1907/2006

1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

PRODUCT NAME: WD40 AEROSOL

APPLICATION: Anti-squeak. Moisture repellant. Releasing agent

SUPPLIER:
WD40 Company Limited
PO Box 440
Kiln Farm
Milton Keynes
MK11 3LF
Tel: 01908 555400
Fax: 01908 266900
info@wd40.co.uk

EMERGENCY TELEPHONE: 00 44 1908 555 400 (08.00 - 16.30)

2 HAZARDS IDENTIFICATION

Flammable. Repeated exposure may cause skin dryness or cracking.

CLASSIFICATION: R10, R66.

ENVIRONMENT

The product is not expected to be hazardous to the environment.

PHYSICAL AND CHEMICAL HAZARDS

Aerosol containers can explode when heated, due to excessive pressure build-up. When sprayed on a naked flame or any incandescent material the aerosol vapours can be ignited.

HUMAN HEALTH

See section 11 for additional information on health hazards. This substance has no evidence of carcinogenic properties.

3 COMPOSITION/INFORMATION ON INGREDIENTS

Name	EC No.	CAS-No.	Content	Classification
CARBON DIOXIDE	204-696-9	124-38-9	1-5%	-
PETROLEUM DISTILLATE	265-150-3	64742-48-9	60-80%	Xn;R65. R10,R66.

The Full Text for all R-Phrases are Displayed in Section 16

4 FIRST-AID MEASURES

INHALATION

Move the exposed person to fresh air at once. Keep the affected person warm and at rest. Get prompt medical attention.

INGESTION

DO NOT INDUCE VOMITING! NEVER MAKE AN UNCONSCIOUS PERSON VOMIT OR DRINK FLUIDS! Immediately rinse mouth and drink plenty of water (200-300 ml). Get medical attention.

SKIN CONTACT

Remove contaminated clothing immediately and wash skin with soap and water. Get medical attention promptly if symptoms occur after washing.

EYE CONTACT

Make sure to remove any contact lenses from the eyes before rinsing. Promptly wash eyes with plenty of water while lifting the eye lids. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

5 FIRE-FIGHTING MEASURES

EXTINGUISHING MEDIA

Use: Foam. Water spray, fog or mist. Dry chemicals, sand, dolomite etc.

SPECIAL FIRE FIGHTING PROCEDURES

Containers close to fire should be removed or cooled with water. Avoid water in straight hose stream; will scatter and spread fire.

UNUSUAL FIRE & EXPLOSION HAZARDS

Aerosol cans may explode in a fire.

SPECIFIC HAZARDS

Fire or high temperatures create: Carbon monoxide (CO). Carbon dioxide (CO_2).

PROTECTIVE MEASURES IN FIRE

Self contained breathing apparatus and full protective clothing must be worn in case of fire.

6 ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS

Wear protective clothing as described in Section 8 of this safety data sheet.

SPILL CLEAN UP METHODS

Extinguish all ignition sources. Avoid sparks, flames, heat and smoking. Ventilate. Absorb with inert, damp, non-combustible material, then flush area with water.

7 HANDLING AND STORAGE

USAGE PRECAUTIONS

Read and follow manufacturer's recommendations. Keep away from heat, sparks and open flame. Avoid inhalation of vapours/spray and contact with skin and eyes. Wash hands after handling.

STORAGE PRECAUTIONS

Aerosol cans: Must not be exposed to direct sunlight or temperatures above 50°C.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Name	Std	LT - ppm	LT - mg/m3	ST - ppm	ST - mg/m3
CARBON DIOXIDE			Asphyxiating		Asphyxiating

PROTECTIVE EQUIPMENT

ENGINEERING MEASURES

Provide adequate ventilation.

HAND PROTECTION

Use suitable protective gloves if risk of skin contact. The most suitable glove must be chosen in consultation with the gloves supplier, who can inform about the breakthrough time of the glove material.

EYE PROTECTION

Wear approved chemical safety goggles where eye exposure is reasonably probable.

HYGIENE MEASURES

DO NOT SMOKE IN WORK AREA! Promptly remove any clothing that becomes contaminated. Wash promptly if skin becomes contaminated. When using do not eat, drink or smoke.

9 PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE	Liquid Aerosol
COLOUR	Light (or pale) Amber
ODOUR	Characteristic
SOLUBILITY	Insoluble in water

RELATIVE DENSITY	0.817 @ 21°C	VAPOUR DENSITY (air=1)	> 1
VAPOUR PRESSURE	95-105 psi @ 21°C	VOLATILE BY VOL. (%)	57%
FLASH POINT (°C)	44°C TOC (Tag open cup).	FLAMMABILITY LIMIT - LOWER(%)	0.6%
FLAMMABILITY LIMIT - UPPER(%)	8.0%		

10 STABILITY AND REACTIVITY

STABILITY

Stable under normal temperature conditions and recommended use.

CONDITIONS TO AVOID

Aerosol cans: Must not be exposed to direct sunlight or temperatures above 50°C.

HAZARDOUS DECOMPOSITION PRODUCTS

During fire, toxic gases (CO, CO2) are formed.

11 TOXICOLOGICAL INFORMATION

INHALATION

Vapours may cause headache, fatigue, dizziness and nausea.

SKIN CONTACT

Repeated exposure may cause skin dryness or cracking.

EYE CONTACT

Spray and vapour in the eyes may cause irritation and smarting.

Other Health Effects

This substance has no evidence of carcinogenic properties.

12 ECOLOGICAL INFORMATION

ECOTOXICITY

The product contains substances which contribute to global warming (greenhouse effect).

BIOACCUMULATION

The product contains potentially bioaccumulating substances.

DEGRADABILITY

The product is easily biodegradable.

13 DISPOSAL CONSIDERATIONS

DISPOSAL METHODS

Dispose of waste and residues in accordance with local authority requirements. Make sure containers are empty before discarding (explosion risk). Recover and reclaim or recycle, if practical.

14 TRANSPORT INFORMATION

UK ROAD CLASS	2.1		
PROPER SHIPPING NAME	AEROSOLS		
UN NO. ROAD	1950	UK ROAD PACK GR.	#
ADR CLASS NO.	2.1	ADR CLASS	Class 2: Gases
ADR PACK GROUP	#	ADR LABEL NO.	2.1
CEFIC TEC(R) NO.	20G5F	RID CLASS NO.	2.1
RID PACK GROUP	#	UN NO. SEA	1950
IMDG CLASS	2.1	IMDG PACK GR.	#
EMS	F-D, S-U	MFAG	See Guide
MARINE POLLUTANT	No.	UN NO. AIR	1950
AIR CLASS	2.1	AIR PACK GR.	#

15 REGULATORY INFORMATION

CONTAINS PETROLEUM DISTILLATE

RISK PHRASES

R10	Flammable.
R66	Repeated exposure may cause skin dryness or cracking.

SAFETY PHRASES

S2	Keep out of the reach of children
S16	Keep away from sources of ignition - No smoking.
S23	Do not breathe vapour/spray.
S37	Wear suitable gloves.
S51	Use only in well-ventilated areas.
A1	Pressurised container: protect from sunlight and do not expose to temperatures exceeding 50°C. Do not pierce or burn, even after use.
A2	Do not spray on a naked flame or any incandescent material.

EU DIRECTIVES

Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, including amendments.

STATUTORY INSTRUMENTS

Chemicals (Hazard Information and Packaging) Regulations.

APPROVED CODE OF PRACTICE

Classification and Labelling of Substances and Preparations Dangerous for Supply.

GUIDANCE NOTES

Workplace Exposure Limits EH40.

16 OTHER INFORMATION

REVISION COMMENTS

Re-issued in accordance with Regulation (EC) No. 1907/2006 Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

REVISION DATE	09-2007
REV. NO./REPL. SDS GENERATED	3 / 02-2007

RISK PHRASES IN FULL

NC	Not classified.
R10	Flammable.
R65	Harmful: may cause lung damage if swallowed.
R66	Repeated exposure may cause skin dryness or cracking.

CONTENTS

*Indicates MSDS

SAFETY DATA SHEET

Effective Date: 06/01/2015
Replaces 05/01/2012

Limestone

1. Identification

Product name:
Limestone

Other means of identification/Synonyms/Common Names:
Aggregate, Aglime, Barn Lime, Coverstone, Flexible Base, Fluxing Agent, Manufactured Sand, Mineral Filler, Screenings

Recommended use:
Limestone is used as a construction material.

Recommended restrictions:
None Known

Manufacturer/Contact info:
Vulcan Materials Company and its subsidiaries and affiliates
1200 Urban Center Drive
Birmingham, AL 35242

General Phone Number:
1.866.401.5424

Emergency Phone Number:
1.866.401.5424 (3E Company, 24hours/day, 7 Days/week)

Website:
www.vulcanmaterials.com

2. Hazard(s) Identification

Physical hazards:
Not Classified

Health hazards:
Carcinogenicity-Category 1A
Specific target organ toxicity, repeated exposure- Category 2

Signal word:

Danger

Hazard statement:
May Cause Cancer (Inhalation).
Causes damage to organs (lungs, respiratory system) through prolonged or repeated exposure (inhalation)

Precautionary statement:

Prevention

- Obtain special instructions before use.
- Do not handle until all safety precautions have been read and understood.
- Use personal protective equipment as required. Wear protective gloves, protective clothing, eye protection, and face protection.
- Wash hands thoroughly after handling.
- Do not eat, drink or smoke when using this product.

Response

- If exposed or concerned get medical advice/attention.

Disposal

- Dispose of contents/container in accordance with all local, regional, national, and international regulations.

Supplemental information:
Respirable Crystalline Silica (RCS) may cause cancer. Limestone is a naturally occurring mineral complex that contains varying quantities of quartz (crystalline silica). Limestone may be subjected to various natural or mechanical forces that produce small particles (dust) which may contain respirable crystalline silica (particles less than 10 micrometers in aerodynamic diameter). Repeated inhalation of respirable crystalline silica (quartz) may cause lung cancer according to IARC, NTP; ACGIH states that it is a suspected cause of cancer. Other forms of RCS (e.g., tridymite and cristobalite) may also be present or formed under certain industrial processes.

3. Composition/information on ingredients

Chemical name	CAS number	%
Limestone	1317-65-3	100
Quartz (crystalline silica)	14808-60-7	>1

4. First-aid measures

Inhalation:
Remove to fresh air. Dust in throat and nasal passages should clear spontaneously. Contact a physician if irritation persists or if breathing is difficult.

Eyes:
Immediately flush eye(s) with plenty of clean water for at least 15 minutes, while holding the eyelid(s) open. Occasionally lift the eyelid(s) to ensure thorough rinsing. Beyond flushing, do not attempt to remove material from eye(s). Contact a physician if irritation persists or later develops.

Skin:
Wash affected areas thoroughly with mild soap and fresh water. Contact a physician if irritation persists.

Ingestion:
If person is conscious do not induce vomiting. Give large quantity of water and get medical attention. Never attempt to make an unconscious person drink.

Most important symptoms/effects, acute and delayed:
Dust may irritate the eyes, skin, and respiratory tract. Breathing silica-containing dust for prolonged periods in the workplace can cause lung damage and a lung disease called silicosis. Symptoms of silicosis may include (but are not limited to) shortness of breath, difficulty breathing with or without exertion; coughing; diminished work capacity; diminished chest expansion; reduction of lung volume; right heart enlargement and/or failure.

Indication of immediate medical attention and special treatment needed:
Not all individuals with silicosis will exhibit symptoms of the disease. However, silicosis can be progressive, and symptoms can appear at any time, even years after exposures have ceased. Persons with silicosis have an increased risk of pulmonary tuberculosis infection.
For emergencies contact 3E Company at 1.866.401.5424 (24 hours/day, 7 days/week).

5. Fire-fighting measures

Suitable extinguishing media:
This product is not flammable. Use fire-extinguishing media appropriate for surrounding materials.

Unsuitable extinguishing media:
None known.

Specific hazards arising from the chemical:
Contact with powerful oxidizing agents may cause fire and/or explosions (see section 10 of SDS).

Special protective equipment and precautions for firefighters:
Use protective equipment appropriate for surrounding materials.

Fire-fighting equipment/instructions:
No unusual fire or explosion hazards noted. Not a combustible dust.

Specific methods:
The presence of this material in a fire does not hinder the use of any standard extinguishing medium. Use extinguishing medium for surrounding fire.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures:

Persons involved in cleanup processes should first observe precautions (as appropriate) identified in Section 8 of this SDS. **For emergencies, contact 3E Company at 1-866-401-5424 (24 hours/day, 7 days/week)**.

Environmental precautions:

Prevent from entering into sewers or drainage systems where it can harden and clog flow.

Methods and materials for containment and cleaning up:

Spilled material, where dust is generated, may overexpose cleanup personnel to respirable crystalline silica-containing dust. Do not dry sweep or use compressed air for clean-up. Wetting of spilled material and/or use of respiratory protective equipment may be necessary.

7. Handling and storage

Precautions for safe handling:

Respirable crystalline silica-containing dust may be generated during processing, handling, and storage. Use personal protection and controls identified in Section 8 of this SDS as appropriate.

Conditions for safe storage, including any incompatibilities:

Do not store near food, beverages, or smoking materials.

8. Exposure controls/personal protection

Legend:

NE = Not Established; PEL = Permissible Exposure Limit; TLV = Threshold Limit Value; REL = Recommended Exposure Limit; OSHA = Occupational Safety and Health Administration; MSHA = Mine Safety and Health Administration; NIOSH = National Institute for Occupational Safety and Health; ACGIH = American Conference of Governmental Industrial Hygienists

Component	OSHA/MSHA PEL	ACGIH TLV	NIOSH REL
Limestone (Calcium Carbonate)	15 mg/m^3 (total dust) 5 mg/m^3 (respirable fraction)	10 mg/m^3 (total dust as calcium carbonate)	15 mg/m^3 (total dust) 5 mg/m^3 (respirable fraction)
Respirable dust containing silica	10 $mg/m^3 \div$ (% silica + 2)	Use Respirable Silica TLV	Use Respirable Silica REL
Total dust containing silica	OSHA: 30 $mg/m^3 \div$ (% silica + 2) MSHA: 30 $mg/m^3 \div$ (% silica + 3)	NE	NE
Respirable Crystalline Silica (quartz)	NE - Use respirable dust PEL	0.025 mg/m^3	0.05 mg/m^3
Respirable Tridymite and Cristobalite (other forms of crystalline silica)	1/2 of OSHA and MSHA respirable dust PEL	0.025 mg/m^3	0.05 mg/m^3

Exposure Guidelines:

Respirable dust and quartz levels should be monitored regularly to determine worker exposure levels. Exposure levels in excess of allowable exposure limits should be reduced by all feasible engineering controls, including (but not limited to) wet suppression, ventilation, process enclosure, and enclosed employee workstations.

Engineering Controls:

Activities that generate dust require the use of general ventilation, local exhaust and/or wet suppression methods to maintain exposures below allowable exposure limits.

Eye Protection:

Safety glasses with side shields should be worn as minimum protection. Dust goggles should be worn when excessively (visible) dusty conditions are present or are anticipated.

Skin Protection (Protective Gloves/Clothing):

Use gloves to provide hand protection from abrasion. In dusty conditions, use long sleeve shirts. Wash work clothes after each use.

Respiratory Protection:

All respirators must be NIOSH-approved for the exposure levels present. (See NIOSH Respirator Selection Guide). The need for respiratory protection should be evaluated by a qualified safety and health professional. Activities that generate dust require the use of an appropriate dust respirator where dust levels exceed or are likely to exceed

allowable exposure limits. For respirable silica levels that exceed or are likely to exceed an 8 hr Time Weighted Average (TWA) of 0.5 $\mathrm{mg/m^3}$, a high efficiency particulate filter respirator must be worn at a minimum; however, if respirable silica levels exceed or are likely to exceed an 8 hr TWA of 5.0 $\mathrm{mg/m^3}$ a positive pressure, full face respirator or equivalent is required. Respirator use must comply with applicable MSHA (42 CFR 84) or OSHA (29 CFR 1910.134) standards, which include provisions for a user training program, respirator inspection, repair and cleaning, respirator fit testing, medical surveillance and other requirements.

9. Physical and chemical properties

Appearance:
Angular gray, white and tan particles ranging in size from powder to boulders.

Odor: No odor.	**PH:** Not applicable	**Decomposition temperature:** Not applicable
Melting point/freezing point: Not applicable	**Initial boiling point and boiling range:** Not applicable	**Flash point:** Non-combustible
Evaporation rate: Not applicable	**Flammability:** Not applicable	**Upper/lower flammability or explosive limits:** Not applicable
Vapor pressure: Not applicable	**Relative density:** Not applicable	**Solubility:** **0**
Partition coefficient: n-octanol/water. Not applicable	**Autoignition temperature:** Not applicable	**Specific Gravity (H2O = 1):** 2.4 - 2.85

10. Stability and reactivity

Reactivity:
Not reactive under normal use.

Chemical stability:
Stable under normal temperatures and pressures.

Possibility of hazardous reactions:
None under normal use.

Conditions to avoid (e.g., static discharge, shock or vibration):
Contact with incompatible materials should be avoided (see below). See Sections 5 and 7 for additional information.

Incompatible materials:
Silica ignites on contact with fluorine and is incompatible with acids, aluminum, ammonium salts and magnesium. Silica reacts violently with powerful oxidizing agents such as fluorine, boron trifluoride, chlorine trifluoride, manganese trifluoride, and oxygen difluoride yielding possible fire and/or explosions. Silica dissolves readily in hydrofluoric acid producing a corrosive gas – silicon tetrafluoride.

Hazardous decomposition products:
Silica-containing respirable dust particles may be generated. When heated, quartz is slowly transformed into tridymite (above 860°C/1580°F) and cristobalite (above 1470°C/2678°F). Both tridymite and cristobalite are other forms of crystalline silica.

11. Toxicological information

Primary Routes of Exposure:
Inhalation and contact with the eyes and skin.

Symptoms related to the physical, chemical, toxicological characteristics
Inhalation:
Dusts may irritate the nose, throat and respiratory tract by mechanical abrasion. Coughing sneezing and shortness of breath may occur.
Symptoms of silicosis caused by chronic exposure to dust may include (but are not limited to) shortness of breath, difficulty breathing with or without exertion; coughing; diminished work capacity; diminished chest expansion; reduction of lung volume; right heart enlargement and/or failure. Persons with silicosis have an increased risk of pulmonary tuberculosis infection.

Eye Contact:
Dust particles can scratch the eye causing tearing, redness, a stinging or burning feeling, or swelling of the eyes with blurred vision.

Skin Contact:
Dust particles can scratch and irritate the skin with redness, an itching or burning feeling, swelling of the skin, and/or rash.

Ingestion:
Expected to be practically non-toxic. Ingestion of large amounts may cause gastrointestinal irritation including nausea, vomiting, diarrhea, and blockage.

Medical Conditions Aggravated by Exposure:
Irritated or broken skin increases chance of contact dermatitis. Pre-existing medical conditions that may be aggravated by exposure include disorders of the eye, skin and lung (including asthma and other breathing disorders). Smoking tobacco will impair the ability of the lungs to clear themselves of dust.

Delayed and immediate effects and also chronic effects from short- and long-term exposure:
Prolonged overexposure to respirable dusts in excess of allowable exposure limits can cause inflammation of the lungs leading to possible fibrotic changes, a medical condition known as pneumoconiosis.
Prolonged and repeated inhalation of respirable crystalline silica-containing dust in excess of allowable exposure limits may cause a chronic form of silicosis, an incurable lung disease that may result in permanent lung damage or death. Chronic silicosis generally occurs after 10 years or more of overexposure; a more accelerated type of silicosis may occur between 5 and 10 years of higher levels of exposure. In early stages of silicosis, not all individuals will exhibit symptoms (signs) of the disease. However, silicosis can be progressive, and symptoms can appear at any time, even years after exposure has ceased.
Repeated overexposures to very high levels of respirable crystalline silica for periods as short as six months may cause acute silicosis. Acute silicosis is a rapidly progressive, incurable lung disease that is typically fatal. Symptoms include (but are not limited to): shortness of breath, cough, fever, weight loss, and chest pain.
Respirable dust containing newly broken silica particles has been shown to be more hazardous to animals in laboratory tests than respirable dust containing older silica particles of similar size. Respirable silica particles which had aged for sixty days or more showed less lung injury in animals than equal exposures of respirable dust containing newly broken particles of silica.
There are reports in the literature suggesting that excessive crystalline silica exposure may be associated with autoimmune disorders and other adverse health effects involving the kidney. In particular, the incidence of scleroderma (thickening of the skin caused by swelling and thickening of fibrous tissue) appears to be higher in silicotic individuals. To date, the evidence does not conclusively determine a causal relationship between silica exposure and these adverse health effects.

Carcinogenicity:
Epidemiology studies on the association between crystalline silica exposure and lung cancer have had both positive and negative results. There is some speculation that the source and type of crystalline silica may play a role. Studies of persons with silicosis indicate an increased risk of developing lung cancer, a risk that increases with the level and duration of exposure. It is not clear whether lung cancer develops in non-silicotic patients. Several studies of silicotics do not account for lung cancer confounders, especially smoking, which have been shown to increase the risk of developing lung disorders, including emphysema and lung cancer.
In October 1996, an IARC Working Group designated respirable crystalline silica as carcinogenic (Group 1). In 2012, an IARC Working Group re-affirmed that inhalation of crystalline silica was a known human carcinogen. The NTP's Report on Carcinogens, 9th edition, lists respirable crystalline silica as a "known human carcinogen." In the year 2000, the American Conference of Governmental Industrial Hygienists (ACGIH) listed respirable crystalline silica (quartz) as a suspected human carcinogen (A-2). These classifications are based on sufficient evidence of carcinogenicity in certain experimental animals and on selected epidemiological studies of workers exposed to crystalline silica.

Additional information on toxicological-effects:
Acute toxicity: Not classified
No specific data on product. Limestone (calcium carbonate CAS# 471-34-1) has oral LD50 (rats) = 6450 mg/kg.)
Skin corrosion/irritation: Not classified

Serious eye damage/eye irritation: Not classified

Respiratory sensitization: Not classified.

Skin sensitization: Not classified.

Germ cell Mutagenicity: Not classified

Carcinogenicity: May cause cancer (Inhalation).

Reproductive toxicity: Not classified

Specific target organ toxicity - single exposure: Not classified

Specific target organ- toxicity – repeated exposure: Causes damage to organs (lungs, respiratory system) through prolonged or repeated exposure (inhalation)

Aspiration toxicity: Not classified (not applicable- solid material)

12. Ecological information

Ecotoxicity (aquatic and terrestrial, where available):
Not determined

Persistence and degradability:
Not determined

Bioaccumulative potential:
Not determined

Mobility in soil:
Not determined

Other adverse effects:
Not determined

13. Disposal considerations

Safe handling and disposal of waste:
Place contaminated materials in appropriate containers and dispose of in a manner consistent with applicable federal, state, and local regulations. Prevent from entering drainage, sewer systems, and unintended bodies of water. It is the responsibility of the user to determine, at the time of disposal, whether product meets criteria for hazardous waste. Product uses, transformations, mixture and processes, may render the resulting material hazardous.

14. Transport information

UN Number:
Not regulated.

UN Proper shipping name:
Not regulated.

Transport Hazard class:
Not applicable.

Packing group, if applicable:
Not applicable.

Marine pollutant (Yes/No):
Not applicable.

15. Regulatory information

Toxic Substances Control Act (TSCA):

The components in this product are listed on the TSCA Inventory or are exempt.

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA):

Releases of this material to air, land, or water are not reportable to the National Response Center under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) or to state and local emergency planning committees under the Superfund Amendments and Reauthorization Act.

Superfund Amendments and Reauthorization Act of 1986 (SARA), Title III:

Section 302 extremely hazardous substances: None

Section 311/312 hazard categories: Delayed Health

Section 313 reportable ingredients at or above de minimus concentrations: None

California Proposition 65:

This product contains a chemical (crystalline silica) known to the State of California to cause cancer.

State Regulatory Lists:

Each state may promulgate standards more stringent than the federal government. This section cannot encompass an inclusive list or all state regulations. Therefore, the user should review the components listed in Section 2 and consult state or local authorities for specific regulations that apply.

16. Other information

Disclaimer

NO WARRANTY IS MADE, EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE.

Vulcan Materials Company and its subsidiaries and affiliates ("Vulcan") believe the information contained herein is accurate; however, Vulcan makes no guarantees with respect to such accuracy and assumes no liability whatsoever in connection with the use of any information contained herein by any party. The provision of the information contained herein is not intended to be, and should not be construed as, legal advice or as ensuring compliance with any federal, state, or local laws, rules or regulations. Any party using any information contained herein should review all applicable laws, rules and regulations prior to use.

Issue date:

06/01/2015

Revision date:

06/01/2015

Vulcan Materials Company and its subsidiaries and affiliates
1200 Urban Center Drive
Birmingham, AL 35242

Vulcan
Materials Company

Dear Customer/Contractor:

Please find attached a safety data sheet (SDS) for the product that you purchased from Vulcan Materials Company or one of its subsidiaries or affiliates ("Vulcan"). This is a revised SDS and replaces any previous versions of the material safety data sheet (MSDS) for this product. This SDS is provided to you as required by the Occupational Safety and Health Administration's (OSHA) Hazard Communication Standard (29 CFR 1910.1200), the Mine Safety and Health Administration's (MSHA) Hazard Communication Standard (30 CFR Part 47), and/or any applicable state Right-to-Know laws.

It is the responsibility of your company to communicate this information to your employees, customers, and contractors who may use or come in contact with this product. Further, if you distribute this product, Vulcan requests, and applicable laws may require, that you forward this SDS to your customers.

Please direct this information to the person responsible for safety and health compliance at your company. If you have questions about the SDS, please contact Vulcan at 1200 Urban Center Drive, Birmingham, AL 35242 or 1-866-401-5424.

If you need additional copies of this or any other Vulcan SDS or a Spanish language version, you can obtain them at www.vulcanmaterials.com or by calling 1-866-401-5424.

La MSDS puede obtenerse en www.vulcanmaterials.com o llamando al 1-866-401-5424.

Sincerely,

Cynthia Kirby

Cynthia Kirby
Director, Safety & Health

SAFETY DATA SHEET

Effective Date: 06/01/2015
Replaces 05/01/2012

Natural Sand and Gravel

1. Identification

Product name:
Natural Sand and Gravel

Other means of identification/Synonyms/Common Names:
Construction Aggregate

Recommended use:
Natural sand and gravel is used as a construction material.
NATURAL SAND AND GRAVEL MUST NOT BE USED AS AN ABRASIVE BLASTING AGENT.

Recommended restrictions:
None Known

Manufacturer/Contact info:
Vulcan Materials Company and its subsidiaries and affiliates
1200 Urban Center Drive
Birmingham, AL 35242

General Phone Number:
1.866.401.5424

Emergency Phone Number:
1.866.401.5424 (3E Company, 24hours/day, 7 Days/week)

Website:
www.vulcanmaterials.com

2. Hazard(s) Identification

Physical hazards:
Not Classified

Health hazards:
Carcinogenicity-Category 1A
Specific target organ toxicity, repeated exposure- Category 2

Signal word:

Danger

Hazard statement: May Cause Cancer (Inhalation).
Causes damage to organs (lungs, respiratory system) through prolonged or repeated exposure (inhalation)

Precautionary statement:

Prevention

- Obtain special instructions before use.
- Do not handle until all safety precautions have been read and understood.
- Use personal protective equipment as required. Wear protective gloves, protective clothing, eye protection, and face protection.
- Wash hands thoroughly after handling.
- Do not eat, drink or smoke when using this product.

Response

- If exposed or concerned get medical advice/attention.

Disposal

- Dispose of contents/container in accordance with all local, regional, national, and international regulations.

Supplemental information:
Respirable Crystalline Silica (RCS) may cause cancer. Natural sand and gravel is a naturally occurring mineral complex that contains varying quantities of quartz (crystalline silica). Natural sand and gravel may be subjected to various natural

or mechanical forces that produce small particles (dust) which may contain respirable crystalline silica (particles less than 10 micrometers in aerodynamic diameter). Repeated inhalation of respirable crystalline silica (quartz) may cause lung cancer according to IARC, NTP; ACGIH states that it is a suspected cause of cancer. Other forms of RCS (e.g., tridymite and cristobalite) may also be present or formed under certain industrial processes.

3. Composition/information on ingredients

Chemical name	CAS number	%
Natural Sand and Gravel	None	100
Quartz (crystalline silica)	14808-60-7	>1

4. First-aid measures

Inhalation:

Remove to fresh air. Dust in throat and nasal passages should clear spontaneously. Contact a physician if irritation persists or if breathing is difficult.

Eyes:

Immediately flush eye(s) with plenty of clean water for at least 15 minutes, while holding the eyelid(s) open. Occasionally lift the eyelid(s) to ensure thorough rinsing. Beyond flushing, do not attempt to remove material from eye(s). Contact a physician if irritation persists or later develops.

Skin:

Wash affected areas thoroughly with mild soap and fresh water. Contact a physician if irritation persists.

Ingestion:

If person is conscious do not induce vomiting. Give large quantity of water and get medical attention. Never attempt to make an unconscious person drink.

Most important symptoms/effects, acute and delayed:

Dust may irritate the eyes, skin, and respiratory tract. Breathing silica-containing dust for prolonged periods in the workplace can cause lung damage and a lung disease called silicosis. Symptoms of silicosis may include (but are not limited to) shortness of breath, difficulty breathing with or without exertion; coughing; diminished work capacity; diminished chest expansion; reduction of lung volume; right heart enlargement and/or failure.

Indication of immediate medical attention and special treatment needed:

Not all individuals with silicosis will exhibit symptoms of the disease. However, silicosis can be progressive, and symptoms can appear at any time, even years after exposures have ceased. Persons with silicosis have an increased risk of pulmonary tuberculosis infection.

For emergencies contact 3E Company at 1.866.401.5424 (24 hours/day, 7 days/week).

5. Fire-fighting measures

Suitable extinguishing media:

This product is not flammable. Use fire-extinguishing media appropriate for surrounding materials.

Unsuitable extinguishing media:

None known.

Specific hazards arising from the chemical:

Contact with powerful oxidizing agents may cause fire and/or explosions (see section 10 of SDS).

Special protective equipment and precautions for firefighters:

Use protective equipment appropriate for surrounding materials.

Fire-fighting equipment/instructions:

No unusual fire or explosion hazards noted. Not a combustible dust.

Specific methods:

The presence of this material in a fire does not hinder the use of any standard extinguishing medium. Use extinguishing medium for surrounding fire.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures:

Persons involved in cleanup processes should first observe precautions (as appropriate) identified in Section 8 of this SDS. **For emergencies, contact 3E Company at 1-866-401-5424 (24 hours/day, 7 days/week)**.

Environmental precautions:

Prevent from entering into sewers or drainage systems where it can harden and clog flow.

Methods and materials for containment and cleaning up:

Spilled material, where dust is generated, may overexpose cleanup personnel to respirable crystalline silica-containing dust. Do not dry sweep or use compressed air for clean-up. Wetting of spilled material and/or use of respiratory protective equipment may be necessary.

7. Handling and storage

Precautions for safe handling:

Respirable crystalline silica-containing dust may be generated during processing, handling, and storage. Use personal protection and controls identified in Section 8 of this SDS as appropriate.

NATURAL SAND AND GRAVEL MUST NOT BE USED AS AN ABRASIVE BLASTING AGENT.

Conditions for safe storage, including any incompatibilities:

Do not store near food, beverages, or smoking materials.

8. Exposure controls/personal protection

Legend:

NE = Not Established; PEL = Permissible Exposure Limit; TLV = Threshold Limit Value; REL = Recommended Exposure Limit; OSHA = Occupational Safety and Health Administration; MSHA = Mine Safety and Health Administration; NIOSH = National Institute for Occupational Safety and Health; ACGIH = American Conference of Governmental Industrial Hygienists

Component	OSHA/MSHA PEL	ACGIH TLV	NIOSH REL
Particulates not otherwise classified	15 mg/m^3 (total dust) 5 mg/m^3 (respirable fraction)	10 mg/m3 (inhalable fraction) 3 mg/m3 (respirable fraction)	NE
Respirable dust containing silica	10 mg/m^3 ÷ (% silica + 2)	Use Respirable Silica TLV	Use Respirable Silica REL
Total dust containing silica	OSHA: 30 mg/m^3 ÷ (% silica + 2) MSHA: 30 mg/m^3 ÷ (% silica + 3)	NE	NE
Respirable Crystalline Silica (quartz)	NE - Use respirable dust PEL	0.025 mg/m^3	0.05 mg/m^3
Respirable Tridymite and Cristobalite (other forms of crystalline silica)	1/2 of OSHA and MSHA respirable dust PEL	0.025 mg/m^3	0.05 mg/m^3

Exposure Guidelines:

Respirable dust and quartz levels should be monitored regularly to determine worker exposure levels. Exposure levels in excess of allowable exposure limits should be reduced by all feasible engineering controls, including (but not limited to) wet suppression, ventilation, process enclosure, and enclosed employee workstations.

Engineering Controls:

Activities that generate dust require the use of general ventilation, local exhaust and/or wet suppression methods to maintain exposures below allowable exposure limits.

Eye Protection:

Safety glasses with side shields should be worn as minimum protection. Dust goggles should be worn when excessively (visible) dusty conditions are present or are anticipated.

Skin Protection (Protective Gloves/Clothing):

Use gloves to provide hand protection from abrasion. In dusty conditions, use long sleeve shirts. Wash work clothes after each use.

Respiratory Protection:

All respirators must be NIOSH-approved for the exposure levels present. (See NIOSH Respirator Selection Guide). The need for respiratory protection should be evaluated by a qualified safety and health professional. Activities that generate dust require the use of an appropriate dust respirator where dust levels exceed or are likely to exceed allowable exposure limits. For respirable silica levels that exceed or are likely to exceed an 8 hr Time Weighted Average (TWA) of 0.5 $\mathrm{mg/m^3}$, a high efficiency particulate filter respirator must be worn at a minimum; however, if respirable silica levels exceed or are likely to exceed an 8 hr TWA of 5.0 $\mathrm{mg/m^3}$ a positive pressure, full face respirator or equivalent is required. Respirator use must comply with applicable MSHA (42 CFR 84) or OSHA (29 CFR 1910.134) standards, which include provisions for a user training program, respirator inspection, repair and cleaning, respirator fit testing, medical surveillance and other requirements.

9. Physical and chemical properties

Appearance:

Angular or round multicolored particles.

Odor: No odor.	**PH:** Not applicable	**Decomposition temperature:** Not applicable
Melting point/freezing point: Not applicable	**Initial boiling point and boiling range:** Not applicable	**Flash point:** Non-combustible
Evaporation rate: Not applicable	**Flammability:** Not applicable	**Upper/lower flammability or explosive limits:** Not applicable
Vapor pressure: Not applicable	**Relative density:** Not applicable	**Solubility:** **0**
Partition coefficient: n-octanol/water. Not applicable	**Autoignition temperature:** Not applicable	**Specific Gravity (H2O = 1):** 2.55 - 2.80

10. Stability and reactivity

Reactivity:

Not reactive under normal use.

Chemical stability:

Stable under normal temperatures and pressures.

Possibility of hazardous reactions:

None under normal use.

Conditions to avoid (e.g., static discharge, shock or vibration):

Contact with incompatible materials should be avoided (see below). See Sections 5 and 7 for additional information.

Incompatible materials:

Silica ignites on contact with fluorine and is incompatible with acids, aluminum, ammonium salts and magnesium. Silica reacts violently with powerful oxidizing agents such as fluorine, boron trifluoride, chlorine trifluoride, manganese trifluoride, and oxygen difluoride yielding possible fire and/or explosions. Silica dissolves readily in hydrofluoric acid producing a corrosive gas – silicon tetrafluoride.

Hazardous decomposition products:

Silica-containing respirable dust particles may be generated. When heated, quartz is slowly transformed into tridymite (above 860°C/1580°F) and cristobalite (above 1470°C/2678°F). Both tridymite and cristobalite are other forms of crystalline silica.

11. Toxicological information

Primary Routes of Exposure:

Inhalation and contact with the eyes and skin.

Symptoms related to the physical, chemical, toxicological characteristics

Inhalation:

Dusts may irritate the nose, throat and respiratory tract by mechanical abrasion. Coughing sneezing and shortness of breath may occur.

Symptoms of silicosis caused by chronic exposure to dust may include (but are not limited to) shortness of breath,

difficulty breathing with or without exertion; coughing; diminished work capacity; diminished chest expansion; reduction of lung volume; right heart enlargement and/or failure. Persons with silicosis have an increased risk of pulmonary tuberculosis infection.

Eye Contact:

Dust particles can scratch the eye causing tearing, redness, a stinging or burning feeling, or swelling of the eyes with blurred vision.

Skin Contact:

Dust particles can scratch and irritate the skin with redness, an itching or burning feeling, swelling of the skin, and/or rash.

Ingestion:

Expected to be practically non-toxic. Ingestion of large amounts may cause gastrointestinal irritation including nausea, vomiting, diarrhea, and blockage.

Medical Conditions Aggravated by Exposure:

Irritated or broken skin increases chance of contact dermatitis. Pre-existing medical conditions that may be aggravated by exposure include disorders of the eye, skin and lung (including asthma and other breathing disorders). Smoking tobacco will impair the ability of the lungs to clear themselves of dust.

Delayed and immediate effects and also chronic effects from short- and long-term exposure:

Prolonged overexposure to respirable dusts in excess of allowable exposure limits can cause inflammation of the lungs leading to possible fibrotic changes, a medical condition known as pneumoconiosis.

Prolonged and repeated inhalation of respirable crystalline silica-containing dust in excess of allowable exposure limits may cause a chronic form of silicosis, an incurable lung disease that may result in permanent lung damage or death. Chronic silicosis generally occurs after 10 years or more of overexposure; a more accelerated type of silicosis may occur between 5 and 10 years of higher levels of exposure. In early stages of silicosis, not all individuals will exhibit symptoms (signs) of the disease. However, silicosis can be progressive, and symptoms can appear at any time, even years after exposure has ceased.

Repeated overexposures to very high levels of respirable crystalline silica for periods as short as six months may cause acute silicosis. Acute silicosis is a rapidly progressive, incurable lung disease that is typically fatal. Symptoms include (but are not limited to): shortness of breath, cough, fever, weight loss, and chest pain.

Respirable dust containing newly broken silica particles has been shown to be more hazardous to animals in laboratory tests than respirable dust containing older silica particles of similar size. Respirable silica particles which had aged for sixty days or more showed less lung injury in animals than equal exposures of respirable dust containing newly broken particles of silica.

There are reports in the literature suggesting that excessive crystalline silica exposure may be associated with autoimmune disorders and other adverse health effects involving the kidney. In particular, the incidence of scleroderma (thickening of the skin caused by swelling and thickening of fibrous tissue) appears to be higher in silicotic individuals. To date, the evidence does not conclusively determine a causal relationship between silica exposure and these adverse health effects.

Carcinogenicity:

Epidemiology studies on the association between crystalline silica exposure and lung cancer have had both positive and negative results. There is some speculation that the source and type of crystalline silica may play a role. Studies of persons with silicosis indicate an increased risk of developing lung cancer, a risk that increases with the level and duration of exposure. It is not clear whether lung cancer develops in non-silicotic patients. Several studies of silicotics do not account for lung cancer confounders, especially smoking, which have been shown to increase the risk of developing lung disorders, including emphysema and lung cancer.

In October 1996, an IARC Working Group designated respirable crystalline silica as carcinogenic (Group 1). In 2012, an IARC Working Group re-affirmed that inhalation of crystalline silica was a known human carcinogen. The NTP's Report on Carcinogens, 9th edition, lists respirable crystalline silica as a "known human carcinogen." In the year 2000, the American Conference of Governmental Industrial Hygienists (ACGIH) listed respirable crystalline silica (quartz) as a suspected human carcinogen (A-2). These classifications are based on sufficient evidence of carcinogenicity in certain experimental animals and on selected epidemiological studies of workers exposed to crystalline silica.

Additional information on toxicological-effects:

Acute toxicity: Not classified

Skin corrosion/irritation: Not classified

Serious eye damage/eye irritation: Not classified

Respiratory sensitization: Not classified.

Skin sensitization: Not classified.

Germ cell Mutagenicity: Not classified

Carcinogenicity: May cause cancer (Inhalation).

Reproductive toxicity: Not classified

Specific target organ toxicity - single exposure: Not classified

Specific target organ- toxicity – repeated exposure: Causes damage to organs (lungs, respiratory system) through prolonged or repeated exposure (inhalation)

Aspiration toxicity: Not classified (not applicable- solid material)

12. Ecological information

Ecotoxicity (aquatic and terrestrial, where available):
Not determined

Persistence and degradability:
Not determined

Bioaccumulative potential.
Not determined

Mobility in soil.
Not determined

Other adverse effects.
Not determined

13. Disposal considerations

Safe handling and disposal of waste:
Place contaminated materials in appropriate containers and dispose of in a manner consistent with applicable federal, state, and local regulations. Prevent from entering drainage, sewer systems, and unintended bodies of water. It is the responsibility of the user to determine, at the time of disposal, whether product meets criteria for hazardous waste. Product uses, transformations, mixture and processes, may render the resulting material hazardous.

14. Transport information

UN Number:
Not regulated.

UN Proper shipping name:
Not regulated.

Transport Hazard class:
Not applicable.

Packing group, if applicable:
Not applicable.

Marine pollutant (Yes/No):
Not applicable.

15. Regulatory information

Toxic Substances Control Act (TSCA):
The components in this product are listed on the TSCA Inventory or are exempt.

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA):
Releases of this material to air, land, or water are not reportable to the National Response Center under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) or to state and local emergency planning committees under the Superfund Amendments and Reauthorization Act.

Superfund Amendments and Reauthorization Act of 1986 (SARA), Title III:
Section 302 extremely hazardous substances: None
Section 311/312 hazard categories: Delayed Health
Section 313 reportable ingredients at or above de minimus concentrations: None

California Proposition 65:
This product contains a chemical (crystalline silica) known to the State of California to cause cancer.

State Regulatory Lists:
Each state may promulgate standards more stringent than the federal government. This section cannot encompass an inclusive list or all state regulations. Therefore, the user should review the components listed in Section 2 and consult state or local authorities for specific regulations that apply.

16. Other information

Disclaimer

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Issue date:
06/01/2015

Revision date:
06/01/2015

Vulcan Materials Company and its subsidiaries and affiliates
1200 Urban Center Drive
Birmingham, AL 35242

Vulcan
Materials Company

Dear Customer/Contractor:

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It is the responsibility of your company to communicate this information to your employees, customers, and contractors who may use or come in contact with this product. Further, if you distribute this product, Vulcan requests, and applicable laws may require, that you forward this SDS to your customers.

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La MSDS puede obtenerse en www.vulcanmaterials.com o llamando al 1-866-401-5424.

Sincerely,

Cynthia Kirby

Cynthia Kirby
Director, Safety & Health

MATERIAL SAFETY DATA SHEET

Winn Materials, LLC
800 Barge Point Rd.
Clarksville, TN 37042

I – IDENTIFICATION

CHEMICAL NAME	CHEMICAL FORMULA	MOLECULAR WEIGHT
Limestone	Not Applicable	Not Applicable

TRADE NAME: Crushed Stone

SYNONYMS: Aggregate, Agline, Fluxing Agent, Manufactured Sand

DOT IDENTIFICATION NO.: None

II – PRODUCT AND COMPONENT DATA

COMPONENT(S) CHEMICAL NAME	CAS REGISTRY NO.	% (Approx)	ACGIH TLV-TWA
Limestone*	1317-65-3*	100	See Section VI
*Composition Varies Naturally - May Contain Quartz	*EPA TSCA Inventory (Same CAS No. As Calcium Carbonate)		

III – PHYSICAL DATA

APPEARANCE AND ODOR	SPECIFIC GRAVITY
Angular grey, white and tan particles ranging in size from powder to boulders. No odor.	2.6 - 2.75
BOILING POINT	**VAPOR DENSITY IN AIR (Air = 1)**
Not applicable	Not Applicable
VAPOR PRESSURE	**% VOLATILE BY VOLUME**
Not Applicable	0%
EVAPORATION RATE	**SOLUBILITY IN WATER**
0	0

IV – REACTIVITY DATA

STABILITY	CONDITIONS TO AVOID
Stable	None Known

INCOMPATIBILITY (Materials to Avoid)

None Known

HAZARDOUS DECOMPOSITION PRODUCTS

None Known

HAZARDOUS POLYMERIZATION

None Known

V - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)
Not Flammable

FLAMMABLE LIMITS IN AIR
Not Flammable

EXTINGUISHING AGENTS
None Required

UNUSUAL FIRE AND EXPLOSION HAZARDS
None Known

VI - TOXICITY AND FIRST AID

EXPOSURE LIMITS (When exposure to this product and other chemicals is concurrent, the TLV must be defined in the workplace.)

Exposure limits vary with the % Quartz in dust. All limits for 8-hr. TWAs in mg/M^3.
Dust < 1% Quartz: Total (ACGIH & MSHA) = 10 (OSHA=15); Respirable (ACGIH, MSHA & OSHA) = 5.
Dust ≥ 1% Quartz: Total (ACGIH & MSHA) = 30÷(% Quartz+3); Total (OSHA) = 30÷(% Quartz+2).
Respirable (ACGIH, MSHA & OSHA) = 10÷(% Quartz+2)

Effects described in this section are believed not to occur if exposures are maintained at or below appropriate TLVs.
Because of the wide variation in individual susceptibility, TLVs may not be applicable to all persons and those with medical conditions listed below.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE
Inhaling respirable dust may aggravate existing respiratory system disease(s) and/or dysfunctions.
Exposure to dust may aggravate existing skin and/or eye conditions.

ACUTE TOXICITY Primary route(s) of exposure: ☒ Inhalation ☐ Skin Absorption ☐ Ingestion

Exposure to dust may irritate respiratory system, eyes, and skin.

FIRST AID

Dust in eyes: Flush eyes with running water for 15 minutes. Contact a physician if irritation persists.

Dust on previously irritated skin: Wash with soap and water. Contact a physician if irritation is aggravated.

Dust inhalation: Remove to fresh air.

Dust in throat and nasal passages should clear spontaneously. Contact a physician if irritation persists.

Chronic exposure to respirable limestone dust in excess of appropriate TLVs has caused pneumoconiosis (Dusty Lung).

Chronic exposure to respirable quartz-containing limestone dust in excess of appropriate TLVs has caused silicosis, a progressive pneumoconiosis.

Symptoms of Silicosis: Not all individuals with silicosis will exhibit symptoms (signs) of the disease. However, silicosis is progressive, and symptoms can appear at any time, even years after exposures have ceased. Symptoms of silicosis may include (but are not limited to): Shortness of breath; difficulty breathing with or without exertion; coughing; diminished work capacity; diminished chest expansion; reduction of lung volume; right heart enlargement and/or failure. Persons with silicosis have an increased risk of pulmonary tuberculosis infection.

Limestone is not listed as a carcinogen on the NTP, IARC, or OSHA lists of carcinogens.

VII – PERSONAL PROTECTION AND CONTROLS

RESPIRATORY PROTECTION

NIOSH-MSHA approved dust respirators for conditions where dust levels exceed or are likely to exceed appropriate exposure limits. Respirator use must comply with applicable MSHA or OSHA standards, which include provisions for a user training program, respirator repair and cleaning, respirator fit testing, and other requirements.

VENTILATION

Local exhaust or general ventilation adequate to maintain exposures below appropriate TLVs.

SKIN PROTECTION

See "Hygiene" section below.

EYE PROTECTION

Safety glasses with side shields should be worn as minimum protection. Dust goggles should be worn when excessively (visible) dusty conditions are present or are anticipated.

HYGIENE

Wash dust-exposed skin with soap and water. Wash work clothes after each use.

OTHER CONTROL MEASURES

Respirable dust levels should be monitored regularly. Dust levels in excess of appropriate TLVs should be reduced by all feasible engineering controls, including (but not limited to) wet suppression, ventilation, process enclosure, and enclosed employee work stations.

VIII – STORAGE AND HANDLING PRECAUTIONS

Respirable dust may be generated during processing, handling, and storage. The controls identified in Section VII of the MSDS should be applied as appropriate.

IX – SPILL LEAK AND DISPOSAL PRACTICES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Spilled materials, where dust can be generated, may overexpose cleanup personnel to respirable dust. Wetting of spilled material and/or use of respiratory protective equipment may be necessary.

WASTE DISPOSAL METHOD

Pickup and reuse clean materials. Dispose of waste materials only in accordance with applicable federal, state, and local laws and regulations.

X – TRANSPORTATION

DOT HAZARD CLASSIFICATION

None

PLACARD REQUIRED

None

LABEL REQUIRED

Label as required by applicable state and local regulations.

For Further Information

Winn Materials, LLC
800 Barge Point Road
Clarksville, TN 37042
(931) 572-0093

DATE OF PREPARATION: June 1995 & June 1996

MATERIAL SAFETY DATA SHEET

I – IDENTIFICATION

CHEMICAL NAME	CHEMICAL FORMULA	MOLECULAR WEIGHT
Limestone	Not Applicable	Not Applicable

TRADE NAME: Crushed Stone

SYNONYMS: Aggregate, Aglime, Fluxing Agent, Manufactured Sand

DOT IDENTIFICATION NO.: None

II – PRODUCT AND COMPONENT DATA

COMPONENT(S) CHEMICAL NAME	CAS REGISTRY NO.	% (Approx)	ACGIH TLV-TWA
Limestone*	1317-65-3*	100	See Section VI
*Composition Varies Naturally - May Contain Quartz	*EPA TSCA Inventory (Same CAS No. As Calcium Carbonate)		

III – PHYSICAL DATA

APPEARANCE AND ODOR	SPECIFIC GRAVITY
Angular grey, white and tan particles ranging in size from powder to boulders. No odor.	2.6 – 2.75
BOILING POINT	**VAPOR DENSITY IN AIR (Air = 1)**
Not applicable	Not Applicable
VAPOR PRESSURE	**% VOLATILE, BY VOLUME**
Not Applicable	0%
EVAPORATION RATE	**SOLUBILITY IN WATER**
0	0

IV – REACTIVITY DATA

STABILITY	CONDITIONS TO AVOID
Stable	None Known

INCOMPATIBILITY (Materials to avoid): None Known

HAZARDOUS DECOMPOSITION PRODUCTS: None Known

HAZARDOUS POLYMERIZATION: None Known

V - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)
Not Flammable

FLAMMABLE LIMITS IN AIR
Not Flammable

EXTINGUISHING AGENTS
None Required

UNUSUAL FIRE AND EXPLOSION HAZARDS
None Known

VI - TOXICITY AND FIRST AID

EXPOSURE LIMITS (When exposure to this product and other chemicals is concurrent, the TLV must be defined in the workplace.)

Exposure limits vary with the % Quartz in dust. All limits for 8-hr. TWAs in mg/m^3.
Dust < 1% Quartz: Total (ACGIH & MSHA) = 10 (OSHA=15); Respirable (ACGIH, MSHA & OSHA) = 5.
Dust ≥ 1% Quartz: Total (ACGIH & MSHA) = 30÷(% Quartz+3); Total (OSHA) = 30÷(% Quartz+2).
Respirable (ACGIH, MSHA & OSHA) = 10÷(% Quartz+2)

Effects described in this section are believed not to occur if exposures are maintained at or below appropriate TLVs.
Because of the wide variation in individual susceptibility, TLVs may not be applicable to all persons and those with medical conditions listed below.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE
Inhaling respirable dust may aggravate existing respiratory system disease(s) and/or dysfunctions.
Exposure to dust may aggravate existing skin and/or eye conditions.

ACUTE TOXICITY Primary route(s) of exposure: ☒ Inhalation ☐ Skin Absorption ☐ Ingestion

Exposure to dust may irritate respiratory system, eyes, and skin.

FIRST AID

Dust in eyes: Flush eyes with running water for 15 minutes. Contact a physician if irritation persists.

Dust on previously irritated skin: Wash with soap and water. Contact a physician if irritation is aggravated.

Dust inhalation: Remove to fresh air.

Dust in throat and nasal passages should clear spontaneously. Contact a physician if irritation persists.

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Chronic exposure to respirable quartz-containing limestone dust in excess of appropriate TLVs has caused silicosis, a progressive pneumoconiosis.

Symptoms of Silicosis: Not all individuals with silicosis will exhibit symptoms (signs) of the disease. However, silicosis is progressive, and symptoms can appear at any time, even years after exposures have ceased. Symptoms of silicosis may include (but are not limited to): Shortness of breath; difficulty breathing with or without exertion; coughing; diminished work capacity; diminished chest expansion; reduction of lung volume; right heart enlargement and/or failure. Persons with silicosis have an increased risk of pulmonary tuberculosis infection.

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RESPIRATORY PROTECTION

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VENTILATION

Local exhaust or general ventilation adequate to maintain exposures below appropriate TLVs.

SKIN PROTECTION

See "Hygiene" section below.

EYE PROTECTION

Safety glasses with side shields should be worn as minimum protection. Dust goggles should be worn when excessively (visible) dusty conditions are present or are anticipated.

HYGIENE

Wash dust-exposed skin with soap and water. Wash work clothes after each use.

OTHER CONTROL MEASURES

Respirable dust levels should be monitored regularly. Dust levels in excess of appropriate TLVs should be reduced by all feasible engineering controls, including (but not limited to) wet suppression, ventilation, process enclosure, and enclosed employee work stations.

VIII – STORAGE AND HANDLING PRECAUTIONS

Respirable dust may be generated during processing, handling, and storage. The controls identified in Section VII of the MSDS should be applied as appropriate.

IX – SPILL LEAK AND DISPOSAL PRACTICES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Spilled materials, where dust can be generated, may overexpose cleanup personnel to respirable dust. Wetting of spilled material and/or use of respiratory protective equipment may be necessary.

WASTE DISPOSAL METHOD

Pickup and reuse clean materials. Dispose of waste materials only in accordance with applicable federal, state, and local laws and regulations.

X – TRANSPORTATION

DOT HAZARD CLASSIFICATION

None

PLACARD REQUIRED

None

LABEL REQUIRED

Label as required by applicable state and local regulations.

For Further Information

Winn Materials, Inc.
800 Barge Point Road
Clarksville, TN 37042
(931) 972-0093

DATE OF PREPARATION: June 1996 & June 1996

CONTENTS

*Indicates a MSDS

Cement Hazards and Controls

Health risks and precautions in using Portland Cement

Health effects

Cement can cause ill health by skin contact, eye contact, or inhalation. Risk of injury depends on duration and level of exposure and individual sensitivity.

Hazardous materials in wet concrete and mortar include:

- alkaline compounds such as lime (calcium oxide) that are corrosive to human tissue
- trace amounts of crystalline silica which is abrasive to the skin and can damage lungs
- trace amounts of chromium that can cause allergic reactions.

Skin contact

The hazards of wet cement are due to its caustic, abrasive, and drying properties.

Wet concrete contacting the skin for a short period and then thoroughly washed off causes little irritation. But continuous contact between skin and wet concrete allows alkaline compounds to penetrate and burn the skin.

When wet concrete or mortar is trapped against the skin—for instance, by falling inside a worker's boots or gloves or by soaking through protective clothing—the result may be first, second, or third degree burns or skin ulcers. These injuries can take several months to heal and may involve hospitalization and skin grafts.

Allergic skin reaction

Some workers become allergic to the hexavalent chromium in cement. A small yet significant percentage of all workers using cement will develop an allergy to chromium, with symptoms ranging from a mild rash to severe skin ulcers.

In addition to skin reactions, hexavalent chromium can cause a respiratory allergy called occupational asthma. Symptoms include wheezing and difficulty breathing. Workers may develop both skin *and* respiratory allergies to hexavalent chromium.

It's possible to work with cement for years without any allergic skin reaction and then to suddenly develop such a reaction. The condition gets worse until exposure to even minute quantities triggers a severe reaction. The allergy usually lasts a lifetime and prevents any future work with wet concrete or powder cement.

Eye contact

Exposure to airborne dust may cause immediate or delayed irritation of the

eyes. Depending on the level of exposure, effects may range from redness to chemical burns and blindness.

Inhalation

Inhaling high levels of dust may occur when workers empty bags of cement. In the short term, such exposure irritates the nose and throat and causes choking and difficult breathing. Sanding, grinding, or cutting concrete can also release large amounts of dust containing high levels of crystalline silica. Prolonged or repeated exposure can lead to a disabling and often fatal lung disease called *silicosis*. Some studies also indicate a link between crystalline silica exposure and lung cancer.

Dry cutting generates high levels of dust

Controls

The following are some basic recommendations for handling and using cement safely.

Personal protection

To protect skin from cement and cement mixtures, workers should wear:

- alkali-resistant gloves
- coveralls with long sleeves and full-length trousers (pull sleeves down over gloves and tuck pants inside boots and duct-tape at the top to keep mortar and concrete out)
- waterproof boots high enough to prevent concrete from flowing in when workers must stand in fresh concrete
- suitable respiratory protective equipment such as a P, N or R 95 respirator when cement dust can't be avoided
- suitable eye protection where mixing, pouring, or other activities may endanger eyes (minimum—safety glasses with sideshields or goggles, under extremely dusty conditions, tight-fitting unvented or indirectly vented goggles. Don't wear contact lenses when handling cement or cement products).

Work practices

- When laying concrete block, have different sizes on hand to avoid cutting or hammering to make them fit.
- Work in ways that minimize the amount of cement dust released.
- Where possible, wet-cut rather than dry-cut masonry products.
- Mix dry cement in well-ventilated areas.
- Make sure to work upwind from dust sources.
- Where possible, use ready-mixed concrete instead of mixing on site.
- When kneeling on fresh concrete, use a dry board or waterproof kneepads to protect knees from water that can soak through fabric.
- Remove jewelry such as rings and watches because wet cement can collect under them.

Hygiene

- Clothing contaminated by wet cement should be quickly removed. Skin in contact with wet cement should be washed *immediately* with large amounts of cool clean water.
- Don't wash your hands with water from buckets used for cleaning tools.

• Provide adequate hygiene facilities on site for workers to wash hands and face at the end of a job and before eating, drinking, smoking, or using the toilet. Facilities for cleaning boots and changing clothes should also be available.

Training

Under the Workplace Hazardous Materials Information System (WHMIS) in force across Canada, workers handling, using, or exposed to dry or wet cement must be educated in hazards and controls.

First aid

Skin contaminated with wet or dry cement should be washed with cold running water as soon as possible. Open sores or cuts should be thoroughly flushed and covered with suitable dressings. Get medical attention if discomfort persists. Contaminated eyes should be washed with cold tap water for at least 15 minutes before the affected person is taken to hospital.

ORM ORGAIN READY MIX CONCRETE CO.

Material Safety Data Sheet

240 Kraft St, Clarksville, TN 37040 • Phone: 931-647-1597 • Fax: 931-552-2484

Section 1 – IDENTIFICATION

Product Name:
Ready-Mix Concrete, Freshly Mixed Unhardened Concrete

Supplier/Manufacturer:
Orgain Ready Mix Concrete Co., Inc.
240 Kraft St.
Clarksville, TN 37040
(931) 647-1597

Prepared By:
John Manning

Previous MSDS:
This MSDS supersedes all previous versions

Revision Date:
1-1-2006

Chemical Name/Synonyms:
Ready-Mix Concrete, Freshly Mixed Unhardened Concrete

Chemical Family:
Calcium compounds
Silica compounds

Section 2 – COMPONENTS

Hazardous Ingredients:	**Total Dust**	**Respirable Dust**	
Portland Cement (CAS # 65997-15-1) – approximately 2%-26% by weight			
ACGIH TLV	10 mg/m^3		
OSHA PEL	15 mg/m^3	5 mg/m^3	
OSHA PEL		50 mppcf	(crystalline silica <1%)
Aggregates (CAS # None) – approximately 36%-92% by weight			
ACGIH TLV	10 mg/m^3		
OSHA PEL	15 mg/m^3	5mg/m^3	
Flyash (CAS # 68131-74-8) – approximately 0%-25% by weight			
ACGIH TLV	10 mg/m^3		
OSHA PEL	15 mg/m^3	5 mg/m^3	
Crystalline Silica (CAS # 14808-60-7) – approximately 5%-13% by weight			
ACGIH TLV		0.1 mg/m^3	
OSHA PEL	2 mg/m^3		(30 mg/m^3 / (13% SiO_2 +2))
OSHA PEL		0.7 mg/m^3	(10 mg/m^3 / (13% SiO_2 +2))
OSHA PEL		13.8 mppcf	(250 / (13% SiO_2 +5)) mppcf
Water (CAS # 77321-85) – approximately 6%-13% by weight			

Trace Elements:
Ready-mix concrete is made form materials extracted from the earth. Trace amounts of naturally occurring elements might be detected during chemical analysis of these materials.

Additives:
Certain additives may be incorporated in the ready-mix concrete and MSDS's are available for such additives upon request.

Section 3 – HAZARDS IDENTIFICATION

Emergency Overview:

Short-term exposure to wet concrete is not likely to cause an immediate hazard. However, exposure of sufficient duration to wet concrete can cause serious, potentially irreversible tissue (skin or eye) damage in the form of chemical (caustic) burns. The same type of tissue damage can occur if wet or moist areas of the body are exposed for sufficient duration to the dry ingredients in unhardened concrete.

Routes of Exposure:

Eye Contact:

Exposure to airborne dust during the handling or mixing of the dry ingredients in ready-mix concrete may cause immediate or delayed irritation or inflammation.

Eye contact by splashes of wet concrete may cause effects ranging from moderate eye irritation to chemical burns and blindness. Such exposures require immediate first-aid (see Section 4) and medical attention to prevent significant damage to the eye.

Skin Contact:

Discomfort or pain cannot be relied upon to alert a person to a hazardous skin exposure. Consequently, the only effective means of avoiding skin injury or illness involves minimizing skin contact, particularly contact with wet concrete. Exposed persons may not feel discomfort until hours after the exposure has ended and significant injury has occurred.

Exposure during the handling or mixing of the dry ingredients in ready-mix concrete may cause drying of the skin with consequent mild irritation or more significant effects attributable to aggravation of other conditions. Exposure to wet concrete may cause more severe skin effects including thickening, cracking, or fissuring of the skin. Prolonged exposure can cause severe skin damage in the form of (caustic) chemical burns.

Some individuals may exhibit an allergic response upon exposure to wet concrete. The response may appear in a variety of forms ranging from a mild rash to severe skin ulcers. Persons already sensitized may react o their first contact with the product. Other persons may first experience this effect after years of contact with wet unhardened concrete products.

Ingestion:

Although inadvertent ingestion of small quantities of wet concrete or its dry ingredients are not known to be harmful, accidental ingestion of larger quantities can be harmful and requires immediate medical attention.

Inhalation:

The ingredients in ready-mix concrete contain crystalline silica. Exposure to these ingredients in excess of the applicable TLV or PEL (see Section 2) may cause or aggravate other lung conditions.

Exposure to the dry ingredients in ready-mix concrete may cause irritation to the moist mucous membranes of the nose, throat, and upper respiratory system.

Medical Conditions Which May Be Aggravated by Inhalation or Dermal Exposure:

Pre-existing upper respiratory and lung diseases by exposure to the dry ingredients.

Persons with unusual (hyper) sensitivity to chemicals, dusts, and metallic compounds may experience adverse reactions to wet concrete.

Carcinogenic Potential:

Ready-mix concrete is not listed as a carcinogen by NTP, OSHA, or IARC. It may, however, contain trace amounts of substances listed as carcinogens by these organizations, including but not limited to: crystalline silica, hexavalent chromium, lead compounds, mercury compounds, nickel compounds, and possibly other chemicals.

Section 4 – FIRST AID

Eyes:

Immediately flush eyes thoroughly with water. Continue flushing eyes for at least 15 minutes, including under lids, to remove all particles. Call physician immediately.

Skin:

Wash skin with cool water and pH-neutral soap or mild detergent intended for use on skin. Seek medical treatment in all cases of prolonged exposure to wet concrete, liquids from wet concrete products, or prolonged wet skin exposure to the dry ingredients in ready-mix concrete.

Ingestion:

Do not induce vomiting. If conscious, have the victim drink plenty of water and call a physician immediately.

Inhalation of Airborne Dust:

Remove to fresh air. Seek medical help if coughing and other symptoms do not subside. (Inhalation of gross amounts of the dry ingredients in ready-mix concrete required immediate medical attention.)

Section 5 – FIRE & EXPOLOSION DATA

Flash Point:	None	**Extinguishing Media:**	Not Combustible
Lower Explosive Limit:	None	**Special Fire Fighting Procedures:**	None
Upper Explosive Limit:	None	**Hazardous Combustion Products:**	None
Auto Ignition Temperature:	Not Combustible	**Unusual Fire & Explosion Hazards:**	None

Section 6 – ACCIDENTAL RELEASE MEASURES

Collect dry material using a scoop. Avoid actions that cause dust to become airborne. Avoid inhalation of dust and contact with skin.

Scrape up wet material and place in an appropriate container. Allow the wet concrete to "harden" before disposal. Do not attempt to wash wet concrete down sewers or storm drains.

Wear appropriate personal protection equipment as described in Section 8

Dispose of waste material according to local, state, and federal regulations.

Section 7 – HANDLING & STORAGE

Normal temperatures and pressures do not affect the material.

Promptly remove dusty clothing or clothing which is wet with concrete and launder before reuse. Wash thoroughly after exposure to dust or wet concrete mixtures.

Section 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

Eye Protection:

When engaged in activities where wet concrete or its dry ingredients could contact the eye, wear safety glasses with side shields or goggles. In extremely dusty environments and unpredictable environments, wear unvented or indirectly vented goggles to avoid eye irritation or injury. Contact lenses should not be worn when working around wet concrete or its dry ingredients.

Section 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION (continued)

Skin Protection:

Prevention is essential to avoid potentially severe skin injury. Avoid contact with wet concrete products or its dry ingredients. If contact occurs, promptly wash affected area with soap and water. Where prolonged exposure to wet concrete products might occur, wear impervious clothing and gloves to eliminate skin contact. Where required, wear boots that are impervious to water to eliminate foot and ankle exposure.

Do not rely on barrier creams; barrier creams should not be used in place of gloves

Periodically wash areas contacted by wet concrete or its ingredients with a pH neutral soap and water and wash again at the end of the work. If irritation occurs, immediately was the affected area and seek treatment. If clothing becomes saturated with wet concrete, it should be removed and replaced with clean dry clothing.

Respiratory Protection:

Avoid actions that cause dust exposure to occur. Use local or general ventilation to control exposures below applicable exposure limits.

NIOSH approved particulate filter respirators should be used in the context of respiratory protection programs meeting the requirements of the OSHA respiratory protection standard (29CFR 1910.134) to control exposures when ventilation or other controls are inadequate. Respirator and/or filer cartridge selection should be based on American National Standards Institute (ANSI) Standards Z88.2 Practices for Respiratory Protection.

Ventilation:

Use local exhaust or general dilution ventilation to control exposure within applicable limits.

Section 9 – PHYSICAL & CHEMICAL PROPERTIES

Appearance:	Gray Granular Mixture	**Vapor Pressure:**	Not Applicable
Odor:	No Distinct Odor	**Vapor Density:**	Not Applicable
Physical State:	Liquid	**Boiling Point:**	Not Applicable
Specific Gravity (H_20=1):	1.70 to 3.00	**Melting Point:**	Not Applicable
pH (in water) (ASTM D 1293-95):	12 to 13	**Evaporation Rate:**	Not Applicable
Solubility in Water:	Slightly Soluble		

Section 10 – STABILITY & REACTIVITY

Stability:	Stable
Conditions to Avoid:	Unintentional contact with water
Incompatibility:	Wet Ready-Mix concrete is alkaline. As such it is incompatible with acids, ammonium salts and aluminum metal
Hazardous Decomposition:	Will not spontaneously occur. Adding water results in hydration and produces (caustic) calcium hydroxide
Hazardous Polymerization:	Will not occur

Section 11 – TOXICOLOGICAL INFORMATION

NIOSH conducted a study, "The Mortality of U.S. Portland Cement and Quarry Workers" (March 1985) which found: "There is no excess mortality form all causes of death, lung cancer, on-malignant respiratory disease, or ischemic heart disease" among workers studied.

Section 12 – ECOLOGICAL INFORMATION

Ecotoxicity: No recognized unusual toxicity to plants or animals

Relevant Physical & Chemical Properties: See Section 9 and 10

Section 13 – DISPOSAL

Dispose of waste material according to local, state, and federal regulations. (Since ready-mix concrete is stable, uncontaminated unused dry material may be saved for future use.)

Section 14 – TRANSPORTATION DATA

Hazardous Materials Description/Proper Shipping Name:	Ready-Mix concrete is not hazardous under U.S. Department of Transportation (DOT) regulations.
Hazard Class:	Not Applicable
Identification Number:	Not Applicable
Required Label Text:	Not Applicable
Hazardous Substances/Reportable Quantities (RQ):	Not Applicable

Section 15 – OTHER REGULATORY INFORMATION

Status under OSHA Hazard Communication Standard, 29 CFR 1910.1200:
Unhardened Ready-Mix concrete is considered a "hazardous chemical" under this regulation, and should be included in the employer's hazard communication program.

Reportable Quantities Under the Clean Water Act, CERCLA, and EPCRA, 40 CFR 117, 302 and 355:
Unhardened Ready-Mix concrete is not Listed.

Hazard Category and Applicability of EPCRA Hazardous Substance Inventory Reporting, 40 CFR 370:
Unhardened Ready-Mix concrete qualifies as a "hazardous substance".

Applicability of EPCRA Toxic Chemical Release Inventory (TRI) Reporting. 40 CFR 372:
Unhardened Ready-Mix concrete is not a TRI listed chemical, however TRI listed constituents are present in concentrations below the Supplier Notification De Minimus Levels.

Status Under the Toxic Substances Control Act, 40 CFR 710:
Unhardened Ready-Mix concrete and the chemicals present in Unhardened Ready-Mix concrete are on the TSCA inventory list.

Section 15 – OTHER REGULATORY INFORMATION (Continued)

Status under the Federal Hazardous Substances Act and Its Regulations:

Unhardened Ready-Mix concrete is a "hazardous substance" subject to the following labeling requirements for consumer use:

WARNING:
INJURIOUS TO EYES : CAUSES SKIN IRRITATION
READ THIS WARNING BEFORE USING.

Contains Portland Cement

Contact with wet (unhardened concrete, mortar, wet cement, or cement mixtures) can cause skin irritation, severe chemical burns, or serious eye damage. Avoid contact with eyes and skin. Wear waterproof gloves, a fully buttoned long-sleeved shirt, full-length trousers, and tight fitting eye protection when working with these materials. If you have to stand in wet concrete, use waterproof boots that are tight at tops and high enough to keep concrete from flowing into them. If you are finishing concrete wear knee-pads to protect knees. Wash wet concrete, mortar, wet cement, or cement mixtures from your skin with fresh, clean water immediately after contact. Indirect contact through clothing can be as serious as direct contact, so promptly rinse out wet concrete, mortar, wet cement, or cement mixtures from clothing. Seek immediate medical attention if you have persistent or severe discomfort. In case of eye contact, flush with plenty of water for at least 15 minutes. Consult a physician immediately.

KEEP OUT OF REACH OF CHILDREN.

USER AGREES TO CONVEY THIS WARNING TO ALL PERSONS WHO MAY PURCHASE, USE OR COME IN CONTACT WITH WET (UNHARDENED) CONCRETE, MORTAR, WET CEMENT OR CEMENT MIXTURES.

Section 16 – OTHER INFORMATION

Other Important Information:

Ready Mix concrete should only be used by knowledgeable persons. A key to using the product safely requires the user to recognize that portland cement chemically reacts with water, and that some of the intermediate products of this reaction (that is, those present while a concrete product is "setting") pose a far more severe hazard than does portland cement itself.

While the information provided in this material safety data sheet is believed to provide a useful summary of the hazards of unhardened (wet) Ready-Mix concrete as it is commonly used, the sheet cannot anticipate and provide all of the information that might be needed in every situation. Inexperienced product users should obtain proper training before using this product.

In particular, the data furnished in this sheet does not address hazards that may be posed by materials other than natural sands and gravels mixed with portland cement and flyash to produce Ready-Mix concrete products. Users should review other relevant material safety data sheets before working with this portland cement concrete.

Section 16 – OTHER INFORMATION (Continued)

Abbreviations:

ACGIH	American Conference of Governmental Industrial Hygienists
ANSI	American National Standards Institute
CAS	Chemical Abstract Service
CERCLA	Federal Comprehensive Environmental Response, Compensation, and Liability Act (Superfund)
CFR	Code of Federal Regulations
DOT	Department of Transportation
EPCRA	Emergency Planning and Community Right-to-Know Act of 1986
IARC	International Agency for Research on Cancer
m3	Cubic Meter
mg	Milligram
mppcf	Million Particles per Cubic Foot
MSDS	Material Safety Data Sheet
MSHA	Mine Safety and Health Administration
NIOSH	National Institute of Occupational Safety and Health
NTP	National Toxicology Program
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
RQ	Reportable Quantities
SiO2	Crystalline Silica, Quartz
TLV	Threshold Limit Values
TRI	Toxic Release Inventory
TSCA	Toxic Substance Control Act
WHMIS	Workplace Hazardous Materials Information System

SELLER MAKES NO WARRANTY, EXPRESS OR IMPLIED, CONCERNING THE PRODUCT OR THE MERCHANTABILITY OR FITNESS THEREOF FOR ANY PURPOSE OR CONCERNING THE ACCURACY OF ANY INFORMATION PROVIDED BY Orgain Ready Mix Concrete Co.,Inc. except that the product shall conform to contracted specifications. The information provided herein was believed by Orgain Ready Mix Concrete to be accurate at the time of preparation or prepared from sources believed to be reliable, but it is the responsibility of the user to investigate and understand other pertinent sources of information to comply with all laws and procedures applicable to the safe handling and use of the product and to determine the suitability of the product for its intended use. Buyer's exclusive remedy shall be for damages and no claim of any kind, whether as to product delivered or for non-delivery of product, and whether based on contract, breach of warranty, negligence, or otherwise shall be greater in amount than the purchase price of the quantity of product in respect of which damages are claimed. In no event shall Seller be liable for incidental or consequential damages, whether Buyer's claim is based on contract, breach of warranty, negligence or otherwise.

Pine Bluff Materials Company
1501 Heartwood St.
White Hall, AR. 71602

MATERIAL SAFETY DATA SHEET

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

EMERGENCY ASSISTANCE
Pine Bluff Materials: (870) 534-7120

GENERAL MSDS ASSISTANCE
Pine Bluff Materials (870) 534-7120

PRODUCT NAME: Natural Sand or Gravel

SYNONYMS: Construction Aggregate

CHEMICAL NAME: Natural Sand or Gravel

CHEMICAL FAMILY: Rock

ISSUE DATE: October 14, 2011

REVISED DATE: January 25, 2012

SECTION 2: COMPOSITION / INFORMATION ON INGREDIENTS

Component	CAS #		%
Natural Sand or Gravel*	None		100
Crystalline Silica (quartz)	14808-60-7		>1

*Composition varies naturally, typically contains high levels crystalline silica (quartz)

SECTION 3: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: CAUTION! Prolonged inhalation of crystalline silica can cause lung damage and cancer. This product is considered an inhalation hazard when used in a manner that generates airborne dust in excess of established health and safety standards and guidelines, which requires additional personal protective equipment (PPE) or engineering control measures to control airborne dust levels, such as local exhaust ventilation, utilizing wet methods and performing work in open air environments. Consult section 8 for proper PPE to use with this material. Contact with natural sand and gravel may be irritating to the skin, eyes and respiratory tract. Avoid contact with the eyes and wear appropriate skin and eye protection when necessary. Appropriate respiratory protection should be worn to protect workers from exposures to airborne dust when engineering controls are not feasible.

PRIMARY ROUTES OF ENTRY: Eye contact, inhalation, and ingestion

TARGET ORGANS: Skin, Eyes, Respiratory system

SIGNS AND SYMPTOMS OF EXPOSURE: Generally this product may generate dust and cause irritation to the eyes, throat and upper respiratory system. Inhalation exposure can cause coughing and wheezing.

Chronic exposure to crystalline silica may cause decreased pulmonary function and progressive respiratory symptoms. In some cases, there may be no signs or symptoms of exposure to crystalline silica.

POTENTIAL HEALTH EFFECTS:
Health effects are dependent on exposure concentration and duration of exposure. Chronic exposure to crystalline silica can cause lung damage and cancer.

EYE CONTACT: Dust produced from mechanical operations may irritate the eyes causing redness and watering, pain and burning. Crystalline silica can cause abrasion of the cornea.

SKIN CONTACT: Dusts may cause mechanical irritation.

INHALATION: Under normal conditions, inhalation may cause respiratory irritation. Prolonged inhalation of crystalline silica can cause lung damage and cancer.

INGESTION: Ingestion is not a primary route of exposure under normal working conditions.

CARCINOGEN STATUS: Natural Sand and Gravel is not listed as a carcinogen by ACGIH, OSHA, NTP, or IARC. However, natural sand and gravel contains crystalline silica which is in preparation from International Agency Research on Cancer (IARC) to be classified as a group 1 carcinogen (carcinogenic to humans). National Toxicology Program recognizes respirable silica as known to be a human carcinogen.

CONDITIONS GENERALLY RECOGNIZED: May aggravate any pre-existing respiratory conditions.

SECTION 4: FIRST AID MEASURES

EYE CONTACT: Immediately flush the eyes with large amounts of room temperature water for a minimum of 15 minutes. Hold the eyelids apart during the flushing operation. Get immediate medical attention if irritation persists.

SKIN CONTACT: Wash affected areas thoroughly with water.

INHALATION: Remove the person from the exposure and move to fresh air. Get immediate medical attention if severe coughing or breathing difficulty occurs.

INGESTION: Seek medical attention if discomfort occurs.

SECTION 5: FIRE FIGHTING MEASURES

FLASHPOINT:	Not Combustible
FLAMMABLE LIMITS (% VOLUME IN AIR)	
Lower Explosive Limit (LEL):	Not Applicable
Upper Explosive Limit (UEL):	Not Applicable
AUTO IGNITION TEMPERATURE:	Not Combustible
FIRE EXTINGUISHING MEDIA:	None Required

FIRE FIGHTING PROCEDURES: Avoid inhalation of material or combustion by-products. Wear fire fighter's protective clothing and a NIOSH-approved self-contained breathing apparatus (SCBA).

UNUSUAL FIRE AND EXPLOSIVE HAZARDS: Contact with powerful oxidizing agents may cause fire and/or explosion.

NFPA RATING: Health = 1 (Can cause irritation)
Fire = 0 (will not burn)
Reactivity = 0 (Stable)
Special = None

SECTION 6: ACCIDENTAL RELEASE MEASURES

PERSONAL PROTECTIVE EQUIPMENT: Use the personal protective equipment recommended in Section 8.

SPILL PROCEDURES: Use procedures that minimize airborne dust generation.

DISPOSAL: Follow the procedures recommended in Section 13.

SECTION 7: HANDLING AND STORAGE

HANDLING: Wear personal protective equipment and follow the exposure control measures recommended in Section 8. Avoid contact with skin, eyes and prolonged breathing of airborne dust.

STORAGE: Under normal conditions, no special handling precautions are required for this product.

SECTION 8: EXPOSURE CONTROL MEASURES / PERSONAL PROTECTION

Crystalline Silica (quartz)

COMPONENT	OSHA PEL	ACGIH*	NIOSH RELs
Respirable Dust	$\frac{10\ mg/m^3}{\%\ SiO_2+2}$	0.025 mg/m^3	0.05 mg/m^3
Total Dust	$\frac{30\ mg/m^3}{\%\ SiO_2+2}$		

ENGINEERING CONTROLS: Utilize engineering control measures to control airborne dust levels, such as local exhaust ventilation, utilizing wet methods and performing work in open air outdoor environments to control airborne levels of dust below the exposure limits and guidelines.

EYE PROTECTION: Wear approved safety glasses with side shields and/or an appropriate full faced shield. All eye protection should be selected and worn in accordance with the OSHA eye and face protection guidelines outlined in 29 CFR 1910.132 and 1910.133.

SKIN PROTECTION: Under normal conditions, the use of additional PPE is not necessary to protect the skin. However, protective clothing, including gloves, aprons, and other outer garments may be desirable in extremely dusty areas. All PPE should be selected and worn in accordance with 29 CFR 1910.132 and 1910.138.

RESPIRATORY PROTECTION: Wear a NIOSH approved respirator to prevent inhalation overexposures to dust. Respirators must be selected based on the airborne levels found in the workplace and must not exceed the working limits of the respirator. All respirators should be selected and worn in accordance with 29 CFR 1910.132 and 1910.134.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE:	Granular
COLOR:	Gray/White/Light Tan/Reddish
ODOR:	No Odor
PH:	Not Available
BOILING POINT	Not Available
MELTING POINT:	Not Available
WATER SOLUBILITY:	0
SPECIFIC GRAVITY:	2.45-2.80
VAPOR DENSITY (AIR):	NA
VAPOR PRESSURE:	NA
MOLECULAR FORMULA:	Not Available
MOLECULAR WEIGHT:	Not Available

SECTION 10: STABILITY AND REACTIVITY

STABILITY: Stable at normal temperatures and pressures

CONDITIONS TO AVOID: Stable at normal temperatures and pressures

INCOMPATIBLE MATERIALS: Contact with powerful oxidizing agents listed in the following table may cause fire and/or explosions. Silica dissolves in hydrofluoric acid producing a corrosive gas- silicon tetrafluoride.

Fluorine	Boron Trifluoride	Chlorine Trifluoride	Manganese Trifluoride	Oxygen Difluoride

HAZARDOUS DECOMPOSITION PRODUCTS: When heated, quartz is transformed into tridymite (above 860°C/1580°F and cristobalite (above 1470°C/2678°F). Both tridymite and cristobalite are considered more fibrogenic to the lungs than quartz.

HAZARDOUS POLYMERIZATION: Has not been reported

SECTION 11: TOXICOLOGICAL INFORMATION

TOXICITY DATA: This product is a mixture for which no specific toxicologist data exists.

RESPIRABLE SILICA:
LD50 Rat IV 500 mg/kg bw /Quartz (10-200 um)

CARCINOGENICITY:	This product is considered carcinogenic by OSHA, NTP and IARC.
REPRODUCTIVE EFFECTS:	Has not been reported
MUTAGENICITY:	Has not been reported
TERATOGENICITY:	Has not been reported

Silicosis, lung cancer, autoimmune disease, tuberculosis, kidney disease and respiratory disease have been reported in occupational over exposures to crystalline silica. Inhaling respirable dust and/or crystalline silica may aggravate pre-existing respiratory conditions.

SECTION 12: ECOLOGICAL INFORMATION

ECOTOXICITY: There is limited information available for this product.

ENVIRONMENTAL FATE: There is limited information available for this product.

SECTION 13: DISPOSAL CONSIDERATIONS

WASTE DISPOSAL: Dispose in accordance with all applicable federal, state, and local regulations. Waste characterization and compliance with applicable laws are the responsibility of the waste generator.

RCRA P-Series: Not Listed RCRA U-Series: Not Listed

SECTION 14: TRANSPORTATION INFORMATION

SHIPPING NAME:	Not Regulated	IATA HAZARD CLASS:	Not Regulated
DOT HAZARD CLASS:	Not Regulated	IMGD CLASS:	Not Regulated
DOT SHIPPING ID:	Not Required	RID/ADR CODES:	Not Regulated
PACKING GROUP:	Not Required	PACKING GROUP:	Not Regulated
LABEL:	Not Required	HAZARD ID:	Not Regulated

This product is not regulated as a hazardous material by the U.S. Department of Transportation (DOT), IMGD, EU, United Nations, IATA or the Canadian Transportation of Dangerous Goods (TDG) regulations.

SECTION 15: REGULATORY INFORMATION

CERCLA Sections 102a/103 (40 CFR 302.4): Not Regulated
SARA Title III Section 302 (40 CFR 355.30): Not Regulated
SARA Title III Section 304 (40 CFR 355.40): Not Regulated
SARA Title III Section 313 (40 CFR 372.65): Not Regulated
SARA Title III Section 311/312 Hazardous Categories (40 CFR 370.21):

Acute:	No
Chronic:	No
Fire:	No
Reactive:	No
Sudden Release:	No

OSHA/MSHA Hazard Communication: This product is considered by OSHA/MSHA to be hazardous chemical and should be included in the employer's hazard communication program.

California Proposition 65 : Not Regulated- Crystalline silica is classified by the state of California as a substance known to be a human carcinogen.

TSCA: Listed on the Inventory
WHMIS: May be subject to this requirement based on intended use and worker exposure

SECTION 16: OTHER INFORMATION

THE INFORMATION LISTED IN THIS DOCUMENT RELATES ONLY TO THE MATERIAL DESIGNATED AND MAY NOT BE VALID FOR SUCH MATERIAL USED IN COMBINATION WITH ANY OTHER MATERIALS OR IN ANY PROCESS. THE INFORMATION CONTAINED IN THIS MATERIAL SAFETY DATA SHEET WAS COMPILED FROM SOURCES CONSIDERED TO BE ACCURATE AND THUS IS BELIEVED TO BE ACCURATE. IT IS OFFERED FOR YOUR CONSIDERATION, INVESTIGATION AND VERIFICATION. IT IS THE USER'S RESPONSIBILITY TO DETERMINE IF THIS PRODUCT IS SUITABLE FOR ITS PROPOSED APPLICATION(S) AND TO FOLLOW NECESSARY SAFETY PRECAUTIONS.

Formal hazard ratings have not been determined by HMIS and NFPA for this product. The hazard ratings used for this MSDS are based on the criteria of HMIS and NFPA and our professional judgment.

NFPA RATING: Health = 1 (can cause irritation)
Fire = 0 (will not burn)
Reactivity = U (Stable)
Special = None

HMIS RATING: Health = 1 (Slight)
Flammability = 0 (minimal)
Physical = 0 (minimal)

PREPARED BY: Conestoga-Rovers and Associates

DATE OF ISSUE: October 14, 2011

REVISED DATE: January 25, 2012

COMMON TERMS AND ACRONYMS:

ACGIH:	American Conference of Governmental Industrial Hygienists
CAS#:	Chemical Abstracts System Number
CERCLA:	Comprehensive Environmental Response, Compensation, and Liability Act
DOT:	Department of Transportation
EPA:	U.S. Environmental Protection Agency
HMIS:	Hazardous Materials Identification System
IARC:	International Agency for Research on Cancer
LEL:	Lower Explosive Limit
MSHA:	Mine Safety and Health Administration
NFPA:	National Fire Protection Association
NIOSH:	National Institute for Occupational Safety and Health
NTP:	National Toxicology Program
OSHA:	Occupational Safety and Health Administration
PEL:	Permissible Exposure Limit
PPE :	Personal Protective Equipment
RCRA:	Resource Conservation and Recovery Act
SARA:	Superfund Amendments and Reauthorization Act
TLV:	Threshold Limit Value
TSCA:	Toxic Substances Control Act
TWA:	Time Weighted Average
UEL:	Upper Explosive Limit

SAFETY DATA SHEET

Section 1: IDENTIFICATION

1.1 PRODUCT IDENTIFIER

Product Name: Sakrete High Strength Concrete Mix

1.2 RECOMMENDED USE OF CHEMICAL AND RESTRICTIONS ON USE

Use: Various.

1.3 DETAILS OF THE SUPPLIER OF THE SAFETY DATA SHEET

Name/Address: Sakrete of North America
8201 Arrowridge Blvd.
Charlotte, NC
28273

Telephone Number: 866-725-7383

1.4 EMERGENCY TELEPHONE NUMBER

Emergency Telephone Number: CHEMTREC 800-424-9300
INTERNATIONAL + 01-703-527-3887

Date of Preparation: July 19, 2013 **Version #:** 1.0

Section 2: HAZARD(S) IDENTIFICATION

2.1 CLASSIFICATION OF THE CHEMICAL ACCORDING TO OSHA HAZCOM 2012

Hazard class

Acute toxicity 4 (Oral)
Skin irritation 2
Serious eye damage 1
Skin sensitization 1
Carcinogenicity 1A
Specific target organ toxicity - Repeated exposure 1

2.2 LABEL ELEMENTS ACCORDING TO OSHA HAZCOM 2012

Hazard Pictogram:

Signal Word: Danger

Hazard Statement: Harmful if swallowed. Causes skin irritation. Causes serious eye damage. May cause an allergic skin reaction. May cause cancer. Causes damage to lungs through prolonged or repeated exposure.

Prevention: Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection. Use only outdoors or in a well-ventilated area. Do not breathe dust.

SAFETY DATA SHEET

Response:	If swallowed: Immediately call a poison center/doctor. Rinse mouth. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor. If on skin: Wash with plenty of water. Take off contaminated clothing and wash it before reuse. If skin irritation or rash occurs: Get medical advice/attention. If exposed or concerned: Get medical advice/attention.
Storage:	Store locked up.
Disposal:	Dispose of contents and container in accordance with all local, regional, national and international regulations.

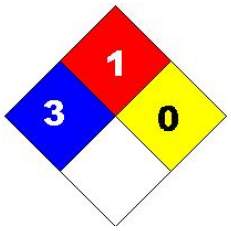
2.3 ADDITIONAL INFORMATION

Hazards not otherwise classified: Not applicable.

8 % of the mixture consists of ingredient(s) of unknown acute toxicity.

This product is a hazardous chemical as defined by NOM-018-STPS-2000.

Mexico Classification:



Blue = Health Red = Flammability Yellow = Reactivity White = Special

Hazard Rating: 0 = minimal, 1 = slight, 2 = moderate, 3 = severe, 4 = extreme

WHMIS Classification(s):

Class D2A - Carcinogenicity
Class D2A - Chronic Toxic Effects
Class E - Corrosive Material

WHMIS Hazard Symbols:

WHMIS Signal Word: DANGER

SAFETY DATA SHEET

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 MIXTURES

Ingredient	UN #	H / F/ R / *	CAS No	Wt. %
Silica, crystalline, quartz	Not available.	2/0/0	14808-60-7	60 - 100
Portland cement	Not available.	2/0/0	65997-15-1	7 - 13
Ashes (residues)	Not available.	Not available.	68131-74-8	1 - 5
Ferric oxide	Not available.	1/0/0	1309-37-1	1 - 5
Calcium carbonate	Not available.	1/0/0	1317-65-3	0.1 - 1

The exact percentage (concentration) of chemicals has been withheld as a trade secret in accordance with paragraph (i) of §1910.1200.

* Per NOM-018-STPS-2000

Section 4: FIRST- AID MEASURES

4.1 DESCRIPTION OF THE FIRST AID MEASURE

Eye: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. If easy to do, remove contact lenses, if worn. Get medical attention immediately.

Skin: In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Call a physician if irritation develops and persists.

Inhalation: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention if you feel unwell.

Ingestion: If swallowed, do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical advice/attention.

4.2 MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED

Eye: Causes serious eye damage. May cause burns in the presence of moisture. Symptoms may include discomfort or pain, excess blinking and tear production, with possible redness and swelling.

Skin: Causes skin irritation. May cause burns in the presence of moisture. Skin contact during hydration may slowly develop sufficient heat that may cause severe burns possibly resulting in permanent injury. Do not allow product to harden around any body part or allow continuous, prolonged contact with skin. Handling can cause dry skin. May cause sensitization by skin contact.

Inhalation: May cause respiratory tract irritation.

Ingestion: Harmful if swallowed. May cause stomach distress, nausea or vomiting.

4.3 INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENTS NEEDED

Note to Physicians: Symptoms may not appear immediately.

Specific Treatments: In case of accident or if you feel unwell, seek medical advice immediately (show the label or SDS where possible).

SAFETY DATA SHEET

Section 5: FIRE-FIGHTING MEASURES

5.1 FLAMMABILITY

Flammability: Not flammable by WHMIS/OSHA criteria.

5.2 EXTINGUISHING MEDIA

Suitable Extinguishing Media: Treat for surrounding material.

Unsuitable Extinguishing Media: Not available.

5.3 SPECIAL HAZARDS ARISING FROM THE CHEMICAL

Products of Combustion: May include, and are not limited to: oxides of carbon.

Explosion Data:

Sensitivity to Mechanical Impact: Not available.

Sensitivity to Static Discharge: Not available.

5.4 SPECIAL PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIRE FIGHTERS

Keep upwind of fire. Wear full fire fighting turn-out gear (full Bunker gear) and respiratory protection (SCBA).

Section 6: ACCIDENTAL RELEASE MEASURES

6.1 PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES

Use personal protection recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel.

6.2 METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING - UP

Methods for Containment: Contain spill, then place in a suitable container. Do not flush to sewer or allow to enter waterways. Use appropriate Personal Protective Equipment (PPE).

Methods for Cleaning-Up: Vacuum or sweep material and place in a disposal container.

Section 7: HANDLING AND STORAGE

7.1 PRECAUTIONS FOR SAFE HANDLING

Handling: Avoid contact with skin and eyes. Do not swallow. Good housekeeping is important to prevent accumulation of dust. Avoid generating and breathing dust. The use of compressed air for cleaning clothing, equipment, etc, is not recommended. Handle and open container with care. When using do not eat or drink. Wash hands before eating, drinking, or smoking. (See section 8)

General Hygiene Advice: Launder contaminated clothing before reuse. Wash hands before eating, drinking, or smoking.

7.2 CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES

Storage: Keep out of the reach of children. Store in dust-tight, dry, labeled containers. Keep containers closed when not in use. Avoid any dust buildup by frequent cleaning and suitable construction of the storage area. Do not store in an area equipped with emergency water sprinklers. (See section 10)

SAFETY DATA SHEET

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 CONTROL PARAMETERS

Exposure Guidelines

Occupational Exposure Limits		
Ingredient	**OSHA-PEL**	**ACGIH-TLV**
Silica, crystalline, quartz	((10 mg/m^3)/(%SiO_2+2) TWA (resp)); ((30 mg/m^3)/(%SiO_2+2) TWA (total)); ((250)/(%SiO_2+5) mppcf TWA (resp))	0.025 mg/m³
Portland cement	15 mg/m³ (total); 5 mg/m³ (resp)	1 mg/m³ (no asbestos and <1% crystalline silica, respirable fraction)
Ashes (residues)	Not available.	Not available.
Ferric oxide	10 mg/m^3	5 mg/m^3 (iron oxide fume; dust as Fe)
Calcium carbonate	15 mg/m³ (total); 5 mg/m³ (resp)	10 mg/m³

8.2 EXPOSURE CONTROLS

Engineering Controls: Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapor, etc.) below recommended exposure limits.

8.3 INDIVIDUAL PROTECTIVE MEASURES

Personal Protective Equipment:

Eye/Face Protection: Wear approved eye (properly fitted dust- or splash-proof chemical safety goggles) / face (face shield) protection.

Skin Protection:

Hand Protection: Wear suitable waterproof gloves.

Body Protection: Wear suitable waterproof protective clothing.

Respiratory Protection: A NIOSH approved dust mask or filtering facepiece is recommended in poorly ventilated areas or when permissible exposure limits may be exceeded. Respirators should be selected by and used under the direction of a trained health and safety professional following requirements found in OSHA's respirator standard (29 CFR 1910.134) and ANSI's standard for respiratory protection (Z88.2).

General Health and Safety Measures: Handle according to established industrial hygiene and safety practices. Do not eat, smoke or drink where material is handled, processed or stored. Wash hands carefully before eating or smoking.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Powder.

Color: Various.

Odor: Characteristic.

Odor Threshold: Not available.

Physical State: Solid.

SAFETY DATA SHEET

pH:	12 - 13
Melting Point/Freezing Point:	Not available.
Initial Boiling Point and Boiling Range:	Not available.
Flash Point:	Not available.
Evaporation Rate:	Not available.
Flammability:	Not Flammable.
Lower Flammability/Explosive Limit:	Not available.
Upper Flammability/Explosive Limit:	Not available.
Vapor Pressure:	Not available.
Vapor Density:	Not available.
Relative Density/Specific Gravity:	Not available.
Solubility:	Not available.
Partition coefficient: n-octanol/water:	Not available.
Auto-ignition Temperature:	Not available.
Decomposition Temperature:	Not available.
Viscosity:	Not available.
Oxidizing Properties:	Not available.
Explosive Properties:	Not available.

Section 10: STABILITY AND REACTIVITY

10.1 REACTIVITY

No dangerous reaction known under conditions of normal use.

10.2 CHEMICAL STABILITY

Stable under normal storage conditions. Keep dry in storage.

10.3 POSSIBILITY OF HAZARDOUS REACTIONS

No dangerous reaction known under conditions of normal use.

10.4 CONDITIONS TO AVOID

Incompatible materials. Moisture.

10.5 INCOMPATIBLE MATERIALS

Wet cement is alkaline and incompatible with acid, ammonium salts and aluminum metal.

10.6 HAZARDOUS DECOMPOSITION PRODUCTS

May include, and are not limited to: oxides of carbon.

Section 11: TOXICOLOGICAL INFORMATION

11.1 INFORMATION ON TOXICOLOGICAL EFFECTS

Likely Routes of Exposure: Skin contact, skin absorption, eye contact, inhalation, and ingestion.

SAFETY DATA SHEET

Symptoms related to physical/chemical/toxicological characteristics:

Eye: Causes serious eye damage. May cause burns in the presence of moisture. Symptoms may include discomfort or pain, excess blinking and tear production, with possible redness and swelling.

Skin: Causes skin irritation. May cause burns in the presence of moisture. Skin contact during hydration may slowly develop sufficient heat that may cause severe burns possibly resulting in permanent injury. Do not allow product to harden around any body part or allow continuous, prolonged contact with skin. Handling can cause dry skin. May cause sensitization by skin contact.

Ingestion: Harmful if swallowed. May cause stomach distress, nausea or vomiting.

Inhalation: May cause respiratory tract irritation.

Acute Toxicity:

Ingredient	IDLH	LC50	LD50
Silica, crystalline, quartz	Not available.	Not available.	Oral 500 mg/kg, rat
Portland cement	Not available.	Not available.	Not available.
Ashes (residues)	Not available.	Not available.	Oral >2000 mg/kg, rat
Ferric oxide	Not available.	Not available.	Oral >10000 mg/kg, rat
Calcium carbonate	Not available.	Not available.	Oral 6450 mg/kg, rat

Calculated overall Chemical Acute Toxicity Values		
LC50 (inhalation)	**LD50 (oral)**	**LD50 (dermal)**
Not available.	525 mg/kg, rat	Not available.

Ingredient	Chemical Listed as Carcinogen or Potential Carcinogen (NTP, IARC, OSHA, ACGIH, CP65)*
Silica, crystalline, quartz	G-A2, I-1, N-1, O, CP65
Portland cement	G-A4
Ashes (residues)	Not listed.
Ferric oxide	G-A4, I-3
Calcium carbonate	Not listed.

11.2 DELAYED, IMMEDIATE, AND CHRONIC EFFECTS OF SHORT- AND LONG-TERM EXPOSURE

Skin Corrosion/Irritation: Causes skin irritation. May cause burns in the presence of moisture.

Serious Eye Damage/Irritation: Causes serious eye damage. May cause burns in the presence of moisture.

Respiratory Sensitization: Based on available data, the classification criteria are not met.

Skin Sensitization: May cause an allergic skin reaction.

STOT-Single Exposure: Based on available data, the classification criteria are not met.

Chronic Health Effects: Respirable crystalline silica in the form of quartz or cristobalite from occupational sources is listed by the International Agency for Research on Cancer (IARC) and National Toxicology Program (NTP) as a lung carcinogen. Prolonged exposure to respirable crystalline silica has been known to cause silicosis, a lung disease, which may be disabling. While there may be a factor of individual susceptibility to a given exposure to respirable silica dust, the risk of contracting silicosis and the

severity of the disease is clearly related to the amount of dust exposure and the length of time (usually years) of exposure.

Carcinogenicity: May cause cancer.

Germ Cell Mutagenicity: This product is not classified as a mutagen.

Reproductive Toxicity:

Developmental: Based on available data, the classification criteria are not met.

Teratogenicity: Not hazardous by WHMIS criteria.

Embryotoxicity: Not hazardous by WHMIS criteria.

Fertility: Based on available data, the classification criteria are not met.

STOT-Repeated Exposure: Causes damage to organs through prolonged or repeated exposure.

Aspiration Hazard: Based on available data, the classification criteria are not met.

Toxicologically Synergistic Materials: Not available.

Other Information: Not available.

Section 12: ECOLOGICAL INFORMATION

12.1 ECOTOXICITY

Acute/Chronic Toxicity: No ecological consideration when used according to directions. Normal dilution of this product to drains, sewers, septic systems and treatment plants is not considered environmentally harmful.

12.2 PERSISTENCE AND DEGRADABILITY

Not available.

12.3 BIOACCUMULATIVE POTENTIAL

Bioaccumulation: Not available.

12.4 MOBILITY IN SOIL

Not available.

12.5 OTHER ADVERSE EFFECTS

Not available.

Section 13: DISPOSAL CONSIDERATIONS

13.1 WASTE TREATMENT METHODS

Disposal Method: This material must be disposed of in accordance with all local, state, provincial, and federal regulations.

Other disposal recommendations: Not available.

SAFETY DATA SHEET

Section 14: TRANSPORT INFORMATION

14.1 UN NUMBER

DOT	TDG	NOM-004-SCT2-1994
Not regulated.	Not regulated.	Not regulated.

14.2 UN PROPER SHIPPING NAME

DOT	TDG	NOM-004-SCT2-1994
Not applicable.	Not applicable.	Not applicable.

14.3 TRANSPORT HAZARD CLASS (ES)

DOT	TDG	NOM-004-SCT2-1994
Not applicable.	Not applicable.	Not applicable.

14.4 PACKING GROUP

DOT	TDG	NOM-004-SCT2-1994
Not applicable.	Not applicable.	Not applicable.

14.5 ENVIRONMENTAL HAZARDS

Not available.

14.6 TRANSPORT IN BULK ACCORDING TO ANNEX II OF MARPOL 73/78 AND THE IBC CODE

Not available.

14.7 SPECIAL PRECAUTIONS FOR USER

Do not handle until all safety precautions have been read and understood.

Section 15: REGULATORY INFORMATION

15.1 SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS/ LEGISLATIONS SPECIFIC FOR THE CHEMICAL

Canada: This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

US: MSDS prepared pursuant to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2012

Mexico: MSDS prepared pursuant to NOM-018-STPS-2000.

SARA Title III				
Ingredient	**Section 302 (EHS) TPQ (lbs.)**	**Section 304 EHS RQ (lbs.)**	**CERCLA RQ (lbs.)**	**Section 313**
Silica, crystalline, quartz	Not listed.	Not listed.	Not listed.	Not listed.
Portland cement	Not listed.	Not listed.	Not listed.	Not listed.
Ashes (residues)	Not listed.	Not listed.	Not listed.	Not listed.
Ferric oxide	Not listed.	Not listed.	Not listed.	Not listed.
Calcium carbonate	Not listed.	Not listed.	Not listed.	Not listed.

SAFETY DATA SHEET

State Regulations

California Proposition 65:

This product contains Crystalline Silica, Quartz and may also contain trace amounts of other chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

Global Inventories:

Ingredient	Canada DSL/NDSL	USA TSCA
Silica, crystalline, quartz	DSL	Yes.
Portland cement	DSL	Yes.
Ashes (residues)	DSL	Yes.
Ferric oxide	DSL	Yes.
Calcium carbonate	NDSL	Yes.

NFPA-National Fire Protection Association:	
Health:	3
Fire:	1
Reactivity:	0

HMIS-Hazardous Materials Identification System:	
Health:	3*
Fire:	1
Physical Hazard:	0

Hazard Rating: 0 = minimal, 1 = slight, 2 = moderate, 3 = severe, 4 = extreme

SOURCE AGENCY CARCINOGEN CLASSIFICATIONS:

CP65 **California Proposition 65**

OSHA (O) **Occupational Safety and Health Administration.**

ACGIH (G) **American Conference of Governmental Industrial Hygienists.**
A1 - Confirmed human carcinogen.
A2 - Suspected human carcinogen.
A3 - Animal carcinogen.
A4 - Not classifiable as a human carcinogen.
A5 - Not suspected as a human carcinogen.

IARC (I) **International Agency for Research on Cancer.**
1 - The agent (mixture) is carcinogenic to humans.
2A - The agent (mixture) is probably carcinogenic to humans; there is limited evidence of carcinogenicity in humans and sufficient evidence of carcinogenicity in experimental animals.
2B - The agent (mixture) is possibly carcinogenic to humans; there is limited evidence of carcinogenicity in humans in the absence of sufficient evidence of carcinogenicity in experimental animals.
3 - The agent (mixture, exposure circumstance) is not classifiable as to its carcinogenicity to humans.
4 - The agent (mixture, exposure circumstance) is probably not carcinogenic to humans.

NTP (N) **National Toxicology Program.**
1 - Known to be carcinogens.
2 - Reasonably anticipated to be carcinogens.

SAFETY DATA SHEET

Section 16: OTHER INFORMATION

Date of Preparation: July 19, 2013

Expiry Date: July 19, 2016

Version: 1.0

Revision Date: July 17, 2014

Disclaimer: We believe the statements, technical information and recommendations contained herein are reliable, but they are given without warranty or guarantee of any kind. The information contained in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. It is the user's responsibility to satisfy oneself as to the suitability and completeness of this information for the user's own particular use.

Prepared by: Nexreg Compliance Inc.
Phone: (519) 488-5126
www.nexreg.com

Prepared for: Sakrete of North America

End of Safety Data Sheet

1 ConSeal _CS-231 Hydrophilic Butyl Sealant SDS.pdf
2 CONTENTS_DIVIDER 4_PIPE PRODUCTS.docx
3 HD Supply_Harcros Chemicals Sodium Hypochlorite Bleaching Agents (oxidizers) SDS.pdf
4 HD Supply_Oatey Clear Cleaner SDS.pdf
5 HD Supply_Oatey Purple or Clear Primer NSF Listed SDS.pdf
6 HD Supply_Oatey PVC Heavy Duty Clear or Gray Cement-Lo-Voc Formula SDS.pdf
7 HD Supply_Oatey PVC Rain R Shine Blue Cement SDS.pdf
8 Sherman Dixie_A LOK Products (MSDS UPON REQUEST).pdf
9 Sherman Dixie_BASF Corp POZZOLITH NC 534 (AKA CONSET NC) SDS.pdf
10 Sherman Dixie_BASF Corp RHEOMAC VMA 362 SDS.pdf
11 Sherman Dixie_BASF Corp RHEOMIX 600ES SDS.pdf
12 Sherman Dixie_BASF Corp RHEOMIX 750S SDS.pdf
13 Sherman Dixie_Press-Seal Gasket Corp Regular Lubricant (Water Dispersible Pipe Joint Lubricant).pdf
14 Sherman Dixie_SEFA Group Class F Fly Ash from Bituminous Coal SDS.pdf
15 Sherman Dixie_W.R. Meadows Inc SEALMASTIC TYPE II SDS.pdf
16 United States Pipe and Foundry Company, LLC_DIP SDS.pdf

* Indicates MSDS

ASSEMBLY INSTRUCTIONS

(TYTON AND FASTITE PUSH-ON JOINTS)

The procedures described below should be followed to assure proper joint assembly. Supplemental information is given on the reverse side of this sheet.

It is especially important that the gasket is installed in a clean bell.

The Gasket groove in the Tyton or Fastite bell should not be lubricated prior to gasket insertion.

JOINT ASSEMBLY PROCEDURE

STEP 1 **BELL CLEANING:** Thoroughly clean out the bell. Remove all foreign matter, dirt, sand, mud, ice or excess paint or lining.

STEP 2 **PLAIN END PREPARATION:** Clean off the plain end, removing any dirt, foreign matter or excess paint. Make sure that the plain end is beveled. File smooth any sharp edges which might damage the gasket.

STEP 3 **GASKET INSERTION:** Insert the gasket in its recess in the bell, with the large end of the gasket entering first. Make sure that the gasket faces in the correct direction and is properly seated as illustrated below. Additional instructions are given on the other side of this sheet.

STEP 4 **LUBRICATION:** Apply a thin coating of lubricant to the inside surface of the installed gasket just prior to joint assembly. Make certain the entire inner surface of the gasket is coated. Also apply a thin coating of lubricant to the beveled portions of the plain end.

STEP 5 **JOINING:** Guide the plain end of the bell and compress the gasket by pushing the plain end all the way into the bell socket. Keep the bell and plain end in reasonably straight alignment during assembly. Any deflection should be taken after the joint is assembled. See the other side of this sheet for additional information.

3"- 24" TYTON JOINT

30"- 36" FASTITE JOINT

MATERIAL SAFETY DATA SHEET

Ductile Iron Pipe

Ductile Iron Pipe

1. PRODUCT IDENTIFICATION

CAS Reg. No.: N/A

Product Type: Iron Pipe/Castings

Clow Water Systems Company
2266 South 6th Street
Coshocton, Ohio 43812
Phone: 1-800-800-6013

2. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredients:	CAS Number	% Ingredient	OSHA PEL	ACGIH TLV
Carbon as C	7440-44-0	3-4	N.E.	N.E.
Silicon as Si	7440-21-3	2-3	15 mg/M^3 Total dust 5 mg/M^3 Respirable	10 mg/M^3
Manganese as Mn	7439-96-5	0.2-1	5 mg/M^3 Ceiling	0.2 mg/M^3
Chromium as Cr III Water-soluble Cr VI compounds Insoluble Cr VI compounds	7440-47-3	0.05-1	0.5 mg/M^3 N.E. 1.0 mg/M^3	0.5 mg/M^3 0.05 mg/M^3 0.01 mg/M^3
Copper dust and mist as Cu Fume	7440-50-8	0.05-1	1.0 mg/M^3 0.1 mg/M^3	1.0 mg/M^3 0.2 mg/M^3
Nickel as Ni Soluble inorganic compounds Insoluble inorganic compounds	7440-02-0	0.01-1	1.0 mg/M^3 1.0 mg/M^3 1.0 mg/M^3	1.5 mg/M^3 0.1 mg/M^3 0.2 mg/M^3
Iron as iron oxide (Fe^2O^3)	1309-37-1	80-95	10 mg/M^3	5 mg/M^3
N. E. - Not established				

HMIS Classification: Health = 0; Flammability = 0; Reactivity = 0

3. HAZARDS IDENTIFICATION

Ductile iron pipe is an article and, as such, not within the scope of the OSHA Hazard Communication standard (29 CFR 1910.1200). However, some of the components may be hazardous during modification by welding, flame cutting, torching, grinding, or machining. Follow appropriate safe work practices for eye, respiratory, and skin protection. Dust or fumes generated by machining, grinding, or welding on the casting may put contaminants in the air. Since the casting is over 85% iron, most of the dust or fume will be iron or iron oxide.

Potential Health Effects

***EYE CONTACT*:** Metal particles may cause irritation if not removed

***SKIN CONTACT*:** Metal particles may cause irritation

***INHALATION*:** None known.

***INGESTION*:** None known.

4. FIRST AID PROCEDURES

IF IN EYES:	No specific treatment is necessary since this material is not likely to be hazardous to the eye under normal usage. If dust or particles enter the eye, follow treatment procedure for mechanical injury from foreign body.
IF ON SKIN:	First Aid is not normally required - wash any dust from skin with soap and water
IF INHALED:	No specific treatment is necessary since this material is not likely to be hazardous by inhalation under normal usage. If exposed to excessive levels of dusts or fumes, remove to fresh air and get medical attention if cough or other symptoms develop.
IF SWALLOWED:	First Aid is not normally required - not a significant route of entry; however if ill effects occur, obtain medical assistance.

NFPA Classification: Health = 0; Flammability = 0, Instability = 0

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:	None
FLASH POINT:	N/A
EXTINGUISHING MEDIA:	N/A
FIREFIGHTING INSTRUCTIONS:	N/A

6. ACCIDENTAL RELEASE MEASURES

Observe all protection and safety precautions when cleaning up spills. Refer to Section 3, Hazards Identification and Section 8, Exposure Controls/Personal Protection.

7. HANDLING AND STORAGE

HANDLING/STORAGE:	Follow safe handling and storage procedures

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

EYE PROTECTION:	ANSI approved eye/face protection may be necessary if cutting, grinding, or welding this material.
SKIN PROTECTION:	Protective gloves and sleeves, such as leather or Kevlar, should be worn when handling this product to protect from abrasion.
RESPIRATORY PROTECTION:	NIOSH approved respirator may be required when cutting, grinding, or welding this material
VENTILATION:	Adequate general ventilation and/or local exhaust ventilation may be necessary when cutting, grinding, or welding on this material.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Solid, gray-black with metallic luster;
Odor:	None
Specific gravity:	N/A
Vapor Pressure:	N/A
Solubility in Water:	Insoluble
Melting point:	2,280°F

Boiling Point	5,000°F
PH:	N/A
Freezing Point:	N/A

10. STABILITY

STABILITY: Product is stable.

INCOMPATIBILITIES: N/A

HAZARDOUS DECOMPOSITION PRODUCT: N/A

HAZARDOUS POLYMERIZATION: Will not occur

11. TOXICOLOGICAL INFORMATION

Flame cutting, arc-gouging, or welding on the casting may generate iron oxide fume. Inhalation of excessive amounts of iron oxide fume for long periods of time may cause siderosis, sometimes called "iron pigmentation" of the lung. It can be seen on a chest x-ray but causes little or no disability. Siderosis is considered a benign condition and does not progress to fibrosis. Also consult the hazard information on the Material Safety Data Sheet for the welding rod being used.

Welding or flame cutting may convert a fraction of the chromium to the water insoluble hexavalent (carcinogenic) form, but the chromium content of the casting is so low that over-exposure is not likely. Approximately 66% of the total chromium (in welding fume) is hexavalent, and only 5% of that is insoluble. Water insoluble hexavalent chromium is classified as a human carcinogen by IARC and ACGIH. Considering the small amount of chromium in the casting, an overexposure to hexavalent chromium is not likely. There is no hexavalent chromium in the alloy or its dust.

Certain nickel compounds have been classified as human carcinogens by ACGIH and as possible human carcinogens by IARC. The nickel content of the casting is so low that over-exposure is not likely.

Other toxic metals in the alloy are present in small amounts, bur should not represent a health hazard if dust and fumes are adequately controlled.

12. ECOLOGICAL INFORMATION

No data available

13. DISPOSAL CONSIDERATIONS

Not considered hazardous waste by EPA definitions. Observe all federal, state, and local regulations.

14. TRANSPORTATION INFORMATION

TRANSPORTATION AND HAZARDOUS MATERIALS DESCRIPTION: Not a regulated material

15. REGULATORY INFORMATION

STATE

CAS# 1309-37-1 (iron oxide) can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

CANADA

Ductile iron pipe is considered an article and, as such, is exempt from WHMIS regulation.

DSL/NDSL CAS# 1309-37-1 (iron oxide) is listed on Canada's DSL List.
Canada – WHMIS Iron oxide has a WHMIS classification of D2B.
Canadian Ingredient Disclosure List
CAS# 1309-37-1 (iron oxide) is listed on the Canadian Ingredient Disclosure List.

16. OTHER INFORMATION

Prepared By: Steven N, Hacker, CIH
Title: Manager, Industrial Hygiene

Supercedes: November, 1985 MSDS
Revision information: Not applicable

FOR ADDITIONAL NON-EMERGENCY INFORMATION, CONTACT:
CORPORATE INDUSTRIAL HYGIENE
MCWANE CAST IRON PIPE COMPANY TELEPHONE: 205-323-8283 FAX: 205-324-0431

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Material Safety Data Sheet

Phoenix 27-A Water Dispersible Pipe Joint Lubricant Date of Preparation: August 2000/Revised November 2005

Section 1 - Chemical Product and Company Identification

Product/Chemical Name: Phoenix 27-A Water Dispersible Pipe Joint Lubricant
Chemical Formula: 88-6
Manufacturer: JTM Products, Inc., 31025 Carter Street, Solon, OH 44139, Phone (440) 287-2302, FAX (440) 287-3095 (CHEM-TEL 24-hour emergency: (800) 255-3924)

Section 2 - Composition / Information on Ingredients

Blend of soap [CAS#61790-44-1], mineral filler [CAS#12001-26-2] and other non-toxic ingredients.

Section 3 - Hazards Identification

☆☆☆☆☆ **Emergency Overview** ☆☆☆☆☆

HMIS	
H	1
F	0
R	0
PPE†	
†Sec. 8	

Potential Health Effects

Primary Entry Routes: Not Hazardous
Carcinogenicity: IARC, NTP, and OSHA do not list the ingredients in Phoenix 27-A Water Dispersible Pipe Joint Lubricant as carcinogens.

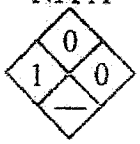
Section 4 - First Aid Measures

Eye Contact: Flush with copious volumes of water for 15 minutes while holding eyelids open.
Skin Contact: Wash with water.
If irritation persists, call a physician.

Section 5 - Fire-Fighting Measures

Flash Point: >220 °F (>104 °C)
Flash Point Method: NA, contains water
Autoignition Temperature: NA
LEL: NA
UEL: NA
Flammability Classification: 0

NFPA



Extinguishing Media: Water, water fog, alcohol foam, carbon dioxide or dry chemical are all suitable.
Unusual Fire or Explosion Hazards: None
Hazardous Combustion Products: None
Fire-Fighting Instructions: Do not release runoff from fire control methods to sewers or waterways.
Fire-Fighting Equipment: Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode.

Section 6 - Accidental Release Measures

Spill /Leak Procedures: This product is a biodegradable soap.
Containment: For large spills, dike far ahead of spill for later disposal.
Cleanup: Place the bulk of any spilled material into drums, then rinse any remaining material to sewage treatment facility, in accordance with any applicable regulations.
Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120).

Section 7 - Handling and Storage

Handling Precautions: No special precautions are required.
Storage Requirements: No special precautions are required.
Regulatory Requirements: No known regulatory requirement for handling and storage.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls:
Ventilation: Provide general or local exhaust ventilation systems.
Administrative Controls:
Respiratory Protection: If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.

Protective Clothing/Equipment: Wear chemically protective gloves to prevent prolonged or repeated skin contact. Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of, or in conjunction with contact lenses.
Safety Stations: Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.
Contaminated Equipment: Launder before reuse. Remove this material from your shoes and clean personal protective equipment.
Comments: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Section 9 - Physical and Chemical Properties

Physical State: Paste
Appearance and Odor: amber paste, bland odor
Odor Threshold: NA
Vapor Pressure: NA
Vapor Density (Air=1): NA
Formula Weight: NA (blend)
Density: 8.3 lbs./gal. approximate
Specific Gravity (H_2O=1, at 4 °C): 1.0
pH: 11

Water Solubility: complete solubility in water
Boiling Point: >220 °F
Freezing/Melting Point: <32 °F
Viscosity: viscous paste
Refractive Index: unknown
Surface Tension: unknown
% Volatile: 25
Evaporation Rate: NA

Section 10 - Stability and Reactivity

Stability: Phoenix 27-A Water Dispersible Pipe Joint Lubricant is stable at room temperature in closed containers under normal storage and handling conditions.
Polymerization: Hazardous polymerization will not occur.
Chemical Incompatibilities:
Conditions to Avoid: Reactive alloys such as aluminum, brass, bronze. Also avoid contact with strong oxidizing agents.
Hazardous Decomposition Products: Thermal oxidative decomposition of Phoenix 27-A Water Dispersible Pipe Joint Lubricant can produce oxides of carbon and nitrogen.

Section 11- Toxicological Information

Toxicity Data:

Eye Effects: Eye irritant.
Skin Effects: Slight skin irritant if allowed to remain in contact.

Section 12 - Ecological Information

Ecotoxicity: **Environmental Fate**
Environmental Transport: Unknown.
Environmental Degradation: Soaps are well known to be biodegradable.
Soil Absorption/Mobility: Unknown.

Section 13 - Disposal Considerations

Disposal: Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations.

Section 14 - Transport Information

Not hazardous under DOT regulations.

Section 15 - Regulatory Information

EPA Regulations: None apply.

Section 16 - Other Information

Prepared By: B. Noragon **Approved By:** B. Roll
Disclaimer: JTM PRODUCTS, INC. makes no warranty, expressed or implied, as to the accuracy, completeness, or reliability of information contained herein, except that such information is, to the best of JTM's knowledge and belief, accurate as of the date indicated. It is for the purchaser and/or user to decide whether this information is suitable for his purposes. **Reviewed/Section 2 & 9 revised November 2005 by John Cahoon**

Conforms to HazCom 2012/United States

ConSeal™ Concrete Sealants Inc.

SAFETY DATA SHEET

CS-231

Section 1. Identification

GHS product identifier : CS-231

Other means of identification : Not Available

Relevant identified uses of the substance or mixture and uses advised against

Not available

Supplier's details : Concrete Sealants, Inc.
9325 St. Rte. 201
Tipp City, Ohio 45371
Tel.: 937-845-8776
Toll-free: 800-332-7325
Fax: 937-845-3587
Email: hello@conseal.com
Website URL: www.conseal.com

Emergency telephone number (with hours of operation) : 937-845-8776 or 800-332-7325
(6am to 5pm EST)

Section 2. Hazards Identification

Since the product is in paste form, the risk of exposure to a carcinogen dust is minimum, this is why the related hazard statements are not shown in this SDS.

OSHA/HCS status : While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.

Classification of the substance or mixture : Not Classified

GHS label elements

Signal word : No signal word

Hazard statements : No known significant effects or critical hazards.

Precautionary statements

General : Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand.

Prevention : Not applicable

Response : Not applicable

Storage : Not applicable

Disposal : Not applicable

Hazards not otherwise classified : None known

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Other means of identification : Not available

Section 3. Composition/information on ingredients

CAS number/other identifiers

CAS number : Not applicable

Product code : Not available

Ingredient name	%	CAS number
Crystalline silica, quartz	10-30	14808-60-7
1-Propene, 2-methyl-, homopolymer	5-10	9003-27-4
Titanium dioxide	1-5	13463-67-7
Carbon black	0.1-1	1333-86-4

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Not a likely route of exposure.

Inhalation : Not a likely route of exposure.

Skin contact : No first aid should be needed.

Ingestion : Wash mouth out with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact : No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments

Protection of first-aiders

Section 5. Firefighting measures

Extinguishing media

Suitable extinguishing media : Carbon dioxide, dry chemical, foam and water fog or spray.

Unsuitable extinguishing media : None known

Section 5. Firefighting measures

Specific hazards arising from the chemical : No specific fire or explosion hazard.

Hazardous thermal decomposition products : Decomposition materials may include the following materials:
carbon dioxide
carbon monoxide

Special protective actions for firefighters : No special measures are required.

Special protective equipment for firefighters : Firefighters should wear appropriate protective equipment and self- contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Put on appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel."

Environmental precautions : None require if used according to recommended conditions.

Methods and materials for contaminant and cleaning up

Spill : Not applicable

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8).

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and faces before eating, drinking and smoking. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Do not store in unlabeled containers.

Section 8. Exposure Controls / Personal Protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Crystalline silica, quartz	**OSHA PEL Z3 (United States, 2/2013).** TWA: 10 mg/m^3 8 hours. Form: Respirable TWA: 250 mppcf 8 hours Form: Respirable **NIOSH REL (United States, 10/2013).** TWA: 0.05 mg/m^3 10 hours. Form: Respirable dust **ACGIH TLV (United States, 4/2014).** TWA: 0.025 mg/m^3 8 hours. Form: Respirable fraction..
Titanium dioxide	**OSHA PEL (United States, 2/2013).** TWA: 15 mg/m^3 8 hours. Form: Total dust **ACGIH TLV (United States, 4/2014).** TWA: 10 mg/m^3 8 hours. **ACGIH TLV (United States, 4/2014).** TWA: 3 mg/m^3 8 hours. Form: Inhalable fraction

Section 8. Exposure Controls / Personal Protection

Carbon black	**NIOSH REL (United States, 10/2013).** TWA: 3.5 mg/m^3 10 hours. TWA: 0.1 mg of PAHs/cm^3 10 hours. **OSHA PEL (United States, 2/2013).** TWA: 3.5 mg/m^3 8 hours

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period.

Eye/face protection : Not required under normal condition of use.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Body protection :

Other skin protection :

Respiratory protection :

Section 9. Physical and Chemical Properties

Appearance

Physical state : solid

Color : Not available

Odor : Not available

Odor threshold : Not available

pH : Not available

Melting point : Not available

Boiling point : Not available

Flash point : Not available

Burning time : Not available

Burning rate : Not available

Evaporation rate : Not available

Flammability (solid, gas) : Not available

Lower and upper explosive (flammable) limits : Not available

Vapor pressure : Not available

Vapor density : Not available

Relative density : Not available

Solubility : Insoluble in the following materials: cold water and hot water.

Solubility in water : Not available

Partition coefficient n-octanol/water : Not available

Auto-ignition temperature : Not available

Decomposition temperature : Not available

SADT : Not available

Section 9. Physical and Chemical Properties

Viscosity : Not available

Section 10. Stability and Reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : No specific data.

Incompatible materials : Reactive or incompatible with the following materials: oxidizing materials. Non-reactive or compatible with the following materials: reducing materials, combustible materials, organic materials, metals, acids, alkalis, and moisture.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological Information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Carbon black	LD50 Oral	Rat	>15400 mg/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Titanium dioxide	Skin- Mild irritant	Human	-	72 hours 300 µg intermittent	-

Sensitization

Skin : There is no data available

Respiratory : There is no data available

Mutagenicity

There is no data available

Carcinogenicity

Classification

Product/ ingredient name	OSHA	IARC	NTP
Crystalline silica, quartz	-	1	Known to be a human carcinogen.
Titanium dioxide	-	2B	-
Carbon black	-	2B	-

There is no data available

Reproductive toxicity

There is no data available

Teratogenicity

There is no data available

Specific target organ toxicity (single exposure)

There is no data available

Specific target organ toxicity (repeated exposure)

NAME	Category	Route of exposure	Target organs
Crystalline silica, quartz	Category 1	Inhalation	Kidneys, respiratory tract and testes

Aspiration hazard

There is no data available

Section 11. Toxicological Information

Information on the likely routes of exposure : Routes of entry anticipated: Oral, Dermal

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : No known significant effects or critical hazards.

Potential delayed effects : No known significant effects or critical hazards.

Long term exposure

Potential immediate effects : No known significant effects or critical hazards.

Potential delayed effects : No known significant effects or critical hazards.

Potential chronic health effects

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

There is no data available.

Section 12. Ecological Information

Toxicity

Product/ingredient name	Result	Species	Exposure
1-Propene, 2-methyl-, homopolymer	Acute LC50 >5600000 µg/L Fresh water	Fish-Oncorhynchus mykiss	96 hours
Titanium dioxide	Acute EC50 5.83 mg/L Fresh water	Algae-Pseudokirchneriella subcapitata Exponential growth phase	72 hours
	Acute LC50 3 mg/L Fresh water	Crustaceans-Ceriodaphnia dubia Neonate	48 hours
	Acute LC50 5.5 ppm Fresh water	Daphnia-Daphnia magna-Juvenile (Fledgling, Hatchling, Weanling)	48 hours
	Acute LC50 1000 mg/L Fresh water	Fish- Pimephales promelas	96 hours
	Chronic NOEC 0.984 mg/L Fresh water	Algae- Pseudokirchneriella subcapitata Exponential growth phase	72 hours

Persistence and degradability

Section 12. Ecological Information

There is no data available

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
Titanium dioxide	-	352	low

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal Considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport Information

	DOT Classification	IMDG	IATA
UN number	Not regulated	Not regulated	Not regulated
UN proper shipping name	-	-	-
Transport hazard class(es)	-	-	-
Packing group	-	-	-
Environmental hazards	No.	No.	No.
Additional information	-	-	-

Special precautions for user : **No** special precautions are required .

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available

Section 15. Regulatory Information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined
United States inventory (TSCA 8b): All components are listed or exempt.

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not Listed

Section 15. Regulatory Information

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

Name	%	EHS	SARA 302 TPQ		SARA 304 RQ	
			(lbs)	(gallons)	(lbs)	(gallons)
No products were found						

SARA 304 RQ : Not applicable

SARA 311/312

Classification : Not applicable

Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
Crystalline silica, quartz	10-30	No.	No.	No.	No.	Yes.
Titanium dioxide	1-5	No.	No.	No.	No.	Yes.
Carbon black	0.1-1	No.	No.	No.	No.	Yes.

SARA 313

	Product name	CAS number	%
Form R – Reporting requirements			
Supplier notification			

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations

Massachusetts : The following components are listed: Titanium dioxide; Crystalline silica, quartz; Talc

New York : None of the components are listed

New Jersey : The following components are listed: Titanium dioxide; Crystalline silica, quartz; Distillates (petroleum), solvent-dewaxed heavy paraffinic; Talc; Carbon black

Pennsylvania : The following components are listed: Titanium dioxide; Crystalline silica, quartz; Talc; Carbon black

California Prop. 65

WARNING: This product contains a chemical known to the State of California to cause cancer.

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
Crystalline silica, quartz	Yes.	No.	No.	No.
Titanium dioxide	Yes.	No.	No.	No.
Carbon black	Yes.	No.	No.	No.
Isoprene	Yes.	No.	No.	No.

Section 15. Regulatory Information

International regulations

International lists : **Australia inventory (AICS)**: Not determined.
China inventory (IECSC): All components are listed or exempted.
Japan inventory: Not determined.
Korea inventory: All components are listed or exempted
Malaysia Inventory (EHS Register): Not determined.
New Zealand Inventory of Chemicals (NZIoC): All components are listed or exempted
Philippines inventory (PICCS): All components are listed or exempted.
Taiwan inventory (CSNN): Not determined.

Chemical Weapons Convention List Schedule I Chemicals : Not listed

Chemical Weapons Convention List Schedule II Chemicals : Not listed

Chemical Weapons Convention List Schedule III Chemicals : Not listed

Section 16. Other Information

History

Date of issue mm/dd/yyyy : 06/01/2015

Version : 1

Revised sections : Not applicable

Prepared by : Concrete Sealant Inc.

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships
1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

SAFETY DATA SHEET

1. Identification

Product identifier **Sodium Hypochlorite 12.5%**

Other means of identification

SDS number 320222-04

Product registration number EPA 148-1288

Recommended use Bleaching agent; water treatment; disinfectant; cleaning agent.

Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Company name Harcros Chemicals Inc

Address 5200 Speaker Rd.
Kansas City, KS 66106
United States

Main Telephone Number 1-913-321-3131

Website www.harcros.com

E-mail custserv@harcros.com

Emergency #: CHEMTREC 1-800-424-9300

Emergency #: CHEMTREC 1-703-527-3887 (call collect)

2. Hazard(s) identification

Physical hazards	Oxidizing liquids	Category 2
	Corrosive to metals	Category 1
Health hazards	Skin corrosion/irritation	Category 1B
	Serious eye damage/eye irritation	Category 1
Environmental hazards	Hazardous to the aquatic environment, acute hazard	Category 1
	Hazardous to the aquatic environment, long-term hazard	Category 1
OSHA defined hazards	Combustible dust	Not applicable
	Pyrophoric gas	Not applicable
	Simple asphyxiant	Not applicable

Label elements

Signal word Danger

Hazard statement May intensify fire; oxidizer. May be corrosive to metals. Causes severe skin burns and eye damage. Causes severe skin burns and eye damage. Causes serious eye damage. Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.

Precautionary statement

Prevention Keep away from heat. Keep only in original container. Do not breathe mist or vapor. Wash thoroughly after handling. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection.

Response	If swallowed: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Specific treatment (see this label). Wash contaminated clothing before reuse. Absorb spillage to prevent material damage.
Storage	Store away from incompatible materials. Store in a well-ventilated place. Keep container tightly closed. Store in accordance with local/regional/national/international regulations.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	None known.
Supplemental information	9.9% of the mixture consists of component(s) of unknown long-term hazards to the aquatic environment.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
Water		7732-18-5	74 - < 77
Sodium Hypochlorite		7681-52-9	12.5 - < 15.6
Sodium Chloride		7647-14-5	9 - < 10.5
Sodium Hydroxide		1310-73-2	0.5 - < 2.5

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation	Move to fresh air. Call a physician if symptoms develop or persist.
Skin contact	IF ON CLOTHING: rinse immediately contaminated clothing and skin with plenty of water before removing clothes. Rinse skin with water/shower. Call a physician or poison control center immediately. Chemical burns must be treated by a physician. Wash contaminated clothing before reuse.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.
Ingestion	Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
Most important symptoms/effects, acute and delayed	Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim under observation. Symptoms may be delayed.
General information	Take off all contaminated clothing immediately. Contact with combustible material may cause fire. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media	Powder. Foam. Carbon dioxide (CO2).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	Greatly increases the burning rate of combustible materials. Containers may explode when heated. During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Fire fighting equipment/instructions	In case of fire and/or explosion do not breathe fumes. In case of fire: Stop leak if safe to do so. Move containers from fire area if you can do so without risk.

Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	May intensify fire; oxidizer. Contact with combustible material may cause fire.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep away from clothing and other combustible materials. Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up	Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil, etc.) away from spilled material. Ventilate the contaminated area. This product is miscible in water. Large Spills: Stop the flow of material, if this is without risk. Use water spray to reduce vapors or divert vapor cloud drift. Dike the spilled material, where this is possible. Absorb spillage to prevent material damage. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water. Small Spills: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS. Wear appropriate protective equipment and clothing during clean-up.
Environmental precautions	Avoid release to the environment. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground. Inform appropriate managerial or supervisory personnel of all environmental releases.

7. Handling and storage

Precautions for safe handling	Keep away from heat. Keep away from clothing and other combustible materials. Take any precaution to avoid mixing with combustibles. Do not breathe mist or vapor. Do not get in eyes, on skin, or on clothing. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. Avoid release to the environment. Observe good industrial hygiene practices.
Conditions for safe storage, including any incompatibilities	Store locked up. Keep away from heat. Store in a cool, dry place out of direct sunlight. Store in corrosive resistant container with a resistant inner liner. Keep only in the original container. Store in a well-ventilated place. Do not store near combustible materials. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Sodium Hydroxide (CAS 1310-73-2)	PEL	2 mg/m3

US. ACGIH Threshold Limit Values

Components	Type	Value
Sodium Hydroxide (CAS 1310-73-2)	Ceiling	2 mg/m3

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Sodium Hydroxide (CAS 1310-73-2)	Ceiling	2 mg/m3

US. AIHA Workplace Environmental Exposure Level (WEEL) Guides

Components	Type	Value
Sodium Hypochlorite (CAS 7681-52-9)	STEL	2 mg/m3

Biological limit values No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product. It is recommended that users of this product perform a risk assessment to determine the appropriate PPE.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear chemical goggles and face shield. Do not get in eyes. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

Skin protection

Hand protection Wear appropriate chemical resistant gloves. Suitable gloves can be recommended by the glove supplier. Be aware that the liquid may penetrate the gloves. Frequent change is advisable.

Other Wear appropriate chemical resistant clothing.

Respiratory protection In case of insufficient ventilation, wear suitable respiratory equipment.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations Keep from contact with clothing and other combustible materials. Remove and wash contaminated clothing promptly. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance Clear to lightly colored.

Physical state Liquid.

Form Liquid.

Color Clear to pale yellow.

Odor Chlorine.

Odor threshold Not available.

pH Not available.

Melting point/freezing point 3 °F (-16.11 °C) (12.5% NaOCl)

Initial boiling point and boiling range < 230 °F (< 110 °C)

Flash point Not available.

Evaporation rate Not available.

Flammability (solid, gas) Not applicable.

Upper/lower flammability or explosive limits

Flammability limit - lower (%) Not available.

Flammability limit - upper (%) Not available.

Explosive limit - lower (%) Not available.

Explosive limit - upper (%) Not available.

Vapor pressure 12 mm Hg @25 C (12.5% NaOCl)

Vapor density Not available.

Relative density Not available.

Solubility(ies)

Solubility (water)	Soluble
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.

Other information

pH in aqueous solution	12 - 14 (1% in DI Water)
Specific gravity	1.3 @25 C

10. Stability and reactivity

Reactivity	Greatly increases the burning rate of combustible materials. Reacts violently with strong acids. This product may react with oxidizing agents. May be corrosive to metals.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Reacts violently with strong acids. This product may react with oxidizing agents. Hazardous polymerization does not occur.
Conditions to avoid	Heat. Do not mix with other chemicals. Contact with incompatible materials.
Incompatible materials	Strong acids. Acids. Strong oxidizing agents. Oxidizing agents. Combustible material. Reducing agents. Metals. Bases, alkalis (organic).
Hazardous decomposition products	Chlorine. Hydrogen chloride.

11. Toxicological information

Information on likely routes of exposure

Inhalation	May cause irritation to the respiratory system. Prolonged inhalation may be harmful.
Skin contact	Causes severe skin burns.
Eye contact	Causes serious eye damage.
Ingestion	Causes digestive tract burns.
Symptoms related to the physical, chemical and toxicological characteristics	Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.

Information on toxicological effects

Acute toxicity

Product	Species	Test Results
Sodium Hypochlorite 12.5%		
Acute		
Oral		
LD50	Mouse	21597 mg/kg estimated
	Rat	30303 mg/kg estimated
Components	**Species**	**Test Results**
Sodium Chloride (CAS 7647-14-5)		
Acute		
Oral		
LD50	Mouse	4000 mg/kg
	Rat	3000 mg/kg

Components	Species	Test Results
Sodium Hypochlorite (CAS 7681-52-9)		
Acute		
Oral		
LD50	Mouse	5800 mg/kg
	Rat	8.91 g/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Causes severe skin burns and eye damage.

Serious eye damage/eye irritation Causes serious eye damage.

Respiratory or skin sensitization

Respiratory sensitization Not a respiratory sensitizer.

Skin sensitization This product is not expected to cause skin sensitization.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

IARC Monographs. Overall Evaluation of Carcinogenicity

Sodium Hypochlorite (CAS 7681-52-9) 3 Not classifiable as to carcinogenicity to humans.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure Not classified.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard Not an aspiration hazard.

Chronic effects Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity Very toxic to aquatic life with long lasting effects.

Product		Species	Test Results
Sodium Hypochlorite 12.5%			
	EC50		40 mg/l, 96 hours Nittocra Spinipes Fasciatus
			4 mg/l, 96 hours Gammarus Fasciatus
Aquatic			
Crustacea	EC50	Daphnia	2519.1724 mg/l, 48 hours estimated
			0.07 - 0.7 mg/l, 24 hours magnia
			0.006 mg/l, 24 hours Ceriodaphina sp.
Fish	LC50	Fish	12.5131 mg/l, 96 hours estimated

Components		Species	Test Results
Sodium Chloride (CAS 7647-14-5)			
Aquatic			
Crustacea	EC50	Water flea (Daphnia magna)	340.7 - 469.2 mg/l, 48 hours
Fish	LC50	Fathead minnow (Pimephales promelas)	6020 - 7070 mg/l, 96 hours

Components		Species	Test Results
Sodium Hydroxide (CAS 1310-73-2)			
Aquatic			
Crustacea	EC50	Water flea (Ceriodaphnia dubia)	34.59 - 47.13 mg/l, 48 hours
Fish	LC50	Western mosquitofish (Gambusia affinis)	125 mg/l, 96 hours
Sodium Hypochlorite (CAS 7681-52-9)			
Aquatic			
Fish	LC50	Chinook salmon (Oncorhynchus tshawytscha)	0.038 - 0.065 mg/l, 96 hours

* Estimates for product may be based on additional component data not shown.

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential No data available.

Mobility in soil No data available.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code D002: Waste Corrosive material [pH <=2 or =>12.5, or corrosive to steel]
The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT

UN number UN1791
UN proper shipping name Hypochlorite solutions
Transport hazard class(es)
Class 8
Subsidiary risk -
Label(s) 8
Packing group III
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.
Special provisions IB3, N34, T4, TP2, TP24
Packaging exceptions 154
Packaging non bulk 203
Packaging bulk 241

IATA

UN number UN1791
UN proper shipping name Hypochlorite solution
Transport hazard class(es)
Class 8
Subsidiary risk -

Packing group	III
Environmental hazards	No.
ERG Code	8L
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Other information	
Passenger and cargo aircraft	Allowed.
Cargo aircraft only	Allowed.

IMDG

UN number	UN1791
UN proper shipping name	Hypochlorite solution
Transport hazard class(es)	
Class	8
Subsidiary risk	-
Label(s)	8
Packing group	III
Environmental hazards	
Marine pollutant	No.
EmS	Not available.
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not established.

DOT

IATA; IMDG

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Sodium Hydroxide (CAS 1310-73-2)	Listed.
Sodium Hypochlorite (CAS 7681-52-9)	Listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - Yes
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical

Yes

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA)

Not regulated.

FIFRA Information

This chemical is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information, including directions for use.

US state regulations

US - California Candidate Chemicals: Listed

Sodium Hydroxide (CAS 1310-73-2)

US. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)

Not listed.

US. Massachusetts RTK - Substance List

Sodium Hydroxide (CAS 1310-73-2)
Sodium Hypochlorite (CAS 7681-52-9)

US. New Jersey Worker and Community Right-to-Know Act

Sodium Hydroxide (CAS 1310-73-2)
Sodium Hypochlorite (CAS 7681-52-9)

US. Pennsylvania Worker and Community Right-to-Know Law

Sodium Hydroxide (CAS 1310-73-2)
Sodium Hypochlorite (CAS 7681-52-9)

US. Rhode Island RTK

Sodium Hydroxide (CAS 1310-73-2)
Sodium Hypochlorite (CAS 7681-52-9)

US. California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date 05-05-2014

Revision date 07-08-2015

Version # 08

HMIS® ratings
Health: 3
Flammability: 0
Physical hazard: 2

NFPA ratings
Health: 3
Flammability: 0
Instability: 1
Special hazards: OX

Disclaimer
Harcros cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information provided in this Material Safety Data Sheet has been obtained from sources believed to be reliable. Harcros Chemicals Inc., provides no warranties, either expressed or implied and assumes no responsibility for the accuracy or completeness of the data contained herein. This information is offered for your information, consideration, and investigation. You should satisfy yourself that you have all current data relevant to your particular use. Harcros Chemicals Inc., knows of no medical condition, other than those noted on this Material Safety Data Sheet, which are generally recognized as being aggravated by exposure to this product.

Revision Information
Product and Company Identification: Product and Company Identification
Composition / Information on Ingredients: Ingredients
Physical & Chemical Properties: Multiple Properties

SAFETY DATA SHEET

1. Identification

Product identifier **Oatey Clear Cleaner**

Other means of identification

Product code 1400E

Synonyms Part Numbers: 30766, 30779, 30782, 30795, 30805, 32216, 32217, 32218, 32219

Recommended use Cleaning PVC, CPVC or ABS pipe and fittings

Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Company Name Oatey Inc.

Address 4700 West 160th Street
Cleveland, OH 44135

Telephone 216-267-7100

E-mail info@oatey.com

Transport Emergency Chemtrec 1-800-424-9300 (Outside the US 1-703-527-3887)

Emergency First Aid 1-877-740-5015

Contact person MSDS Coordinator

2. Hazard(s) identification

Physical hazards	Flammable liquids	Category 2
Health hazards	Acute toxicity, oral	Category 4
	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 2A
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
	Specific target organ toxicity, single exposure	Category 3 narcotic effects
	Aspiration hazard	Category 1

OSHA defined hazards Not Classified

Label elements

Signal word Danger

Hazard statement Highly flammable liquid and vapor. Harmful if swallowed. May be fatal if swallowed and enters airways. Causes skin irritation. Causes serious eye irritation. May cause respiratory irritation. May cause drowsiness or dizziness.

Precautionary statement

Prevention Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Avoid breathing mist or vapor. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection.

Response If swallowed: Immediately call a poison center/doctor. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes.

	Remove contact lenses, if present and easy to do. Continue rinsing. Call a poison center/doctor if you feel unwell. Rinse mouth. Do NOT induce vomiting. If skin irritation occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. Take off contaminated clothing and wash before reuse. In case of fire: Use appropriate media to extinguish.
Storage	Store in a well-ventilated place. Keep container tightly closed. Keep cool. Store locked up.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis. May form explosive peroxides.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Acetone	67-64-1	75-95
Cyclohexanone	108-94-1	1-5
Methy ethyl ketone	78-93-3	0-5

*****Designates that a specific chemical identity and or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
Skin contact	Take off immediately all contaminated clothing. Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
Ingestion	Call a physician or poison control center immediately. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Aspiration may cause pulmonary edema and pneumonitis.
Most important symptoms/effects, acute and delayed	Irritation of nose and throat. Aspiration may cause pulmonary edema and pneumonitis. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Vapors have a narcotic effect and may cause headache, fatigue, dizziness and nausea. Skin irritation. May cause redness and pain.
Indication of immediate medical attention and special treatment Needed	Provide general supportive measures and treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed.
General information	Take off all contaminated clothing immediately. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media	Alcohol resistant foam. Water fog. Dry chemical powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	Vapors may form explosive mixtures with air. Vapors may travel considerable distance to a source of ignition and flash back. During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Fire-fighting equipment/instructions	In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	Highly flammable liquid and vapor. This product contains tetrahydrofuran that may form explosive organic peroxide when exposed to air or light or with age.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Avoid breathing mist

or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up

Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Take precautionary measures against static discharge. Use only non-sparking tools. Keep combustibles (wood, paper, oil, etc.) away from spilled material. This product is miscible in water.

Large Spills: Stop the flow of material, if this is without risk. Use water spray to reduce vapors or divert vapor cloud drift. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water.

Small Spills: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original container for reuse. For waste disposal, see sect. 13 of the SDS.

Environmental precautions

Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling

Vapors may form explosive mixtures with air. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Explosion-proof general and local exhaust ventilation. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Avoid breathing mist or vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Do not taste or swallow. When using, do not eat, drink or smoke. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Store locked up. Keep away from heat, sparks and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in a cool, dry place out of direct sunlight. Store in original tightly closed container. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Components	Type	Value	FORM
Acetone (CAS 67-64-1)	PEL	2400 mg/m3	
		1000 ppm	
Cyclohexanone (CAS 108-94-1)	PEL	200 mg/m3	
		50 ppm	
Methyl ethyl ketone (CAS 78-93-3)	PEL	590 mg/m3	
		200 pp,	

US. ACGIH Threshold Limit Values

Components	Type	Value	FORM
Acetone (CAS 67-64-1)	STEL	750 ppm	
	TWA	500 ppm	
Cyclohexanone (CAS 108-94-1)	STEL	50 ppm	
Methyl ethyl ketone (CAS 78-93-3)	STEL	300 ppm	
	TWA	200 ppm	

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value

Acetone (CAS 67-64-1)	TWA	590 mg/m3 250 ppm
Cyclohexanone (CAS 108-94-1)	TWA	100 mg/m3 25 ppm
Methyl ethyl ketone (CAS 78-93-3)	STEL	885 mg/m3 300 ppm
	TWA	590 mg/m3 200 ppm

Biological limit values

ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
Acetone (CAS 67-64-1)	50 mg/l	Acetone	Urine	*
Cyclohexanone (CAS 108-94-1)	80 mg/l	1,2-Cyclohexanediol, with hydrolysis	Urine	*
	8 mg/l	Cyclohexanol, with hydrolysis		
Methyl ethyl ketone (CAS 78-93-3)	2 mg/l	MEK	Urine	*

*- For sampling details, see the source document.

Exposure guidelines

US - California OELs: Skin designation
Cyclohexanone (CAS 108-94-1) Can be absorbed through the skin.

US - Minnesota Haz Subs: Skin designation applies
Cyclohexanone (CAS 108-94-1) Skin designation applies.

US - Tennessee OELs: Skin designation
Cyclohexanone (CAS 108-94-1) Can be absorbed through the skin.

US ACGIH Threshold Limit Values: Skin designation
Cyclohexanone (CAS 108-94-1) Can be absorbed through the skin.

US. NIOSH: Pocket Guide to Chemical Hazards
Cyclohexanone (CAS 108-94-1) Can be absorbed through the skin.

Appropriate engineering controls Explosion-proof general and local exhaust ventilation. Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment

Eye/face protection Face shield is recommended. Wear safety glasses with side shields (or goggles).

Skin protection

Hand Wear appropriate chemical resistant gloves.

Other Wear appropriate chemical resistant clothing.

Respiratory protection If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn..

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance

Physical state Liquid
Form Liquid
Color Clear
Odor Solvent
Odor threshold Not available.

pH	Not Applicable
Melting point/freezing point	Not available.
Initial boiling point and boiling range	151 °F (66.11 °C)
Flash point	0.0 – 4.0 °F (-18 to -15°C)
Evaporation rate	5.5 – 8
Upper/lower flammability or explosive limits	
Flammability limit – lower (%)	2.0
Flammability limit – upper (%)	13.0
Explosive limit - lower (%)	Not Available
Explosive limit - upper (%)	Not Available
Vapor pressure	145 mmHg @ 20 C
Vapor density	2.5
Relative density	0.82 +/- 0.02
Solubility(ies)	
Solubility (water)	Negligible
Partition coefficient (n-octanol/water)	Not Available
Auto-ignition temperature	Not Available
Decomposition temperature	>150°C (>302°F)
Viscosity	Not Available
Other information	
Bulk Density	6.8 lb/gal
VOC (Weight %)	20g/L SCAQMD 1168/M24

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reaction	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Contact with incompatible materials.
Incompatible materials	Acids. Strong oxidizing agents. Ammonia. Amines. Isocyanates. Caustics.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation	May be fatal if swallowed and enters airways. Headache. Nausea, vomiting. May cause irritation to the respiratory system. Vapors have a narcotic effect and may cause headache, fatigue, dizziness and nausea. Prolonged inhalation may be harmful.
Skin contact	Causes skin irritation.
Eye contact	Causes serious eye irritation.
Ingestion	May be fatal if swallowed and enters airways. Harmful if swallowed. Harmful if swallowed. Droplets of the product aspirated into the lungs through ingestion or vomiting may cause a serious chemical pneumonia.
Symptoms related to the physical, chemical and toxicological characteristics	Irritation of nose and throat. Aspiration may cause pulmonary edema and pneumonitis. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Skin irritation. May cause redness and pain. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

Information on likely routes of exposure
Acute Toxicity

Components	Species	Results
Acetone (CAS 67-64-1)		
Acute		
Dermal		
LD50	Rabbit	20 ml/kg
Inhalation		
LC50	Rat	50 mg/l, 8 hours
Oral		
LD50	Rat	58000 mg/kg

Cyclohexanone (108-94-1)

Acute		
Dermal		
LD50	Rabbit	948 mg/kg
Inhalation		
LC50	Rat	8000 ppm, 4 hours
Oral		
LD50	Rat	1540 mg/kg

*Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Causes skin irritation.

Serious eye damage/eye irritation Causes serious eye irritation.

Respiratory or skin sensitization

Respiratory sensitization Not available.

Skin sensitization This product is not expected to cause skin sensitization.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity

IARC Mongraphs. Overall Evaluation of Carcingenicity

Cyclohexanone (CAS 108-94-1)	3 Not classifiable as to carcinogenicity to humans.
Polyvinyl chloride (CAS 9002-86-2)	3 Not classifiable as to carcinogenicity to humans.
Silica, amorphous, fumed (CAS 112945-52-5)	3 Not classifiable as to carcinogenicity to humans.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Polyvinyl chloride (CAS 9002-86-2)	Cancer

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity

Single exposure Narcotic effects. May cause drowsiness and dizziness. Respiratory tract irritation.

Repeated exposure Not Classified.

Aspiration Hazard May be fatal if swallowed and enters airways.

Chronic effects Prolonged inhalation may be harmful.

Further information None noted.

12. Ecological information

Ecotoxicity The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Components	Species	Results
Acetone (CAS 67-64-1)		
Aquatic		
Fish – LC 50	Fathead minnow (Pimephales promelas)	>100 mg/l, 96 hours
Cyclohexanone (108-94-1)		
Aquatic		
Fish – LC 50	Fathead minnow (Pimephales promelas)	481-578 mg/l, 96 hours

Persistence and degradability No data is available on the degradability of this product..

Bio accumulative potential No data is available.

Partition coefficient n-octanol / water (log Kow)

Acetone (CAS 67-64-1)	-0.24
Cyclohexanone (CAS 108-94-1)	0.81
Methyl ethyl ketone (CAS 78-93-3)	0.29

Mobility in soil Not available

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain

	into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local, regional, national or international regulations.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transportation information

DOT

UN number	UN1993
UN Proper Shipping Name	Flammable liquids, n.o.s. (Acetone RQ = 5128 LBS)
Transport Hazard class(es)	
Class	3
Subsidiary risk	-
Label(s)	3
Packing group	II
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	IB2, T7, TP1, TP8, TP28
Packaging exceptions	150
Packaging non bulk	202
Packaging bulk	242

IATA

UN number	UN1993
UN Proper Shipping Name	Flammable liquid, n.o.s. (Acetone, Cyclohexanone)
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	II
Environmental hazards	No.
ERG Code	3H
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number	UN1993
UN Proper Shipping Name	Flammable liquid, n.o.s. (Acetone, Cyclohexanone)
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	II
Environmental hazards	
Marine polluntant	No.
EmS	F-E, S-E
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not available.

15. Regulatory information

U.S. Federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
Not Regulated

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
Not listed.

CERCLA Hazardous Substance List (40 CFR 302.4)

Acetone (CAS 67-64-1)	LISTED
Cyclohexanone (CAS 108-94-1)	LISTED
Methyl ethyl ketone (CAS 78-93-3)	LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - Yes
Pressure Hazard - No
Reactivity Hazard – No

SARA 302 Extremely hazardous substance
Not Listed

SARA 311/312 Hazardous chemical
No

SARA 313 (TRI reporting)
Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)
Not regulated.

Safe Drinking Water Act (SDWA)
Not regulated.

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number

Acetone (CAS 67-64-1)	6532
Methyl ethyl ketone (CAS 78-93-3)	6714

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

Acetone (CAS 67-64-1)	35 %WV
Methyl ethyl ketone (CAS 78-93-3)	35 %WV

DEA Exempt Chemical Mixtures Code Number

Acetone (CAS 67-64-1)	6532
Methyl ethyl ketone (CAS 78-93-3)	6714

US state regulations

US. Massachusetts RTK - Substance List
Acetone (CAS 67-64-1)
Cyclohexanone (CAS 108-94-1)
Methyl ethyl ketone (CAS 78-93-3)

US. New Jersey Worker and Community Right-to-Know Act
Acetone (CAS 67-64-1)
Cyclohexanone (CAS 108-94-1)
Methyl ethyl ketone (CAS 78-93-3)

US. Pennsylvania Worker and Community Right-to-Know Law
Acetone (CAS 67-64-1)
Cyclohexanone (CAS 108-94-1)
Methyl ethyl ketone (CAS 78-93-3)

US. Rhode Island RTK
Acetone (CAS 67-64-1)
Cyclohexanone (CAS 108-94-1)
Methyl ethyl ketone (CAS 78-93-3)

US. California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	No

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue Date 05-27-2015

Revision Date -

Version # 01

HMIS Rating
Health: 2
Flammability: 3
Physical Hazards: 0

NFPA ratings

Disclaimer HCC Holdings Inc. an Oatey Affiliate cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.

SAFETY DATA SHEET

1. Identification

Product identifier **Oatey Purple Primer- NSF Listed for PVC and CPVC**

Other means of identification

Product code 1402E

Synonyms Part Numbers: 30755(TV), 30756(TV), 30757(TV), 30758, 30759, 30927

Recommended use Joining PVC Pipes

Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Company Name Oatey Co.

Address 4700 West 160th St.
Cleveland, OH 44135

Telephone 216-267-7100

E-mail info@oatey.com

Transport Emergency Chemtrec 1-800-424-9300 (Outside the US 1-703-527-3887)

Emergency First Aid 1-877-740-5015

Contact person MSDS Coordinator

2. Hazard(s) identification

Physical hazards	Flammable liquids	Category 2
Health hazards	Acute toxicity, oral	Category 4
	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 2A
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
	Specific target organ toxicity, single exposure	Category 3 narcotic effects
	Aspiration hazard	Category 1

OSHA defined hazards Not classified.

Label elements

Signal word Danger

Hazard statement Highly flammable liquid and vapor. Harmful if swallowed. May be fatal if swallowed and enters airways. Causes skin irritation. Causes serious eye irritation. May cause respiratory irritation. May cause drowsiness or dizziness.

Precautionary statement

Prevention Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Avoid breathing mist or vapor. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection.

Response If swallowed: Immediately call a poison center/doctor. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a poison center/doctor if you feel unwell. Rinse mouth. Do NOT induce vomiting. If skin irritation occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. Take off contaminated clothing and wash before reuse. In case of fire: Use appropriate media to extinguish.

Storage	Store in a well-ventilated place. Keep container tightly closed. Keep cool. Store locked up.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis. May form explosive peroxides. Contains a chemical classified by the US EPA as a suspected possible carcinogen.

Supplemental information

Not applicable.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Acetone	67-64-1	25-40
Cyclohexanone	108-94-1	25-40
Furan, Tetrahydro-	109-99-9	15-30
Methyl ethyl ketone	78-93-3	15-30

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
Skin contact	Take off immediately all contaminated clothing. Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
Ingestion	Call a physician or poison control center immediately. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Aspiration may cause pulmonary edema and pneumonitis.
Most important symptoms/effects, acute and delayed	Irritation of nose and throat. Aspiration may cause pulmonary edema and pneumonitis. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Vapors have a narcotic effect and may cause headache, fatigue, dizziness and nausea. Skin irritation. May cause redness and pain.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed.
General information	Take off all contaminated clothing immediately. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media	Alcohol resistant foam. Water fog. Dry chemical powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	Vapors may form explosive mixtures with air. Vapors may travel considerable distance to a source of ignition and flash back. During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Fire fighting equipment/instructions	In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	Highly flammable liquid and vapor. This product contains tetrahydrofuran that may form explosive organic peroxide when exposed to air or light or with age.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Avoid breathing mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up

Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Take precautionary measures against static discharge. Use only non-sparking tools. Keep combustibles (wood, paper, oil, etc.) away from spilled material. This product is miscible in water.

Large Spills: Stop the flow of material, if this is without risk. Use water spray to reduce vapors or divert vapor cloud drift. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water.

Small Spills: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

Environmental precautions

Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling

Vapors may form explosive mixtures with air. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Explosion-proof general and local exhaust ventilation. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Avoid breathing mist or vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Do not taste or swallow. When using, do not eat, drink or smoke. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Store locked up. Keep away from heat, sparks and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in a cool, dry place out of direct sunlight. Store in original tightly closed container. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Acetone (CAS 67-64-1)	PEL	2400 mg/m3
		1000 ppm
Cyclohexanone (CAS 108-94-1)	PEL	200 mg/m3
		50 ppm
Furan, Tetrahydro- (CAS 109-99-9)	PEL	590 mg/m3
		200 ppm
Methyl ethyl ketone (CAS 78-93-3)	PEL	590 mg/m3
		200 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value
Acetone (CAS 67-64-1)	STEL	750 ppm
	TWA	500 ppm
Cyclohexanone (CAS 108-94-1)	STEL	50 ppm
	TWA	20 ppm
Furan, Tetrahydro- (CAS 109-99-9)	STEL	100 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value
	TWA	50 ppm
Methyl ethyl ketone (CAS 78-93-3)	STEL	300 ppm
	TWA	200 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Acetone (CAS 67-64-1)	TWA	590 mg/m3
		250 ppm
Cyclohexanone (CAS 108-94-1)	TWA	100 mg/m3
		25 ppm
Furan, Tetrahydro- (CAS 109-99-9)	STEL	735 mg/m3
		250 ppm
	TWA	590 mg/m3
		200 ppm
Methyl ethyl ketone (CAS 78-93-3)	STEL	885 mg/m3
		300 ppm
	TWA	590 mg/m3
		200 ppm

Biological limit values

ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
Acetone (CAS 67-64-1)	50 mg/l	Acetone	Urine	*
Cyclohexanone (CAS 108-94-1)	80 mg/l	1,2-Cyclohexanediol, with hydrolysis	Urine	*
	8 mg/l	Cyclohexanol, with hydrolysis	Urine	*
Furan, Tetrahydro- (CAS 109-99-9)	2 mg/l	Tetrahydrofuran	Urine	*
Methyl ethyl ketone (CAS 78-93-3)	2 mg/l	MEK	Urine	*

* - For sampling details, please see the source document.

Exposure guidelines

US - California OELs: Skin designation

Cyclohexanone (CAS 108-94-1) Can be absorbed through the skin.

US - Minnesota Haz Subs: Skin designation applies

Cyclohexanone (CAS 108-94-1) Skin designation applies.

US - Tennessee OELs: Skin designation

Cyclohexanone (CAS 108-94-1) Can be absorbed through the skin.

US ACGIH Threshold Limit Values: Skin designation

Cyclohexanone (CAS 108-94-1) Can be absorbed through the skin.
Furan, Tetrahydro- (CAS 109-99-9) Can be absorbed through the skin.

US. NIOSH: Pocket Guide to Chemical Hazards

Cyclohexanone (CAS 108-94-1) Can be absorbed through the skin.

Appropriate engineering controls Explosion-proof general and local exhaust ventilation. Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment

Eye/face protection Face shield is recommended. Wear safety glasses with side shields (or goggles).

Skin protection	
Hand protection	Wear appropriate chemical resistant gloves.
Other	Wear appropriate chemical resistant clothing.
Respiratory protection	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance	
Physical state	Liquid.
Form	Translucent liquid.
Color	Purple
Odor	Solvent.
Odor threshold	Not available.
pH	Not available.
Melting point/freezing point	Not available.
Initial boiling point and boiling range	151 °F (66.11 °C)
Flash point	14.0 - 23.0 °F (-10.0 - -5.0 °C)
Evaporation rate	5.5 - 8
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	1.8
Flammability limit - upper (%)	11.8
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	145 mm Hg @ 20 C
Vapor density	2.5
Relative density	0.84 +/- 0.02 @20°C
Solubility(ies)	
Solubility (water)	Negligible
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Bulk density	7 lb/gal
VOC (Weight %)	505 g/l SQACMD Method 24

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Contact with incompatible materials.
Incompatible materials	Acids. Strong oxidizing agents. Ammonia. Amines. Isocyanates. Caustics.

Hazardous decomposition products No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation May be fatal if swallowed and enters airways. Headache. Nausea, vomiting. May cause irritation to the respiratory system. Vapors have a narcotic effect and may cause headache, fatigue, dizziness and nausea. Prolonged inhalation may be harmful.

Skin contact Causes skin irritation.

Eye contact Causes serious eye irritation.

Ingestion May be fatal if swallowed and enters airways. Harmful if swallowed. Harmful if swallowed. Droplets of the product aspirated into the lungs through ingestion or vomiting may cause a serious chemical pneumonia.

Symptoms related to the physical, chemical and toxicological characteristics Irritation of nose and throat. Aspiration may cause pulmonary edema and pneumonitis. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Skin irritation. May cause redness and pain. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

Information on toxicological effects

Acute toxicity May be fatal if swallowed and enters airways. Narcotic effects. May cause respiratory irritation.

Components	Species	Test Results
Acetone (CAS 67-64-1)		
Acute		
Dermal		
LD50	Rabbit	20 ml/kg
Inhalation		
LC50	Rat	50 mg/l, 8 Hours
Oral		
LD50	Rat	5800 mg/kg
Cyclohexanone (CAS 108-94-1)		
Acute		
Dermal		
LD50	Rabbit	948 mg/kg
Inhalation		
LC50	Rat	8000 ppm, 4 hours
Oral		
LD50	Rat	1540 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Causes skin irritation.

Serious eye damage/eye irritation Causes serious eye irritation.

Respiratory or skin sensitization

Respiratory sensitization Not available.

Skin sensitization This product is not expected to cause skin sensitization.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity In 2012 USEPA Integrated Risk Information System (IRIS) reviewed a two species inhalation lifetime study on THF conducted by NTP (1998). Male rats developed renal tumors and female mice developed liver tumors while neither the female rats nor the male mice showed similar results. Because the carcinogenic mechanisms could not be identified clearly in either species for either tumor, the EPA determined that the male rat and female mouse findings are relevant to the assessment of carcinogenic potential in humans. Therefore, the IRIS review concludes that these data in aggregate indicate that there is "suggestive evidence of carcinogenic potential" following exposure to THF by all routes of exposure.

IARC Monographs. Overall Evaluation of Carcinogenicity

Cyclohexanone (CAS 108-94-1) 3 Not classifiable as to carcinogenicity to humans.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure Narcotic effects. May cause drowsiness and dizziness. Respiratory tract irritation.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard May be fatal if swallowed and enters airways.

Chronic effects Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Components		Species	Test Results
Acetone (CAS 67-64-1)			
Aquatic			
Fish	LC50	Fathead minnow (Pimephales promelas)	> 100 mg/l, 96 hours
Cyclohexanone (CAS 108-94-1)			
Aquatic			
Fish	LC50	Fathead minnow (Pimephales promelas)	481 - 578 mg/l, 96 hours

* Estimates for product may be based on additional component data not shown.

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential No data available.

Partition coefficient n-octanol / water (log Kow)

Acetone (CAS 67-64-1)	-0.24
Cyclohexanone (CAS 108-94-1)	0.81
Furan, Tetrahydro- (CAS 109-99-9)	0.46
Methyl ethyl ketone (CAS 78-93-3)	0.29

Mobility in soil No data available.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN number UN1993

UN proper shipping name Flammable liquids, n.o.s. (Methyl ethyl ketone RQ = 26274 LBS, Acetone RQ = 13130 LBS)

Transport hazard class(es)

Class 3

Subsidiary risk -

Label(s) 3

Packing group II

Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	IB2, T7, TP1, TP8, TP28
Packaging exceptions	150
Packaging non bulk	202
Packaging bulk	242

IATA

UN number	UN1993
UN proper shipping name	Flammable liquid, n.o.s. (Methyl ethyl ketone, Acetone)
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	II
Environmental hazards	No.
ERG Code	3H
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number	UN1993
UN proper shipping name	FLAMMABLE LIQUID, N.O.S. (Methyl ethyl ketone, Acetone)
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	II
Environmental hazards	
Marine pollutant	No.
EmS	F-E, S-E
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not available.

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

CERCLA Hazardous Substance List (40 CFR 302.4)

Acetone (CAS 67-64-1)	LISTED
Cyclohexanone (CAS 108-94-1)	LISTED
Furan, Tetrahydro- (CAS 109-99-9)	LISTED
Methyl ethyl ketone (CAS 78-93-3)	LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - Yes
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number

Acetone (CAS 67-64-1)	6532
Methyl ethyl ketone (CAS 78-93-3)	6714

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

Acetone (CAS 67-64-1)	35 %WV
Methyl ethyl ketone (CAS 78-93-3)	35 %WV

DEA Exempt Chemical Mixtures Code Number

Acetone (CAS 67-64-1)	6532
Methyl ethyl ketone (CAS 78-93-3)	6714

US state regulations

US. Massachusetts RTK - Substance List

Acetone (CAS 67-64-1)
Cyclohexanone (CAS 108-94-1)
Furan, Tetrahydro- (CAS 109-99-9)
Methyl ethyl ketone (CAS 78-93-3)

US. New Jersey Worker and Community Right-to-Know Act

Acetone (CAS 67-64-1)
Cyclohexanone (CAS 108-94-1)
Furan, Tetrahydro- (CAS 109-99-9)
Methyl ethyl ketone (CAS 78-93-3)

US. Pennsylvania Worker and Community Right-to-Know Law

Acetone (CAS 67-64-1)
Cyclohexanone (CAS 108-94-1)
Furan, Tetrahydro- (CAS 109-99-9)
Methyl ethyl ketone (CAS 78-93-3)

US. Rhode Island RTK

Acetone (CAS 67-64-1)
Cyclohexanone (CAS 108-94-1)
Furan, Tetrahydro- (CAS 109-99-9)
Methyl ethyl ketone (CAS 78-93-3)

US. California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date	27-May-2015
Revision date	-
Version #	01
HMIS® ratings	Health: 2 Flammability: 3 Physical hazard: 0

NFPA ratings

Disclaimer

The information in the sheet was written based on the best knowledge and experience currently available. Oatey Co. cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use.

SAFETY DATA SHEET

1. Identification

Product identifier **Oatey PVC Heavy Duty Clear or Gray Cement**

Other means of identification

SDS number 1102E

Synonyms Part Numbers: Clear 30850, 30863, 30876(TV), 30882, 31008(TV), 31011, 31950, 31951, 31952, 31953 Gray 30349, 31093, 31094, 31095, 31105, 31118, 31978, 31979, 31980, 31981, 32050, 32051, 32052, 32210, 32211

Recommended use Joining PVC Pipes

Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Company Name Oatey Co.
Address 4700 West 160th St.
Cleveland, OH 44135
Telephone 216-267-7100
E-mail info@oatey.com
Transport Emergency Chemtrec 1-800-424-9300 (Outside the US 1-703-527-3887)
Emergency First Aid 1-877-740-5015
Contact person MSDS Coordinator

2. Hazard(s) identification

Physical hazards	Flammable liquids	Category 2
Health hazards	Acute toxicity, oral	Category 4
	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 2A
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
	Specific target organ toxicity, single exposure	Category 3 narcotic effects
	Aspiration hazard	Category 1

OSHA defined hazards Not classified.

Label elements

Signal word Danger

Hazard statement Highly flammable liquid and vapor. Harmful if swallowed. May be fatal if swallowed and enters airways. Causes skin irritation. Causes serious eye irritation. May cause respiratory irritation. May cause drowsiness or dizziness.

Precautionary statement

Prevention Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Use only outdoors or in a well-ventilated area. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Avoid breathing mist or vapor. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection.

Response Rinse mouth. Do NOT induce vomiting. If skin irritation occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. Take off contaminated clothing and wash before reuse. In case of fire: Use appropriate media to extinguish.

Storage Store in a well-ventilated place. Keep container tightly closed. Keep cool. Store locked up.

Disposal Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC)

Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis. May form explosive peroxides. Contains a chemical classified by the US EPA as a suspected possible carcinogen.

Supplemental information

Not applicable.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Furan, Tetrahydro-	109-99-9	30-60
2-Propanone	67-64-1	10-30
Cyclohexanone	108-94-1	10-30
Polyvinyl chloride	9002-86-2	10-30
Methyl ethyl ketone	78-93-3	5-10
Colloidal silicon dioxide	112945-52-5	1-5

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation

Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

Skin contact

Take off immediately all contaminated clothing. Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash before reuse.

Eye contact

Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

Ingestion

Call a physician or poison control center immediately. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Aspiration may cause pulmonary edema and pneumonitis.

Most important symptoms/effects, acute and delayed

Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. Vapors have a narcotic effect and may cause headache, fatigue, dizziness and nausea. May cause redness and pain.

Indication of immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

General information

Take off all contaminated clothing immediately. IF exposed or concerned: Get medical advice/attention. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media

Alcohol resistant foam. Water fog. Dry chemical powder. Carbon dioxide (CO2).

Unsuitable extinguishing media

Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical

Vapors may form explosive mixtures with air. Vapors may travel considerable distance to a source of ignition and flash back. During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters

Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire fighting equipment/instructions

In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk.

Specific methods

Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards

Highly flammable liquid and vapor. This product contains tetrahydrofuran that may form explosive organic peroxide when exposed to air or light or with age.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Avoid inhalation of vapors or mists. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up

Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Take precautionary measures against static discharge. Use only non-sparking tools. Keep combustibles (wood, paper, oil, etc.) away from spilled material.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Use water spray to reduce vapors or divert vapor cloud drift. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

Environmental precautions

Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling

Vapors may form explosive mixtures with air. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Do not taste or swallow. Avoid breathing mist or vapor. Avoid contact with skin. Avoid contact with eyes. Avoid prolonged exposure. Avoid contact with clothing. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. When using, do not eat, drink or smoke. Wash hands thoroughly after handling.

Conditions for safe storage, including any incompatibilities

Store locked up. Keep away from heat, sparks and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in original tightly closed container. Store in a cool, dry place out of direct sunlight. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS). Keep in an area equipped with sprinklers.

8. Exposure controls/personal protection

Occupational exposure limits

U.S. - OSHA

Components	Type	Value	Form
Colloidal silicon dioxide (CAS 112945-52-5)	TWA	0.8 mg/m3	Unspecified.
		20 mppcf	Unspecified.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Components	Type	Value
Polyvinyl chloride (CAS 9002-86-2)	STEL	5 ppm
	TWA	1 ppm

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value	Form
2-Propanone (CAS 67-64-1)	PEL	2400 mg/m3	
		1000 ppm	
Cyclohexanone (CAS 108-94-1)	PEL	200 mg/m3	
		50 ppm	
Furan, Tetrahydro- (CAS 109-99-9)	PEL	590 mg/m3	
		200 ppm	

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value	Form
Methyl ethyl ketone (CAS 78-93-3)	PEL	590 mg/m3	
		200 ppm	
Polyvinyl chloride (CAS 9002-86-2)	PEL	5 mg/m3	Respirable fraction.
		15 mg/m3	Total dust.

US. OSHA Table Z-3 (29 CFR 1910.1000)

Components	Type	Value
Colloidal silicon dioxide (CAS 112945-52-5)	TWA	0.8 mg/m3
		20 mppcf

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
2-Propanone (CAS 67-64-1)	STEL	750 ppm	
	TWA	500 ppm	
Cyclohexanone (CAS 108-94-1)	STEL	50 ppm	
	TWA	20 ppm	
Furan, Tetrahydro- (CAS 109-99-9)	STEL	100 ppm	
	TWA	50 ppm	
Methyl ethyl ketone (CAS 78-93-3)	STEL	300 ppm	
	TWA	200 ppm	
Polyvinyl chloride (CAS 9002-86-2)	TWA	1 mg/m3	Respirable fraction.

U.S. - NIOSH

Components	Type	Value	Form
Colloidal silicon dioxide (CAS 112945-52-5)	REL	6 mg/m3	Unspecified.

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
2-Propanone (CAS 67-64-1)	TWA	590 mg/m3
		250 ppm
Colloidal silicon dioxide (CAS 112945-52-5)	TWA	6 mg/m3
Cyclohexanone (CAS 108-94-1)	TWA	100 mg/m3
		25 ppm
Furan, Tetrahydro- (CAS 109-99-9)	STEL	735 mg/m3
		250 ppm
	TWA	590 mg/m3
		200 ppm
Methyl ethyl ketone (CAS 78-93-3)	STEL	885 mg/m3
		300 ppm
	TWA	590 mg/m3
		200 ppm

Biological limit values

ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
2-Propanone (CAS 67-64-1)	50 mg/l	Acetone	Urine	*
Cyclohexanone (CAS 108-94-1)	80 mg/l	1,2-Cyclohexanediol, with hydrolysis	Urine	*
	8 mg/l	Cyclohexanol, with hydrolysis	Urine	*
Furan, Tetrahydro- (CAS 109-99-9)	2 mg/l	Tetrahydrofuran	Urine	*
Methyl ethyl ketone (CAS 78-93-3)	2 mg/l	MEK	Urine	*

* - For sampling details, please see the source document.

Exposure guidelines

US - California OELs: Skin designation

Cyclohexanone (CAS 108-94-1) Can be absorbed through the skin.

US - Minnesota Haz Subs: Skin designation applies

Cyclohexanone (CAS 108-94-1) Skin designation applies.

US - Tennessee OELs: Skin designation

Cyclohexanone (CAS 108-94-1) Can be absorbed through the skin.

US ACGIH Threshold Limit Values: Skin designation

Cyclohexanone (CAS 108-94-1) Can be absorbed through the skin.
Furan, Tetrahydro- (CAS 109-99-9) Can be absorbed through the skin.

US. NIOSH: Pocket Guide to Chemical Hazards

Cyclohexanone (CAS 108-94-1) Can be absorbed through the skin.

Appropriate engineering controls Explosion-proof general and local exhaust ventilation. Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles).

Skin protection

Hand protection Wear appropriate chemical resistant gloves.

Other Wear appropriate chemical resistant clothing.

Respiratory protection If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations When using, do not eat, drink or smoke. Wash hands after handling and before eating.

9. Physical and chemical properties

Appearance Opaque.or Translucent.

Physical state Liquid.

Form Liquid.

Color Gray or Clear.

Odor Solvent.

Odor threshold Not available.

pH Not available.

Melting point/freezing point Not available.

Initial boiling point and boiling range 151 °F (66.11 °C)

Flash point 14.0 - 23.0 °F (-10.0 - -5.0 °C)

Evaporation rate 5.5 - 8

Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	145 mm Hg @ 20 C
Vapor density	2.5
Relative density	0.88 - 0.92
Solubility(ies)	
Solubility (water)	Negligible
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	1200 - 2500 cP
Other information	
Bulk density	7.5 lb/gal
VOC (Weight %)	481 g/l SQACMD Method 304

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Contact with incompatible materials.
Incompatible materials	Acids. Strong oxidizing agents. Ammonia. Amines. Isocyanates. Caustics.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation	May be fatal if swallowed and enters airways. Vapors have a narcotic effect and may cause headache, fatigue, dizziness and nausea. Prolonged inhalation may be harmful. May cause irritation to the respiratory system.
Skin contact	Causes skin irritation.
Eye contact	Causes serious eye irritation.
Ingestion	May be fatal if swallowed and enters airways. Harmful if swallowed.
Symptoms related to the physical, chemical and toxicological characteristics	Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

Information on toxicological effects

Acute toxicity May be fatal if swallowed and enters airways. Narcotic effects. May cause respiratory irritation.

Components	Species	Test Results
Cyclohexanone (CAS 108-94-1)		
Acute		
Dermal		
LD50	Rabbit	948 mg/kg
Inhalation		
LC50	Rat	8000 ppm, 4 hours

Components	Species	Test Results
Oral		
LD50	Rat	1540 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Causes skin irritation.

Serious eye damage/eye irritation Causes serious eye irritation.

Respiratory or skin sensitization

Respiratory sensitization Not available.

Skin sensitization This product is not expected to cause skin sensitization.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity Suspected of causing cancer. In 2012 USEPA Integrated Risk Information System (IRIS) reviewed a two species inhalation lifetime study on THF conducted by NTP (1998). Male rats developed renal tumors and female mice developed liver tumors while neither the female rats nor the male mice showed similar results. Because the carcinogenic mechanisms could not be identified clearly in either species for either tumor, the EPA determined that the male rat and female mouse findings are relevant to the assessment of carcinogenic potential in humans. Therefore, the IRIS review concludes that these data in aggregate indicate that there is "suggestive evidence of carcinogenic potential" following exposure to THF by all routes of exposure. This product contains polyvinyl chloride (PVC) that is not a fabricated product, and is therefore, defined and regulated as a toxic and hazardous substance under 29 C.F.R. § 1910.1017 due to the presumed presence of residual vinyl chloride monomer. The concentrations of residual vinyl chloride calculated to be contained in this product are well below the threshold for classification in accordance with 29 C.F.R. § 1910.1200.

IARC Monographs. Overall Evaluation of Carcinogenicity

Colloidal silicon dioxide (CAS 112945-52-5)	3 Not classifiable as to carcinogenicity to humans.
Cyclohexanone (CAS 108-94-1)	3 Not classifiable as to carcinogenicity to humans.
Polyvinyl chloride (CAS 9002-86-2)	3 Not classifiable as to carcinogenicity to humans.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Polyvinyl chloride (CAS 9002-86-2)	Cancer

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure Respiratory tract irritation. Narcotic effects.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard May be fatal if swallowed and enters airways.

Chronic effects Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Components		Species	Test Results
Cyclohexanone (CAS 108-94-1)			
Aquatic			
Fish	LC50	Fathead minnow (Pimephales promelas)	481 - 578 mg/l, 96 hours

* Estimates for product may be based on additional component data not shown.

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential No data available.

Partition coefficient n-octanol / water (log Kow)

2-Propanone (CAS 67-64-1)	-0.24
Cyclohexanone (CAS 108-94-1)	0.81
Furan, Tetrahydro- (CAS 109-99-9)	0.46
Methyl ethyl ketone (CAS 78-93-3)	0.29

Mobility in soil No data available.

Other adverse effects	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN number	UN1133
UN proper shipping name	Adhesives
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Label(s)	3
Packing group	II
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	T11, TP1, TP8, TP27
Packaging exceptions	150
Packaging non bulk	201
Packaging bulk	243

IATA

UN number	UN1133
UN proper shipping name	Adhesives
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	II
Environmental hazards	No.
ERG Code	3L
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number	UN1133
UN proper shipping name	ADHESIVES
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	II
Environmental hazards	
Marine pollutant	No.
EmS	F-E, S-D
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not available.

15. Regulatory information

US federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Polyvinyl chloride (CAS 9002-86-2)	Cancer
	Central nervous system
	Liver
	Blood
	Flammability

CERCLA Hazardous Substance List (40 CFR 302.4)

2-Propanone (CAS 67-64-1)	LISTED
Cyclohexanone (CAS 108-94-1)	LISTED
Furan, Tetrahydro- (CAS 109-99-9)	LISTED
Methyl ethyl ketone (CAS 78-93-3)	LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - Yes
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical

No

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA)

Not regulated.

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number

2-Propanone (CAS 67-64-1)	6532
Methyl ethyl ketone (CAS 78-93-3)	6714

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

2-Propanone (CAS 67-64-1)	35 %WV
Methyl ethyl ketone (CAS 78-93-3)	35 %WV

DEA Exempt Chemical Mixtures Code Number

2-Propanone (CAS 67-64-1)	6532
Methyl ethyl ketone (CAS 78-93-3)	6714

US state regulations

US. Massachusetts RTK - Substance List

2-Propanone (CAS 67-64-1)
Colloidal silicon dioxide (CAS 112945-52-5)
Cyclohexanone (CAS 108-94-1)
Furan, Tetrahydro- (CAS 109-99-9)
Methyl ethyl ketone (CAS 78-93-3)

US. New Jersey Worker and Community Right-to-Know Act

2-Propanone (CAS 67-64-1)
Cyclohexanone (CAS 108-94-1)
Furan, Tetrahydro- (CAS 109-99-9)
Methyl ethyl ketone (CAS 78-93-3)

Polyvinyl chloride (CAS 9002-86-2)

US. Pennsylvania Worker and Community Right-to-Know Law

2-Propanone (CAS 67-64-1)
Colloidal silicon dioxide (CAS 112945-52-5)
Cyclohexanone (CAS 108-94-1)
Furan, Tetrahydro- (CAS 109-99-9)
Methyl ethyl ketone (CAS 78-93-3)

US. Rhode Island RTK

2-Propanone (CAS 67-64-1)
Cyclohexanone (CAS 108-94-1)
Furan, Tetrahydro- (CAS 109-99-9)
Methyl ethyl ketone (CAS 78-93-3)

US. California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins. This product contains trace amounts of chemicals known to the state of California to cause cancer. Under normal use conditions, exposure to these chemicals at levels above the State of California "No significant Risk Level" (NSRL) are unlikely. The use of proper personal protective equipment (PPE) and ventilation guidelines noted in Section 8 will minimize exposure levels to these chemicals.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	No
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date	04-August-2014
Revision date	15-December-2014
Version #	02
HMIS® ratings	Health: 2 Flammability: 3 Physical hazard: 0
Disclaimer	The information in the sheet was written based on the best knowledge and experience currently available.

SAFETY DATA SHEET

1. Identification

Product identifier **Rain-R Shine Blue PVC Cement**

Other means of identification

Product code 1104E

Synonyms Part Numbers: 30890, 30891, 30893, 30894, 30895, 30896, 31954, 31955, 31956, 31957

Recommended use Joining PVC Pipes

Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Company Name Oatey Co.

Address 4700 West 160th St.
Cleveland, OH 44135

Telephone 216-267-7100

E-mail info@oatey.com

Transport Emergency Chemtrec 1-800-424-9300 (Outside the US 1-703-527-3887)

Emergency First Aid 1-877-740-5015

Contact person MSDS Coordinator

2. Hazard(s) identification

Physical hazards	Flammable liquids	Category 2
Health hazards	Acute toxicity, oral	Category 4
	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 2A
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
	Specific target organ toxicity, single exposure	Category 3 narcotic effects
	Aspiration hazard	Category 1

OSHA defined hazards Not classified.

Label elements

Signal word Danger

Hazard statement Highly flammable liquid and vapor. Harmful if swallowed. May be fatal if swallowed and enters airways. Causes skin irritation. Causes serious eye irritation. May cause respiratory irritation. May cause drowsiness or dizziness.

Precautionary statement

Prevention Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Avoid breathing mist or vapor. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection.

Response If swallowed: Immediately call a poison center/doctor. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a poison center/doctor if you feel unwell. Rinse mouth. Do NOT induce vomiting. If skin irritation occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. Take off contaminated clothing and wash before reuse. In case of fire: Use appropriate media to extinguish.

Storage	Store in a well-ventilated place. Keep container tightly closed. Keep cool. Store locked up.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis. May form explosive peroxides. Contains a chemical classified by the US EPA as a suspected possible carcinogen.

Supplemental information

Not applicable.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Furan, Tetrahydro-	109-99-9	40-70
Polyvinyl chloride	9002-86-2	10-20
Acetone	67-64-1	5-15
Cyclohexanone	108-94-1	5-15
Methyl ethyl ketone	78-93-3	5-15
Silica, amorphous, fumed	112945-52-5	1-5

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
Skin contact	Take off immediately all contaminated clothing. Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
Ingestion	Call a physician or poison control center immediately. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Aspiration may cause pulmonary edema and pneumonitis.
Most important symptoms/effects, acute and delayed	Irritation of nose and throat. Aspiration may cause pulmonary edema and pneumonitis. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Vapors have a narcotic effect and may cause headache, fatigue, dizziness and nausea. Skin irritation. May cause redness and pain.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed.
General information	Take off all contaminated clothing immediately. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media	Alcohol resistant foam. Water fog. Dry chemical powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	Vapors may form explosive mixtures with air. Vapors may travel considerable distance to a source of ignition and flash back. During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Fire fighting equipment/instructions	In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	Highly flammable liquid and vapor. This product contains tetrahydrofuran that may form explosive organic peroxide when exposed to air or light or with age.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Avoid breathing mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up

Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Take precautionary measures against static discharge. Use only non-sparking tools. Keep combustibles (wood, paper, oil, etc.) away from spilled material. This product is miscible in water.

Large Spills: Stop the flow of material, if this is without risk. Use water spray to reduce vapors or divert vapor cloud drift. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water.

Small Spills: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

Environmental precautions

Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling

Vapors may form explosive mixtures with air. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Explosion-proof general and local exhaust ventilation. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Avoid breathing mist or vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Do not taste or swallow. When using, do not eat, drink or smoke. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Store locked up. Keep away from heat, sparks and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in a cool, dry place out of direct sunlight. Store in original tightly closed container. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Components	Type	Value
Polyvinyl chloride (CAS 9002-86-2)	STEL	5 ppm
	TWA	1 ppm

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value	Form
Acetone (CAS 67-64-1)	PEL	2400 mg/m3	
		1000 ppm	
Cyclohexanone (CAS 108-94-1)	PEL	200 mg/m3	
		50 ppm	
Furan, Tetrahydro- (CAS 109-99-9)	PEL	590 mg/m3	
		200 ppm	
Methyl ethyl ketone (CAS 78-93-3)	PEL	590 mg/m3	
		200 ppm	
Polyvinyl chloride (CAS 9002-86-2)	PEL	5 mg/m3	Respirable fraction.
		15 mg/m3	Total dust.

US. OSHA Table Z-3 (29 CFR 1910.1000)

Components	Type	Value
Silica, amorphous, fumed (CAS 112945-52-5)	TWA	0.8 mg/m3
		20 mppcf

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Acetone (CAS 67-64-1)	STEL	750 ppm	
	TWA	500 ppm	
Cyclohexanone (CAS 108-94-1)	STEL	50 ppm	
	TWA	20 ppm	
Furan, Tetrahydro- (CAS 109-99-9)	STEL	100 ppm	
	TWA	50 ppm	
Methyl ethyl ketone (CAS 78-93-3)	STEL	300 ppm	
	TWA	200 ppm	
Polyvinyl chloride (CAS 9002-86-2)	TWA	1 mg/m3	Respirable fraction.

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Acetone (CAS 67-64-1)	TWA	590 mg/m3
		250 ppm
Cyclohexanone (CAS 108-94-1)	TWA	100 mg/m3
		25 ppm
Furan, Tetrahydro- (CAS 109-99-9)	STEL	735 mg/m3
		250 ppm
	TWA	590 mg/m3
		200 ppm
Methyl ethyl ketone (CAS 78-93-3)	STEL	885 mg/m3
		300 ppm
	TWA	590 mg/m3
		200 ppm
Silica, amorphous, fumed (CAS 112945-52-5)	TWA	6 mg/m3

Biological limit values

ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
Acetone (CAS 67-64-1)	50 mg/l	Acetone	Urine	*
Cyclohexanone (CAS 108-94-1)	80 mg/l	1,2-Cyclohexanediol, with hydrolysis	Urine	*
	8 mg/l	Cyclohexanol, with hydrolysis	Urine	*
Furan, Tetrahydro- (CAS 109-99-9)	2 mg/l	Tetrahydrofuran	Urine	*
Methyl ethyl ketone (CAS 78-93-3)	2 mg/l	MEK	Urine	*

* - For sampling details, please see the source document.

Exposure guidelines

US - California OELs: Skin designation

Cyclohexanone (CAS 108-94-1)	Can be absorbed through the skin.

US - Minnesota Haz Subs: Skin designation applies

Cyclohexanone (CAS 108-94-1)	Skin designation applies.

US - Tennessee OELs: Skin designation

Cyclohexanone (CAS 108-94-1)	Can be absorbed through the skin.

US ACGIH Threshold Limit Values: Skin designation

Cyclohexanone (CAS 108-94-1)	Can be absorbed through the skin.
Furan, Tetrahydro- (CAS 109-99-9)	Can be absorbed through the skin.

US. NIOSH: Pocket Guide to Chemical Hazards

Cyclohexanone (CAS 108-94-1)	Can be absorbed through the skin.

Appropriate engineering controls Explosion-proof general and local exhaust ventilation. Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment

Eye/face protection Face shield is recommended. Wear safety glasses with side shields (or goggles).

Skin protection

Hand protection Wear appropriate chemical resistant gloves.

Other Wear appropriate chemical resistant clothing.

Respiratory protection If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance

Physical state	Liquid.
Form	Translucent liquid.
Color	Clear.
Odor	Solvent.
Odor threshold	Not available.
pH	Not available.
Melting point/freezing point	Not available.
Initial boiling point and boiling range	151 °F (66.11 °C)
Flash point	14.0 - 23.0 °F (-10.0 - -5.0 °C)
Evaporation rate	5.5 - 8
Flammability (solid, gas)	Not available.

Upper/lower flammability or explosive limits

Flammability limit - lower (%)	1.8
Flammability limit - upper (%)	11.8
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	145 mm Hg @ 20 C
Vapor density	2.5
Relative density	0.92 +/- 0.02

Solubility(ies)

Solubility (water)	Negligible
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	1200 - 2500 cP
Viscosity temperature	77 °F (25 °C)
Other information	
Bulk density	7.7 lb/gal
VOC (Weight %)	443 g/l SQACMD 1168/M316A

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Contact with incompatible materials.
Incompatible materials	Acids. Strong oxidizing agents. Ammonia. Amines. Isocyanates. Caustics.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation	May be fatal if swallowed and enters airways. Headache. Nausea, vomiting. May cause irritation to the respiratory system. Vapors have a narcotic effect and may cause headache, fatigue, dizziness and nausea. Prolonged inhalation may be harmful.
Skin contact	Causes skin irritation.
Eye contact	Causes serious eye irritation.
Ingestion	May be fatal if swallowed and enters airways. Harmful if swallowed. Harmful if swallowed. Droplets of the product aspirated into the lungs through ingestion or vomiting may cause a serious chemical pneumonia.
Symptoms related to the physical, chemical and toxicological characteristics	Irritation of nose and throat. Aspiration may cause pulmonary edema and pneumonitis. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Skin irritation. May cause redness and pain. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

Information on toxicological effects

Acute toxicity May be fatal if swallowed and enters airways. Narcotic effects. May cause respiratory irritation.

Components	Species	Test Results
Acetone (CAS 67-64-1)		
Acute		
Dermal		
LD50	Rabbit	20 ml/kg
Inhalation		
LC50	Rat	50 mg/l, 8 Hours
Oral		
LD50	Rat	5800 mg/kg
Cyclohexanone (CAS 108-94-1)		
Acute		
Dermal		
LD50	Rabbit	948 mg/kg
Inhalation		
LC50	Rat	8000 ppm, 4 hours

Components	Species	Test Results
Oral		
LD50	Rat	1540 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Causes skin irritation.

Serious eye damage/eye irritation Causes serious eye irritation.

Respiratory or skin sensitization

Respiratory sensitization Not available.

Skin sensitization This product is not expected to cause skin sensitization.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity In 2012 USEPA Integrated Risk Information System (IRIS) reviewed a two species inhalation lifetime study on THF conducted by NTP (1998). Male rats developed renal tumors and female mice developed liver tumors while neither the female rats nor the male mice showed similar results. Because the carcinogenic mechanisms could not be identified clearly in either species for either tumor, the EPA determined that the male rat and female mouse findings are relevant to the assessment of carcinogenic potential in humans. Therefore, the IRIS review concludes that these data in aggregate indicate that there is "suggestive evidence of carcinogenic potential" following exposure to THF by all routes of exposure.

IARC Monographs. Overall Evaluation of Carcinogenicity

Cyclohexanone (CAS 108-94-1)	3 Not classifiable as to carcinogenicity to humans.
Polyvinyl chloride (CAS 9002-86-2)	3 Not classifiable as to carcinogenicity to humans.
Silica, amorphous, fumed (CAS 112945-52-5)	3 Not classifiable as to carcinogenicity to humans.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Polyvinyl chloride (CAS 9002-86-2)	Cancer

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure Narcotic effects. May cause drowsiness and dizziness. Respiratory tract irritation.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard May be fatal if swallowed and enters airways.

Chronic effects Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Components		Species	Test Results
Acetone (CAS 67-64-1)			
Aquatic			
Fish	LC50	Fathead minnow (Pimephales promelas)	> 100 mg/l, 96 hours
Cyclohexanone (CAS 108-94-1)			
Aquatic			
Fish	LC50	Fathead minnow (Pimephales promelas)	481 - 578 mg/l, 96 hours

* Estimates for product may be based on additional component data not shown.

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential No data available.

Partition coefficient n-octanol / water (log Kow)

Acetone (CAS 67-64-1)	-0.24
Cyclohexanone (CAS 108-94-1)	0.81
Furan, Tetrahydro- (CAS 109-99-9)	0.46
Methyl ethyl ketone (CAS 78-93-3)	0.29

Mobility in soil No data available.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN number	UN1993
UN proper shipping name	Flammable liquids, n.o.s. (Methyl ethyl ketone RQ = 34014 LBS, Acetone RQ = 34247 LBS)
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Label(s)	3
Packing group	II
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	IB2, T7, TP1, TP8, TP28
Packaging exceptions	150
Packaging non bulk	202
Packaging bulk	242

IATA

UN number	UN1993
UN proper shipping name	Flammable liquid, n.o.s. (Methyl ethyl ketone, Acetone)
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	II
Environmental hazards	No.
ERG Code	3H
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number	UN1993
UN proper shipping name	FLAMMABLE LIQUID, N.O.S. (Methyl ethyl ketone, Acetone)
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	II
Environmental hazards	
Marine pollutant	No.
EmS	F-E, S-E
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not available.

15. Regulatory information

US federal regulations	This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200. All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Polyvinyl chloride (CAS 9002-86-2)	Cancer Central nervous system Liver Blood Flammability

CERCLA Hazardous Substance List (40 CFR 302.4)

Acetone (CAS 67-64-1)	LISTED
Cyclohexanone (CAS 108-94-1)	LISTED
Furan, Tetrahydro- (CAS 109-99-9)	LISTED
Methyl ethyl ketone (CAS 78-93-3)	LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - Yes
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number

Acetone (CAS 67-64-1)	6532
Methyl ethyl ketone (CAS 78-93-3)	6714

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

Acetone (CAS 67-64-1)	35 %WV
Methyl ethyl ketone (CAS 78-93-3)	35 %WV

DEA Exempt Chemical Mixtures Code Number

Acetone (CAS 67-64-1)	6532
Methyl ethyl ketone (CAS 78-93-3)	6714

US state regulations

US. Massachusetts RTK - Substance List

Acetone (CAS 67-64-1)
Cyclohexanone (CAS 108-94-1)
Furan, Tetrahydro- (CAS 109-99-9)
Methyl ethyl ketone (CAS 78-93-3)
Silica, amorphous, fumed (CAS 112945-52-5)

US. New Jersey Worker and Community Right-to-Know Act

Acetone (CAS 67-64-1)
Cyclohexanone (CAS 108-94-1)
Furan, Tetrahydro- (CAS 109-99-9)
Methyl ethyl ketone (CAS 78-93-3)
Polyvinyl chloride (CAS 9002-86-2)

US. Pennsylvania Worker and Community Right-to-Know Law

Acetone (CAS 67-64-1)
Cyclohexanone (CAS 108-94-1)
Furan, Tetrahydro- (CAS 109-99-9)

Methyl ethyl ketone (CAS 78-93-3)
Silica, amorphous, fumed (CAS 112945-52-5)

US. Rhode Island RTK

Acetone (CAS 67-64-1)
Cyclohexanone (CAS 108-94-1)
Furan, Tetrahydro- (CAS 109-99-9)
Methyl ethyl ketone (CAS 78-93-3)

US. California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	No

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date 05-27-2015

Revision date -

Version # 01

HMIS® ratings
Health: 2
Flammability: 3
Physical hazard: 0

NFPA ratings

Disclaimer The information in the sheet was written based on the best knowledge and experience currently available. Oatey Co. cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use.

SD

A-LOK® PRODUCTS, INC.
THE COMPANY WITH CONNECTIONS®
P.O. BOX 1647 • 697 MAIN STREET • TULLYTOWN, PA 19007

May 12, 2004

A-lok Products, Inc. provides Material Safety Data Sheets (MSDS) upon request to all customers. However, it may be important to note that many, if not all of A-LOK's products are considered to be finished articles as defined by OSHA's standard, 29 CFR 1910.1200(c) and do not require that a Material Safety Data Sheet be produced as stated in 29CFR 1910.1200(b)(6)(v).

This section does not apply to:

1910.1200(b)(6)(v)

Articles (as that term is defined in paragraph (c) of this section);

1910.1200(c)

"Definitions."

"Article" means a manufactured item other than a fluid or particle: (i) which is formed to a specific shape or design during manufacture; (ii) which has end use function(s) dependent in whole or in part upon its shape or design during end use; and (iii) which under normal conditions of use does not release more than very small quantities, e.g., minute or trace amounts of a hazardous chemical (as determined under paragraph (d) of this section), and does not pose a physical hazard or health risk to employees.

Under this definition, all gaskets, step and lift pin inserts, Dura-Plate Liner, and fiberglass and steel hole formers meet OSHA's definition.

In the event that one of A-LOK's products meets the definition of a finished article, the Material Safety Data Sheets of the raw materials will be provided, upon request, to give our customers and their employees' additional information that may be helpful in enhancing their safety and health efforts.

If there is ever a concern with any of A-LOK Products. Inc.'s products, please contact Joseph Glowaski, A-LOK's Safety and Health Director.

Respectfully:

James A. Westhoff
President

Phone: (800) 822-2565 • (215) 547-3366 • Fax: (215) 547-5260 • E-mail: info@a-lok.com • http://www.a-lok.com

We create chemistry

Safety Data Sheet
POZZOLITH NC 534

1. Identification

Product identifier used on the label

POZZOLITH NC 534

Recommended use of the chemical and restriction on use
Recommended use*: for industrial and professional users

* The “Recommended use” identified for this product is provided solely to comply with a Federal requirement and is not part of the seller's published specification. The terms of this Safety Data Sheet (SDS) do not create or infer any warranty, express or implied, including by incorporation into or reference in the seller's sales agreement.

Details of the supplier of the safety data sheet

Company:
BASF CORPORATION
100 Park Avenue
Florham Park, NJ 07932, USA

Telephone: +1 973 245-6000

Emergency telephone number

CHEMTREC: 1-800-424-9300
BASF HOTLINE: 1-800-832-HELP (4357)

Other means of identification
Chemical family: No data available.

2. Hazards Identification

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Classification of the product

Acute Tox.	4 (oral)	Acute toxicity
Eye Dam./Irrit.	1	Serious eye damage/eye irritation

Label elements

Pictogram:

Signal Word:
Danger

Hazard Statement:

H302	Harmful if swallowed.
H318	Causes serious eye damage.

Precautionary Statements (Prevention):

P280	Wear eye/face protection.
P270	Do not eat, drink or smoke when using this product.
P264	Wash with plenty of water and soap thoroughly after handling.

Precautionary Statements (Response):

P310	Immediately call a POISON CENTER or doctor/physician.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P301 + P330	IF SWALLOWED: rinse mouth.

Precautionary Statements (Disposal):

P501	Dispose of contents/container to hazardous or special waste collection point.

Hazards not otherwise classified

If applicable information is provided in this section on other hazards which do not result in classification but which may contribute to the overall hazards of the substance or mixture.

3. Composition / Information on Ingredients

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

CAS Number	Content (W/W)	Chemical name
10124-37-5	>= 25.0 - < 75.0 %	calcium nitrate
540-72-7	>= 5.0 - < 15.0 %	sodium thiocyanate
102-71-6	>= 0.0 - < 3.0 %	2,2',2"-nitrilotriethanol
111-42-2	>= 0.0 - < 0.3 %	2,2'-iminodiethanol

4. First-Aid Measures

Description of first aid measures

General advice:
First aid personnel should pay attention to their own safety. Immediately remove contaminated clothing.

If inhaled:
If difficulties occur after vapour/aerosol has been inhaled, remove to fresh air and seek medical attention.

If on skin:
After contact with skin, wash immediately with plenty of water and soap. Under no circumstances should organic solvent be used. If irritation develops, seek medical attention.

If in eyes:
Wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

If swallowed:
Rinse mouth immediately and then drink plenty of water, seek medical attention. Do not induce vomiting unless told to by a poison control center or doctor.

Most important symptoms and effects, both acute and delayed

Symptoms: The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11.
Hazards: No applicable information available.

Indication of any immediate medical attention and special treatment needed

Note to physician

Treatment:	Treat according to symptoms (decontamination, vital functions), no known specific antidote.

5. Fire-Fighting Measures

Extinguishing media

Suitable extinguishing media:
foam, water spray, dry powder, carbon dioxide

Unsuitable extinguishing media for safety reasons:
water jet

Special hazards arising from the substance or mixture

Hazards during fire-fighting:
carbon dioxide, carbon monoxide, harmful vapours, nitrogen oxides, fumes/smoke, carbon black

Advice for fire-fighters

Protective equipment for fire-fighting:
Wear a self-contained breathing apparatus.

Further information:
The degree of risk is governed by the burning substance and the fire conditions. If exposed to fire, keep containers cool by spraying with water. Collect contaminated extinguishing water separately, do not allow to reach sewage or effluent systems. Contaminated extinguishing water must be disposed of in accordance with official regulations.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Do not breathe vapour/aerosol/spray mists. Wear eye/face protection. If exposed to high vapour concentration, leave area immediately. Use personal protective clothing. Handle in accordance with good building materials hygiene and safety practice.

Environmental precautions
Contain contaminated water/firefighting water. Do not discharge into drains/surface waters/groundwater.

Methods and material for containment and cleaning up
For small amounts: Pick up with inert absorbent material (e.g. sand, earth etc.). Dispose of contaminated material as prescribed.
For large amounts: Pump off product.

7. Handling and Storage

Precautions for safe handling
Avoid aerosol formation. Avoid inhalation of mists/vapours. Avoid skin contact. No special measures necessary provided product is used correctly.

Conditions for safe storage, including any incompatibilities
No applicable information available.

Suitable materials for containers: High density polyethylene (HDPE)

Further information on storage conditions: Keep only in the original container in a cool, dry, well-ventilated place away from ignition sources, heat or flame. Protect from direct sunlight.
Protect from temperatures below: -25 °C
Protect from temperatures below: -13 °F

8. Exposure Controls/Personal Protection

Components with occupational exposure limits

2,2',2"-nitrilotriethanol

ACGIH TLV TWA value 5 mg/m3 ;

Advice on system design:
No applicable information available.

Personal protective equipment

Respiratory protection:
Wear a NIOSH-certified (or equivalent) respirator as necessary.

Hand protection:
Wear chemical resistant protective gloves., Manufacturer's directions for use should be observed because of great diversity of types.

Eye protection:
Safety glasses with side-shields.

Body protection:
Impermeable protective clothing

General safety and hygiene measures:
Do not inhale gases/vapours/aerosols. Avoid contact with the skin, eyes and clothing. Avoid exposure - obtain special instructions before use. Handle in accordance with good building materials hygiene and safety practice. Wearing of closed work clothing is recommended. When using, do not eat, drink or smoke. Hands and/or face should be washed before breaks and at the end of the shift. At the end of the shift the skin should be cleaned and skin-care agents applied. Gloves must be inspected regularly and prior to each use. Replace if necessary (e.g. pinhole leaks).

9. Physical and Chemical Properties

Form:	liquid	
Odour:	odourless	
Odour threshold:		No applicable information available.
Colour:	dark brown	
pH value:	approx. 6.5	
Melting temperature:	approx. 0 °C	Information applies to the solvent.
boiling temperature:	approx. 100 °C	
Sublimation point:		No applicable information available.
Flash point:		Non-flammable.
Flammability:	not flammable	
Upper explosion limit:		No applicable information available.
Vapour pressure:		No applicable information available.
Density:	approx. 1.399 g/cm3	(20 °C)
Relative density:		No applicable information available.
Vapour density:		Heavier than air.
Thermal decomposition:	No decomposition if stored and handled as prescribed/indicated.	
Viscosity, dynamic:		No applicable information available.
Viscosity, kinematic:		No applicable information available.
Solubility in water:		(20 °C) soluble
Miscibility with water:		(20 °C) miscible in all proportions
Solubility (quantitative):		No applicable information available.
Solubility (qualitative):	No applicable information available.	
Evaporation rate:		No applicable information available.
Other Information:	If necessary, information on other physical and chemical parameters is indicated in this section.	

10. Stability and Reactivity

Reactivity
No hazardous reactions if stored and handled as prescribed/indicated.

Corrosion to metals:
Corrosive effects to metal are not anticipated.

Chemical stability
The product is stable if stored and handled as prescribed/indicated.

Possibility of hazardous reactions
The product is stable if stored and handled as prescribed/indicated.

Conditions to avoid
See MSDS section 7 - Handling and storage.

Incompatible materials

strong acids, strong bases, strong oxidizing agents, strong reducing agents

Hazardous decomposition products

Decomposition products:
No hazardous decomposition products if stored and handled as prescribed/indicated.

Thermal decomposition:
No decomposition if stored and handled as prescribed/indicated.

11. Toxicological information

Primary routes of exposure

Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

Acute Toxicity/Effects

Acute toxicity
Assessment of acute toxicity: Of moderate toxicity after single ingestion.

Oral
Type of value: ATE
Value: 666.67 mg/kg

Inhalation
No applicable information available.

Dermal
No applicable information available.

Assessment other acute effects
No applicable information available.

Irritation / corrosion
Assessment of irritating effects: May cause severe damage to the eyes.

Sensitization
Assessment of sensitization: The product has not been tested. The statement has been derived from the properties of the individual components.

Chronic Toxicity/Effects

Repeated dose toxicity
Assessment of repeated dose toxicity: No reliable data was available concerning repeated dose toxicity. Based on available Data, the classification criteria are not met.

Genetic toxicity
Assessment of mutagenicity: The chemical structure does not suggest a specific alert for such an effect. Based on available Data, the classification criteria are not met.

Carcinogenicity
Assessment of carcinogenicity: The chemical structure does not suggest a specific alert for such an effect. Based on available Data, the classification criteria are not met.

Information on: 2,2'-iminodiethanol
Assessment of carcinogenicity: IARC (International Agency for Research on Cancer) has classified this substance as group 2B (The agent is possibly carcinogenic to humans). In long-term studies in rats and mice a carcinogenic effect was observed. Not Likely to Be Carcinogenic to Humans.

Reproductive toxicity
Assessment of reproduction toxicity: The chemical structure does not suggest a specific alert for such an effect. Based on available Data, the classification criteria are not met.

Teratogenicity
Assessment of teratogenicity: The chemical structure does not suggest a specific alert for such an effect. Based on available Data, the classification criteria are not met.

Other Information
Based on our experience and the information available, no adverse health effects are expected if handled as recommended with suitable precautions for designated uses. The product has not been tested. The statements on toxicology have been derived from the properties of the individual components.

Symptoms of Exposure

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11.

12. Ecological Information

Toxicity

Aquatic toxicity
Assessment of aquatic toxicity:
Based on available Data, the classification criteria are not met. There is a high probability that the product is not acutely harmful to aquatic organisms.

Persistence and degradability

Assessment biodegradation and elimination (H2O)
Inherently biodegradable. The insoluble fraction can be removed by mechanical means in suitable waste water treatment plants.

Bioaccumulative potential

Assessment bioaccumulation potential
Discharge into the environment must be avoided.

Mobility in soil

Assessment transport between environmental compartments
No data available.

Additional information

Other ecotoxicological advice:
Do not discharge product into the environment without control. The product has not been tested. The statements on ecotoxicology have been derived from the properties of the individual components.

13. Disposal considerations

Waste disposal of substance:
Dispose of in accordance with national, state and local regulations. Residues should be disposed of in the same manner as the substance/product. Do not discharge into drains/surface waters/groundwater.

Container disposal:
Contaminated packaging should be emptied as far as possible; then it can be passed on for recycling after being thoroughly cleaned.

14. Transport Information

Land transport
USDOT

Not classified as a dangerous good under transport regulations

Sea transport
IMDG

Not classified as a dangerous good under transport regulations

Air transport
IATA/ICAO

Not classified as a dangerous good under transport regulations

15. Regulatory Information

Federal Regulations

Registration status:
Chemical TSCA, US released / listed

EPCRA 311/312 (Hazard categories): Acute;

CERCLA RQ	CAS Number	Chemical name
100 LBS	111-42-2	2,2'-iminodiethanol

NFPA Hazard codes:
Health : 3 Fire: 0 Reactivity: 0 Special:

HMIS III rating
Health: 3 Flammability: 0 Physical hazard: 0

16. Other Information

SDS Prepared by:
BASF NA Product Regulations
SDS Prepared on: 2015/04/09

We support worldwide Responsible Care® initiatives. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment to Responsible Care is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.

IMPORTANT: WHILE THE DESCRIPTIONS, DESIGNS, DATA AND INFORMATION CONTAINED HEREIN ARE PRESENTED IN GOOD FAITH AND BELIEVED TO BE ACCURATE , IT IS PROVIDED FOR YOUR GUIDANCE ONLY. BECAUSE MANY FACTORS MAY AFFECT PROCESSING OR APPLICATION/USE, WE RECOMMEND THAT YOU MAKE TESTS TO DETERMINE THE SUITABILITY OF A PRODUCT FOR YOUR PARTICULAR PURPOSE PRIOR TO USE. NO WARRANTIES OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE MADE REGARDING PRODUCTS DESCRIBED OR DESIGNS, DATA OR INFORMATION SET FORTH, OR THAT THE PRODUCTS, DESIGNS, DATA OR INFORMATION MAY BE USED WITHOUT INFRINGING THE INTELLECTUAL PROPERTY RIGHTS OF OTHERS. IN NO CASE SHALL THE DESCRIPTIONS, INFORMATION, DATA OR DESIGNS PROVIDED BE CONSIDERED A PART OF OUR TERMS AND CONDITIONS OF SALE. FURTHER, YOU EXPRESSLY UNDERSTAND AND AGREE THAT THE DESCRIPTIONS, DESIGNS, DATA, AND INFORMATION FURNISHED BY OUR COMPANY HEREUNDER ARE GIVEN GRATIS AND WE ASSUME NO OBLIGATION OR LIABILITY FOR THE DESCRIPTION, DESIGNS, DATA AND INFORMATION GIVEN OR RESULTS OBTAINED, ALL SUCH BEING GIVEN AND ACCEPTED AT YOUR RISK.
END OF DATA SHEET

We create chemistry

Safety Data Sheet
MasterMatrix VMA 362 also RHEOMAC VMA362

1. Identification

Product identifier used on the label

MasterMatrix VMA 362 also RHEOMAC VMA362

Recommended use of the chemical and restriction on use

Recommended use*: for industrial and professional users

* The “Recommended use” identified for this product is provided solely to comply with a Federal requirement and is not part of the seller's published specification. The terms of this Safety Data Sheet (SDS) do not create or infer any warranty, express or implied, including by incorporation into or reference in the seller's sales agreement.

Details of the supplier of the safety data sheet

Company:
BASF CORPORATION
100 Park Avenue
Florham Park, NJ 07932, USA

Telephone: +1 973 245-6000

Emergency telephone number

CHEMTREC: 1-800-424-9300
BASF HOTLINE: 1-800-832-HELP (4357)

Other means of identification

Chemical family: No data available.

2. Hazards Identification

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Classification of the product

Aquatic Acute	3	Hazardous to the aquatic environment - acute

Label elements

Hazard Statement:
H402 Harmful to aquatic life.

Precautionary Statements (Prevention):

P273 Avoid release to the environment.

Precautionary Statements (Disposal):
P501 Dispose of contents/container to hazardous or special waste collection point.

Hazards not otherwise classified

If applicable information is provided in this section on other hazards which do not result in classification but which may contribute to the overall hazards of the substance or mixture.

3. Composition / Information on Ingredients

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

CAS Number	Weight %	Chemical name
107-21-1	>= 0.3 - < 1.0%	ethylene glycol
595585-15-2	>= 0.3 - < 1.0%	D-Glucurono-6-deoxy-L-manno-D-glucan, acetate, calcium magnesium potassium sodium salt
90-43-7	>= 0.0 - < 0.2%	[1,1'-Biphenyl]-2-ol

4. First-Aid Measures

Description of first aid measures

General advice:
First aid personnel should pay attention to their own safety. Immediately remove contaminated clothing.

If inhaled:
If difficulties occur after vapour/aerosol has been inhaled, remove to fresh air and seek medical attention.

If on skin:
After contact with skin, wash immediately with plenty of water and soap. Under no circumstances should organic solvent be used. If irritation develops, seek medical attention.

If in eyes:
Wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

If swallowed:
Rinse mouth immediately and then drink plenty of water, seek medical attention. Do not induce vomiting unless told to by a poison control center or doctor.

Most important symptoms and effects, both acute and delayed

Symptoms: The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11.
Hazards: No applicable information available.

Indication of any immediate medical attention and special treatment needed

Note to physician
Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

5. Fire-Fighting Measures

Extinguishing media

Suitable extinguishing media:
foam, water spray, dry powder, carbon dioxide

Unsuitable extinguishing media for safety reasons:
water jet

Special hazards arising from the substance or mixture

Hazards during fire-fighting:
carbon dioxide, carbon monoxide, harmful vapours, nitrogen oxides, fumes/smoke, carbon black

Advice for fire-fighters

Protective equipment for fire-fighting:
Wear a self-contained breathing apparatus.

Further information:
The degree of risk is governed by the burning substance and the fire conditions. If exposed to fire, keep containers cool by spraying with water. Collect contaminated extinguishing water separately, do not allow to reach sewage or effluent systems. Contaminated extinguishing water must be disposed of in accordance with official regulations.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Do not breathe vapour/aerosol/spray mists. Wear eye/face protection. If exposed to high vapour concentration, leave area immediately. Use personal protective clothing. Handle in accordance with good building materials hygiene and safety practice.

Environmental precautions

Contain contaminated water/firefighting water. Do not discharge into drains/surface waters/groundwater.

Methods and material for containment and cleaning up

For small amounts: Pick up with inert absorbent material (e.g. sand, earth etc.). Dispose of contaminated material as prescribed.
For large amounts: Pump off product.

7. Handling and Storage

Precautions for safe handling

Avoid aerosol formation. Avoid inhalation of mists/vapours. Avoid skin contact. No special measures necessary provided product is used correctly.

Conditions for safe storage, including any incompatibilities

No applicable information available.

Suitable materials for containers: High density polyethylene (HDPE)

Further information on storage conditions: Keep only in the original container in a cool, dry, well-ventilated place away from ignition sources, heat or flame. Protect from direct sunlight.
Protect from temperatures below: 5 °C
The packed product must be protected from temperatures below the indicated one.
Protect from temperatures below: 40 °F
The packed product must be protected from temperatures below the indicated one.

8. Exposure Controls/Personal Protection

Components with occupational exposure limits

ethylene glycol	OSHA PEL	CLV 50 ppm 125 mg/m3 ;
	ACGIH TLV	TLV value 100 mg/m3 aerosol ; Ceiling Limit

Advice on system design:
No applicable information available.

Personal protective equipment

Respiratory protection:
Wear respiratory protection if ventilation is inadequate.

Hand protection:
Wear chemical resistant protective gloves., Manufacturer's directions for use should be observed because of great diversity of types.

Eye protection:
Safety glasses with side-shields.

Body protection:
light protective clothing

General safety and hygiene measures:
Do not inhale gases/vapours/aerosols. Avoid contact with the skin, eyes and clothing. Avoid exposure - obtain special instructions before use. Handle in accordance with good building materials hygiene and safety practice. Wearing of closed work clothing is recommended. When using, do not eat, drink or smoke. Hands and/or face should be washed before breaks and at the end of the shift. At the end of the shift the skin should be cleaned and skin-care agents applied. Gloves must be inspected regularly and prior to each use. Replace if necessary (e.g. pinhole leaks).

9. Physical and Chemical Properties

Form:	liquid
Odour:	odourless
Odour threshold:	No applicable information available.
Colour:	light brown
pH value:	approx. 8.0
Melting point:	No applicable information available.
Information on: Water	
Melting point:	0 °C

Information on: Water	
Boiling point:	100 °C

Sublimation point:	No applicable information available.
Flash point:	A flash point determination is unnecessary due to the high water content.
Flammability:	not flammable
Upper explosion limit:	No applicable information available.
Vapour pressure:	No applicable information available.
Information on: Water	
Vapour pressure:	23.4 hPa (20 °C) Literature data.

Density:	approx. 1.002 g/cm3 (20 °C)
Relative density:	No applicable information available.
Vapour density:	No data available.
Thermal decomposition:	No decomposition if stored and handled as prescribed/indicated.
Viscosity, dynamic:	approx. 650 - 850 mPa.s (approx. 20 °C)
Viscosity, kinematic:	No applicable information available.
Solubility in water:	(20 °C) soluble
Miscibility with water:	(20 °C) miscible in all proportions
Solubility (quantitative):	No applicable information available.
Solubility (qualitative):	No applicable information available.
Evaporation rate:	No applicable information available.

10. Stability and Reactivity

Reactivity
No hazardous reactions if stored and handled as prescribed/indicated.

Corrosion to metals:
Corrosive effects to metal are not anticipated.

Chemical stability
The product is stable if stored and handled as prescribed/indicated.

Possibility of hazardous reactions
The product is stable if stored and handled as prescribed/indicated.

Conditions to avoid
See MSDS section 7 - Handling and storage.

Incompatible materials
strong acids, strong bases, strong oxidizing agents, strong reducing agents

Hazardous decomposition products

Decomposition products:
No hazardous decomposition products if stored and handled as prescribed/indicated.

Thermal decomposition:
No decomposition if stored and handled as prescribed/indicated.

11. Toxicological information

Primary routes of exposure

Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

Acute Toxicity/Effects

Acute toxicity
Assessment of acute toxicity: Virtually nontoxic after a single ingestion. Virtually nontoxic by inhalation. Virtually nontoxic after a single skin contact. Based on available Data, the classification criteria are not met. The product has not been tested. The statement has been derived from the properties of the individual components.

Oral
No applicable information available.

Inhalation
No applicable information available.

Dermal
No applicable information available.

Assessment other acute effects
No applicable information available.

Irritation / corrosion
Assessment of irritating effects: No irritation is expected under intended use and appropriate handling. Based on available Data, the classification criteria are not met.

Sensitization
Assessment of sensitization: No applicable information available.

Chronic Toxicity/Effects

Repeated dose toxicity
Assessment of repeated dose toxicity: No reliable data was available concerning repeated dose toxicity. Based on available Data, the classification criteria are not met.

Genetic toxicity
Assessment of mutagenicity: The chemical structure does not suggest a specific alert for such an effect. Based on available Data, the classification criteria are not met.

Carcinogenicity
Assessment of carcinogenicity: The chemical structure does not suggest a specific alert for such an effect. Based on available Data, the classification criteria are not met.

Reproductive toxicity
Assessment of reproduction toxicity: The chemical structure does not suggest a specific alert for such an effect. Based on available Data, the classification criteria are not met.

Teratogenicity
Assessment of teratogenicity: The chemical structure does not suggest a specific alert for such an effect. Based on available Data, the classification criteria are not met.
Contains a suspect teratogen.

Information on: ethylene glycol
Assessment of teratogenicity: In animal studies the substance caused malformations when given at high doses.
However, the relevance of this result for humans is unclear.

Other Information
Based on our experience and the information available, no adverse health effects are expected if handled as recommended with suitable precautions for designated uses. The product has not been tested. The statements on toxicology have been derived from the properties of the individual components.

Symptoms of Exposure

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11.

12. Ecological Information

Toxicity

Aquatic toxicity
Assessment of aquatic toxicity:
Acutely harmful for aquatic invertebrates.

Persistence and degradability

Assessment biodegradation and elimination (H2O)
Inherently biodegradable. The insoluble fraction can be removed by mechanical means in suitable waste water treatment plants.

Bioaccumulative potential

Assessment bioaccumulation potential
Discharge into the environment must be avoided.

Mobility in soil

Assessment transport between environmental compartments
No data available.

Additional information

Other ecotoxicological advice:
Acutely harmful for aquatic organisms. Do not allow to enter soil, waterways or waste water channels.

13. Disposal considerations

Waste disposal of substance:

Dispose of in accordance with national, state and local regulations. Residues should be disposed of in the same manner as the substance/product. Do not discharge into drains/surface waters/groundwater.

Container disposal:
Contaminated packaging should be emptied as far as possible; then it can be passed on for recycling after being thoroughly cleaned.

14. Transport Information

Land transport
USDOT

Not classified as a dangerous good under transport regulations

Sea transport
IMDG

Not classified as a dangerous good under transport regulations

Air transport
IATA/ICAO

Not classified as a dangerous good under transport regulations

15. Regulatory Information

Federal Regulations

Registration status:
Chemical TSCA, US released; restriction on use / listed

TSCA § 5 final Significant New Use Restriction (SNUR)
40 CFR 721.2076

EPCRA 311/312 (Hazard categories): Chronic;

CERCLA RQ	CAS Number	Chemical name
5000 LBS	107-21-1	ethylene glycol
1000 LBS	7664-93-9	Sulfuric acid

State regulations

State RTK	CAS Number	Chemical name
PA	90-43-7	[1,1'-Biphenyl]-2-ol
MA	90-43-7	[1,1'-Biphenyl]-2-ol
NJ	90-43-7	[1,1'-Biphenyl]-2-ol

CA Prop. 65:
WARNING: THIS PRODUCT CONTAINS A CHEMICAL(S) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER AND BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.

NFPA Hazard codes:
Health : 0 Fire: 0 Reactivity: 0 Special:

16. Other Information

SDS Prepared by:
BASF NA Product Regulations
SDS Prepared on: 2015/08/11

We support worldwide Responsible Care® initiatives. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment to Responsible Care is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.

Safety Data Sheet
RHEOMIX 600ES

1. Product and Company Identification

Company
BASF CORPORATION
100 Park Avenue
Florham Park, NJ 07932, USA

24 Hour Emergency Response Information
CHEMTREC: 1-800-424-9300
BASF HOTLINE: 1-800-832-HELP (4357)

2. Hazards Identification

Emergency overview

WARNING:
MAY CAUSE EYE IRRITATION.
May be harmful if absorbed through skin.
CONTAINS MATERIAL WHICH CAN CAUSE CANCER.
Keep container tightly closed.
Avoid ingestion.
Avoid contact with the skin, eyes and clothing.
Wash thoroughly after handling.

State of matter: liquid
Colour: dark brown
Odour: odourless

Potential health effects

Primary routes of exposure:
Routes of entry for solids and liquids include eye and skin contact, ingestion and inhalation. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquified gases.

Acute toxicity:
Ingestion may cause gastrointestinal disturbances. The product has not been tested. The statement has been derived from the properties of the individual components.

Irritation / corrosion:
May cause slight irritation to the eyes. May cause slight irritation to the skin.

Sensitization:
No sensitizing effect.

Chronic toxicity:

Carcinogenicity: Contains a known carcinogen.

Repeated dose toxicity: No reliable data was available concerning repeated dose toxicity.

Reproductive toxicity: The chemical structure does not suggest a specific alert for such an effect. The product has not been tested. The statement has been derived from the properties of the individual components.

Teratogenicity: The chemical structure does not suggest a specific alert for such an effect. The product has not been tested. The statement has been derived from the properties of the individual components.

Potential environmental effects

Aquatic toxicity:
There is a high probability that the product is not acutely harmful to aquatic organisms. At the present state of knowledge, no negative ecological effects are expected.

Bioaccumulation / bioconcentration:
Discharge into the environment must be avoided.

3. Composition / Information on Ingredients

CAS Number	Content (W/W)	Chemical name
61791-31-9	>= 1.0 - <= 5.0 %	Ethanol, 2,2'-iminobis-, N-coco alkyl derivs.
111-42-2	>= 0.1 - <= 1.0 %	2,2'-iminodiethanol

4. First-Aid Measures

General advice:
First aid personnel should pay attention to their own safety. Remove contaminated clothing.

If inhaled:
If difficulties occur after vapour/aerosol has been inhaled, remove to fresh air and seek medical attention.

If on skin:
After contact with skin, wash immediately with plenty of water and soap. If irritation develops, seek medical attention.

If in eyes:
Wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

If swallowed:
Rinse mouth immediately and then drink plenty of water, seek medical attention. Do not induce vomiting unless told to by a poison control center or doctor.

Note to physician

Treatment:	Treat according to symptoms (decontamination, vital functions), no known specific antidote.

5. Fire-Fighting Measures

Flash point:	Non-flammable.
Autoignition:	not applicable
Lower explosion limit:	not applicable

Suitable extinguishing media:
foam, water spray, dry powder, carbon dioxide

Unsuitable extinguishing media for safety reasons:
water jet

Hazards during fire-fighting:
carbon monoxide, carbon dioxide, harmful vapours, nitrogen oxides, fumes/smoke, carbon black

Protective equipment for fire-fighting:
Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

6. Accidental release measures

Personal precautions:
Use personal protective clothing. Do not breathe vapour/aerosol/spray mists. Sources of ignition should be kept well clear. Handle in accordance with good building materials hygiene and safety practice.

Environmental precautions:
Contain contaminated water/firefighting water. Do not discharge into drains/surface waters/groundwater.

Cleanup:
For small amounts: Pick up with inert absorbent material (e.g. sand, earth etc.). Dispose of contaminated material as prescribed.
For large amounts: Pump off product.

7. Handling and Storage

Handling

General advice:
Avoid aerosol formation. Avoid inhalation of mists/vapours. Avoid skin contact. No special measures necessary provided product is used correctly.

Protection against fire and explosion:
No special precautions necessary.

Storage

General advice:
Keep only in the original container in a cool, dry, well-ventilated place away from ignition sources, heat or flame. Store protected against freezing. Protect from direct sunlight.

Temperature tolerance
Protect from temperatures below: 5 °C
The packed product must be protected from temperatures below the indicated one.
Protect from temperatures below: 40 °F
The packed product must be protected from temperatures below the indicated one.

8. Exposure Controls and Personal Protection

Components with workplace control parameters

2,2'-iminodiethanol

ACGIH	TWA value 1 mg/m3 Inhalable fraction and vapor ; Skin Designation Inhalable fraction and vapor ; The substance can be absorbed through the skin.

Personal protective equipment

Respiratory protection:
Wear respiratory protection if ventilation is inadequate. Wear a NIOSH-certified (or equivalent) respirator as necessary.

Hand protection:
Chemical resistant protective gloves

Eye protection:
Safety glasses with side-shields.

Body protection:
Body protection must be chosen based on level of activity and exposure.

General safety and hygiene measures:
In order to prevent contamination while handling, closed working clothes and working gloves should be used. Handle in accordance with good building materials hygiene and safety practice. When using, do not eat, drink or smoke. Hands and/or face should be washed before breaks and at the end of the shift. At the end of the shift the skin should be cleaned and skin-care agents applied. Gloves must be inspected regularly and prior to each use. Replace if necessary (e.g. pinhole leaks).

9. Physical and Chemical Properties

Form:	liquid	
Odour:	odourless	
Colour:	dark brown	
pH value:	approx. 8.0	(20 °C)
Freezing point:	approx. -5 °C	
Boiling point:	approx. 100 °C	
Density:	1.01 g/cm3	(20 °C)
Vapour density:		Heavier than air.
Partitioning coefficient n-octanol/water (log Pow):		not applicable
Solubility in water:		(20 °C) soluble
Other Information:	If necessary, information on other physical and chemical parameters is indicated in this section.	

10. Stability and Reactivity

Conditions to avoid:
See MSDS section 7 - Handling and storage.

Substances to avoid:
strong acids, strong bases, strong oxidizing agents

Hazardous reactions:
The product is stable if stored and handled as prescribed/indicated.

Decomposition products:
carbon oxides, nitrogen oxides, amines

Thermal decomposition:
No decomposition if stored and handled as prescribed/indicated.

Corrosion to metals:
No corrosive effect on metal.

11. Toxicological information

Acute toxicity

Information on: 2,2'-iminodiethanol
Assessment of acute toxicity:
Of moderate toxicity after single ingestion. Virtually nontoxic after a single skin contact. The substance can be absorbed through the skin. Inhalation-risk test (IRT): The inhalation of a highly saturated vapor-air-mixture represents no acute hazard (mortality after an hour or later).

Information on: Ethanol, 2,2'-iminobis-, N-coco alkyl derivs.
Assessment of acute toxicity:
Of moderate toxicity after single ingestion.

Oral:
Type of value: LD50
Species: rat
Value: > 2,000 mg/kg

Irritation / corrosion

Information on: 2,2'-iminodiethanol
Assessment of irritating effects:
Skin contact causes irritation. May cause severe damage to the eyes.

Information on: Ethanol, 2,2'-iminobis-, N-coco alkyl derivs.
Assessment of irritating effects:
Corrosive! Damages skin and eyes. May cause severe damage to the eyes.

Repeated dose toxicity

Information on: 2,2'-iminodiethanol
Assessment of repeated dose toxicity:
Repeated oral exposure may affect certain organs.
The substance may cause damage to the upper respiratory tract even after repeated inhalation, as shown in animal studies.

Carcinogenicity

Information on: 2,2'-iminodiethanol
IARC (International Agency for Research on Cancer) has classified this substance as group 2B (The agent is possibly carcinogenic to humans).

Other Information:

Based on our experience and the information available, no adverse health effects are expected if handled as recommended with suitable precautions for designated uses. The product has not been tested. The statements on toxicology have been derived from the properties of the individual components.

12. Ecological Information

Microorganisms

Toxicity to microorganisms:
bacteria/EC50: 230 mg/l

Other adverse effects:

The product has not been tested. The statements on ecotoxicology have been derived from products of a similar structure and composition. Do not discharge product into the environment without control. Do not discharge substance/product into sewer system.

13. Disposal considerations

Waste disposal of substance:
Do not discharge into drains/surface waters/groundwater. Dispose of in a licensed facility.

Container disposal:
Contaminated packaging should be emptied as far as possible; then it can be passed on for recycling after being thoroughly cleaned.

14. Transport Information

Land transport
USDOT

Not classified as a dangerous good under transport regulations

Sea transport
IMDG

Not classified as a dangerous good under transport regulations

Air transport
IATA/ICAO

Not classified as a dangerous good under transport regulations

15. Regulatory Information

Federal Regulations

Registration status:
Chemical TSCA, US released / listed

OSHA hazard category: IARC 1, 2A or 2B carcinogen; Chronic target organ effects reported

EPCRA 311/312 (Hazard categories): Acute; Chronic

CERCLA RQ	CAS Number	Chemical name
5000 LBS	64-19-7	Acetic acid
100 LBS	50-00-0; 111-42-2	Formaldehyde; 2,2'-iminodiethanol

State regulations

State RTK	CAS Number	Chemical name
MA, NJ, PA	111-42-2	2,2'-iminodiethanol

CA Prop. 65:

THIS PRODUCT CONTAINS A CHEMICAL(S) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER AND BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.

16. Other Information

Suitable for use in industrial sector: cement industry;

HMIS III rating
Health: 1 Flammability: 0 Physical hazard: 0

NFPA and HMIS use a numbering scale ranging from 0 to 4 to indicate the degree of hazard. A value of zero means that the substance possesses essentially no hazard; a rating of four indicates extreme danger. Although similar, the two rating systems are intended for different purposes, and use different criteria. The NFPA system was developed to provide an on-the-spot alert to the hazards of a material, and their severity, to emergency responders. The HMIS system was designed to communicate workplace hazard information to employees who handle hazardous chemicals.

We support worldwide Responsible Care® initiatives. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment to Responsible Care is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.

MSDS Prepared by:
BASF NA Product Regulations
msds@basf.com

MSDS Prepared on: 2012/09/13

END OF DATA SHEET

Safety Data Sheet
MasterCast 750HS also RHEOMIX 750S

1. Product and Company Identification

Company
BASF Canada Inc.
100 Milverton Drive
Mississauga, ON L5R 4H1, CANADA

24 Hour Emergency Response Information
CANUTEC (reverse charges): (613) 996-6666
BASF HOTLINE: (800) 454-COPE (2673)

2. Hazards Identification

Emergency overview

IRRITANT.
Irritating to eyes and skin.
CONTAINS MATERIAL WHICH MAY CAUSE CANCER.

State of matter: liquid
Colour: dark brown
Odour: slight odour

Potential health effects

Acute toxicity:
The product has not been tested. The statement has been derived from the properties of the individual components.

Irritation / corrosion:
The product has not been tested. The statement has been derived from the properties of the individual components.

Potential environmental effects

Aquatic toxicity:
The product has not been tested.

3. Composition / Information on Ingredients

CAS Number	Content (W/W)	Hazardous ingredients
68603-42-9	>= 3.0 - <= 7.0 %	Amides, coco, N,N-bis(hydroxyethyl)
68439-57-6	>= 0.5 - <= 1.5 %	Sulfonic acids, C14-16-alkane hydroxy and C14-16-alkene, sodium salts
111-42-2	>= 0.1 - < 1.0 %	2,2'-iminodiethanol

4. First-Aid Measures

General advice:
First aid personnel should pay attention to their own safety. Remove contaminated clothing.

If inhaled:
If difficulties occur after vapour/aerosol has been inhaled, remove to fresh air and seek medical attention.

If on skin:
After contact with skin, wash immediately with plenty of water and soap. Under no circumstances should organic solvent be used. If irritation develops, seek medical attention.

If in eyes:
Wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

If swallowed:
Rinse mouth immediately with water. Seek medical attention if necessary. Do not induce vomiting unless told to by a poison control center or doctor.

5. Fire-Fighting Measures

Flash point:	Non-flammable.
Autoignition:	Unspecified Based on the water content the product does not ignite.

Suitable extinguishing media:
foam, water spray, dry powder, carbon dioxide

Unsuitable extinguishing media for safety reasons:
water jet

Hazards during fire-fighting:
carbon monoxide, carbon dioxide, harmful vapours, nitrogen oxides, fumes/smoke, carbon black

Protective equipment for fire-fighting:
Wear a self-contained breathing apparatus.

Further information:
The degree of risk is governed by the burning substance and the fire conditions. Contaminated extinguishing water must be disposed of in accordance with official regulations.

6. Accidental release measures

Personal precautions:
Use personal protective clothing. Do not breathe vapour/aerosol/spray mists. Handle in accordance with good building materials hygiene and safety practice.

Environmental precautions:
Contain contaminated water/firefighting water. Do not discharge into drains/surface waters/groundwater.

Cleanup:
For small amounts: Pick up with inert absorbent material (e.g. sand, earth etc.). Dispose of contaminated material as prescribed.
For large amounts: Pump off product.

7. Handling and Storage

Handling

General advice:
Avoid aerosol formation. Avoid inhalation of mists/vapours. Avoid skin contact. No special measures necessary provided product is used correctly.

Protection against fire and explosion:
The product does not contribute to the spreading of flames, nor is it self combustible, not explosive.

Storage

General advice:
Keep only in the original container in a cool, well-ventilated place. Protect from direct sunlight. Store protected against freezing.

Temperature tolerance
Protect from temperatures below: 0 °C
The packed product must be protected from temperatures below the indicated one.

8. Exposure Controls and Personal Protection

Components with occupational exposure limits

2,2'-iminodiethanol

ACGIH TLV	TWA value 1 mg/m3 Inhalable fraction and vapor ; Skin Designation Inhalable fraction and vapor ; The substance can be absorbed through the skin.

Personal protective equipment

Respiratory protection:
When workers are facing concentrations above the occupational exposure limits they must use appropriate certified respirators.

Hand protection:
Wear chemical resistant protective gloves.

Eye protection:
Safety glasses with side-shields.

Body protection:
depending upon conditions of use., Cover as much of the exposed skin as possible to prevent all skin contact., light protective clothing

General safety and hygiene measures:
Avoid contact with the skin, eyes and clothing. In order to prevent contamination while handling, closed working clothes and working gloves should be used. Handle in accordance with good building materials hygiene and safety practice. When using, do not eat, drink or smoke. Hands and/or face should be washed before breaks and at the end of the shift. At the end of the shift the skin should be cleaned and skin-care agents applied. Gloves must be inspected regularly and prior to each use. Replace if necessary (e.g. pinhole leaks).

9. Physical and Chemical Properties

Form:	liquid
Odour:	slight odour
Odour threshold:	No data available.
Colour:	dark brown
pH value:	9.0 - 10.5
Vapour pressure:	not applicable

Density:	1.02 g/cm3	(20 °C)
Relative density:	1.02	
Bulk density:		not applicable
Partitioning coefficient n-octanol/water (log Pow):		No data available.
Solubility in water:		soluble
Other Information:	If necessary, information on other physical and chemical parameters is indicated in this section.	

10. Stability and Reactivity

Conditions to avoid:
Avoid extreme temperatures.

Substances to avoid:
strong acids, strong bases, strong oxidizing agents

Hazardous reactions:
The product is stable if stored and handled as prescribed/indicated.

Decomposition products:
oxides, carbon oxides, nitrogen oxides, amines

Thermal decomposition:
No decomposition if stored and handled as prescribed/indicated.

Oxidizing properties:
Based on its structural properties the product is not classified as oxidizing.

11. Toxicological information

Acute toxicity

Information on: 2,2'-iminodiethanol
Assessment of acute toxicity:
Of moderate toxicity after single ingestion. Virtually nontoxic after a single skin contact. The substance can be absorbed through the skin. Inhalation-risk test (IRT): The inhalation of a highly saturated vapor-air-mixture represents no acute hazard (mortality after an hour or later).

Irritation / corrosion

Information on: 2,2'-iminodiethanol
Assessment of irritating effects:
Skin contact causes irritation. May cause severe damage to the eyes.

Repeated dose toxicity

Information on: 2,2'-iminodiethanol
Assessment of repeated dose toxicity:
Repeated oral exposure may affect certain organs.
The substance may cause damage to the upper respiratory tract after repeated inhalation, as shown in animal studies.

Carcinogenicity

Information on: Amides, coco, N,N-bis(hydroxyethyl)

IARC (International Agency for Research on Cancer) has classified this substance as group 2B (The agent is possibly carcinogenic to humans).
Information on: 2,2'-iminodiethanol
IARC (International Agency for Research on Cancer) has classified this substance as group 2B (The agent is possibly carcinogenic to humans).

Other Information:

The product has not been tested. Avoid exposure.

12. Ecological Information

Other adverse effects:

The product has not been tested. Do not discharge product into the environment without control.

13. Disposal considerations

Waste disposal of substance:
Recommendations: Use excess product in an alternate beneficial application. Dispose of in accordance with local authority regulations. Do not discharge into drains/surface waters/groundwater.

Container disposal:
Contaminated packaging should be emptied as far as possible; then it can be passed on for recycling after being thoroughly cleaned.

14. Transport Information

Land transport
TDG

Not classified as a dangerous good under transport regulations

Sea transport
IMDG

Not classified as a dangerous good under transport regulations

Air transport
IATA/ICAO

Not classified as a dangerous good under transport regulations

15. Regulatory Information

Federal Regulations

Registration status:

Chemical	DSL, CA	released; restriction on quantity / not listed

WHMIS classification: D2A: Materials Causing Other Toxic Effects - Very toxic material

THIS PRODUCT HAS BEEN CLASSIFIED IN ACCORDANCE WITH THE HAZARD CRITERIA OF THE CPR AND THE MSDS CONTAINS ALL THE INFORMATION REQUIRED BY THE CPR.

16. Other Information

We support worldwide Responsible Care® initiatives. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment to Responsible Care is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.

SDS Prepared by:
BASF NA Product Regulations
msds@basf.com
BASF HOTLINE (800) 454 – COPE (2673)

SDS Prepared on: 2013/08/30

END OF DATA SHEET

Material Safety Data Sheet

Press-Seal 27-A Water Dispersible Pipe Joint Lubricant Date of Preparation: August 2000/**Revised 1/2011**

Section 1 - Chemical Product and Company Identification

Product/Chemical Name: Press-Seal 27-A Water Dispersible Pipe Joint Lubricant
Chemical Formula: 88-6R7
Manufacturer: JTM Products, Inc., 31025 Carter Street, Solon, OH 44139, Phone (440) 287-2302, FAX (440) 287-3095 (CHEM-TEL 24-hour emergency: (800) 255-3924)

Section 2 - Composition / Information on Ingredients

Proprietary blend of soap [CAS#61790-44-1], glycol [CAS#57-55-6 and filler [CAS#12001-26-2].
revised January 2011 – D. Barrer

Section 3 - Hazards Identification

☆☆☆☆☆ **Emergency Overview** ☆☆☆☆☆

HMIS	
H	1
F	0
R	0
PPE†	

†Sec. 8

Potential Health Effects

Primary Entry Routes: Not Hazardous
Carcinogenicity: IARC, NTP, and OSHA do not list the ingredients in Press-Seal 27-A Pipe Joint Lubricant as carcinogens.

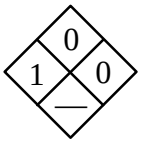
Section 4 - First Aid Measures

Eye Contact: Flush with copious volumes of water for 15 minutes while holding eyelids open.
Skin Contact: Wash with water.
If irritation persists, call a physician.

Section 5 - Fire-Fighting Measures

Flash Point: >220 °F (>104 °C)
Flash Point Method: NA, contains water
Autoignition Temperature: NA
LEL: NA
UEL: NA
Flammability Classification: 0

NFPA



Extinguishing Media: Water, water fog, alcohol foam, carbon dioxide or dry chemical are all suitable.
Unusual Fire or Explosion Hazards: None
Hazardous Combustion Products: None
Fire-Fighting Instructions: Do not release runoff from fire control methods to sewers or waterways.
Fire-Fighting Equipment: Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode.

Section 6 - Accidental Release Measures

Spill /Leak Procedures: This product is a biodegradable soap.
Containment: For large spills, dike far ahead of spill for later disposal.
Cleanup: Place the bulk of any spilled material into drums, then rinse any remaining material to sewage treatment facility, in accordance with any applicable regulations.
Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120).

Section 7 - Handling and Storage

Handling Precautions: No special precautions are required.
Storage Requirements: No special precautions are required.
Regulatory Requirements: No known regulatory requirement for handling and storage.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls:
Ventilation: Provide general or local exhaust ventilation systems.
Administrative Controls:
Respiratory Protection: If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.

Protective Clothing/Equipment: Wear chemically protective gloves to prevent prolonged or repeated skin contact. Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of, or in conjunction with contact lenses.

Safety Stations: Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

Contaminated Equipment: Launder before reuse. Remove this material from your shoes and clean personal protective equipment.

Comments: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Section 9 - Physical and Chemical Properties

Physical State: Paste
Appearance and Odor: amber paste, bland odor
Odor Threshold: NA
Vapor Pressure: NA
Vapor Density (Air=1): NA
Formula Weight: NA (blend)
Density: 8.55 lbs./gal.
Specific Gravity (H_2O=1, at 4 °C): 1.025
pH: 11

Water Solubility: completely water dispersible
Boiling Point: >220 °F
Freezing/Melting Point: <32 °F
Viscosity: viscous paste
Refractive Index: unknown
Surface Tension: unknown
% Volatile: 28 [**Revised January 2011]**
Evaporation Rate: NA

Section 10 - Stability and Reactivity

Stability: Press-Seal 27-A Pipe Joint Lubricant is stable at room temperature in closed containers under normal storage and handling conditions.

Polymerization: Hazardous polymerization will not occur.

Chemical Incompatibilities:

Conditions to Avoid: Avoid contact with strong oxidizing agents. [**Revised January 2011]**

Hazardous Decomposition Products: Thermal oxidative decomposition of Press-Seal 27-A Pipe Joint Lubricant can produce oxides of carbon and nitrogen.

Section 11- Toxicological Information

Toxicity Data:

Eye Effects: Eye irritant [based on blended ingredients].
Skin Effects: Slight skin irritant if allowed to remain in contact.

Section 12 - Ecological Information

Ecotoxicity: **Environmental Fate**
Environmental Transport: Unknown. **Environmental Degradation:** Soaps are well known to be biodegradable.
Soil Absorption/Mobility: Unknown.

Section 13 - Disposal Considerations

Disposal: Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations.

Section 14 - Transport Information

Not hazardous under DOT regulations.

Section 15 - Regulatory Information

EPA Regulations: None apply. All of the components of this material are listed or are exempt from the TSCA inventory.

Section 16 - Other Information

Prepared By: B. Noragon **Approved By:** B. Roll

Disclaimer: JTM PRODUCTS, INC. makes no warranty, expressed or implied, as to the accuracy, completeness, or reliability of information contained herein, except that such information is, to the best of JTM's knowledge and belief, accurate as of the date indicated. It is for the purchaser and/or user to decide whether this information is suitable for his purposes.

Reviewed/Section 2 revised, Section 9 revised and Section 15 revised January 2011 by D. Barrer

1. Product and Company Identification

Product Name **Fly Ash**

Product Type	Class F Fly Ash	**Revision**	1 (to GHS Std)
Product Use	Industrial	**Print Date**	3/10/2015
Manufacturer	The SEFA Group, Inc. 217 Cedar Road Lexington, SC 29017	**Telephone** **Emergency Telephone**	(803) 520-9000 (803) 520-9000

2. Hazards Identification

Classification of the mixture:

This mixture as produced has not been assessed and/or tested for its physical, health, and environmental hazards, but hazards are inferred through similarity to other alumino-silicates and mineralogical materials of similar composition.

Hazard Summary

Physical hazards	Not classified for physical hazards.
Health hazards	Skin irritation, Category 3 Eye irritation, Category 2B Specific Target Organ Toxicant, Repeated Exposure, Category 2
Environmental hazards	Not classified for environmental hazards.
Specific hazards	Not classified for specific hazards.
Main symptoms	Upper respiratory tract irritation. Coughing. Irritation of eyes and mucous membranes. Skin irritation.

Label Elements

Signal Word	Danger
Symbol	Danger
Hazard statements	Causes Mild Skin Irritation Causes Eye Irritation May Cause Respiratory Irritation May Cause Damage to Lungs Through Prolonged Or Repeated Inhalation Exposure

Precautionary Statements

Prevention	Keep container tightly closed. Avoid breathing dust. Wash thoroughly after handling. Use only outdoors or in a well ventilated area.
Response	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical advice/attention. IF INHALED Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER if you feel unwell. If skin irritation occurs: Get medical advice/attention.
Storage	Store in a well-ventilated place. Keep container tightly closed. Store locked up.
Disposal	Dispose of contents/container to reduce the opportunity for airborne exposure in accordance with applicable regulations.

3. Composition / information on ingredients

Ingredient name	Formula/CAS #	ECS #	%	UN GHS (Rev 4) Classification
Alumino-silicate glass				None
Silica, Amorphous	SiO_2 7631-86-9	231-545-4	41.0 - 58.0 %	None
Silica, Crystalline	SiO2 + 1 14808-60-7	--	May be present as a fraction of amorphous silica	Specific target organ toxicity – Repeated exposure, Hazard Category 2
Aluminum Oxide	$Al2O_3$ / 1344-28-1	215-691-6	18.1 - 28.6 %	
Iron Oxide	Fe_2O_3 / 1309-37-1	215-168-2	3.9 - 26.0 %	
Calcium Oxide	CaO / 1305-78-8	215-138-9	0.8 - 6.0 %	
Magnesium Oxide	MgO / 1309-48-4	--	0.7 - 1.4 %	
Titanium Oxide	TiO_2 / 13463-67-7	236-675-5	1.0 - 1.9 %	

4. First Aid measures

General Information If practicing good industrial hygiene practices, no special health hazards are anticipated.

Inhalation Remove person to fresh air. Consult a physician if there is discomfort or difficulty breathing.

Eye Contact Do not rub eyes, flush eyes with water for at least 15 minutes. Consult a physician if there is persistent irritation.

Skin Contact Wash off with soap and water. Consult a physician if there is persistent irritation.

Ingestion Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

Most important symptoms and effects, both acute and delayed Dusts may irritate the respiratory tract, eyes, and skin. Frequent inhalation of dust over a long period of time increases the risk of developing lung disease. Section 11 provides for more detailed information on health effects from individual components of the alumino-silicate structure.

Indication of any immediate medical attention and special treatment needed None known.

Protection of first aid personnel No action should be taken involving any personal risk or without suitable training in first aid and CPR.

Notes to physician No specific treatment. Treat symptomatically.

5. Fire-fighting measures

Suitable extinguishing media Product is noncombustible. Use extinguishing media for surrounding materials.

Extinguishing media which should not be used None known. Consider surrounding materials.

Special exposure hazards None known. No anticipated thermal decomposition products.

5. Fire-fighting measures

Special protective equipment for firefighters. None known. Consider surrounding materials.

6. Accidental release measures

Personal precautions	No action should be taken involving any personal risk or without suitable training. Don appropriate personal protective equipment (if ventilation is inadequate utilize appropriate respiratory protection). Avoid airborne dust generation.
Environmental precautions	Prevent further leaking or spillage if safe to do so. Avoid conditions which result in generating airborne dust.
Methods for cleaning up	Water spray or vacuum cleaner are preferable to dry sweeping for removing spilled material. Minimize generation of airborne dust during clean up activities. If necessary, wear personal protective equipment in accordance with regulatory standards.

7. Handling and storage

Handling

Advice on safe handling	Avoid airborne dust generation. Use ventilation controls if provided. In case of insufficient ventilation, wear suitable respiratory protective equipment.
Technical measures	Minimize airborne dust generation. Provide appropriate exhaust ventilation at places where airborne dust is generated. Keep containers closed.

Storage

Technical measures and storage conditions	Containers need to be protected from physical damage that will lead to spillage and airborne dust generation.
Packaging materials	Use packaging that minimizes the generation of airborne dust when emptying, filling, transporting, or storing packaged FLY ASH.

Specific uses

FLY ASH is intended to be incorporated into solid materials, or blended with other materials in preparation for incorporation into solid materials.

8. Exposure controls/ personal protection

Occupational Exposure Limits

Air Limit Values

Ingredient name	ACGIH 8 hr TLV® (mg/m^3)	ACGIH STEL (15 min) (mg/m^3)	US OSHA 8 Hr PEL (mg/m^3)	Notes
Inert or nuisance dust				
total	10	-	15	US OSHA Table Z-3; ACGIH recommendation for particulate (Chemical substances Appendix B)
respirable	3	-	5	

Occupational exposure limits are as PNOR (Particulate Not Otherwise Regulated) [US OSHA] and Particulate (ACGIH). There are occupational exposure limits for individual oxides which are part of the alumino-silicate matrix of FLY ASH. These oxides are not expected to be present as discrete materials, but instead as part of an amorphous alumino-silicate matrix.

8. Exposure controls/ personal protection

Component name	ACGIH 8 hr TLV® (mg/m^3)	ACGIH STEL (15 min) (mg/m^3)	US OSHA 8 Hr PEL (mg/m^3)	Notes
Aluminum Oxide	1	-	-	Respirable
Calcium Oxide	2	-	5	
Iron Oxide	5	-	10	ACGIH as respirable, OSHA as fume
Magnesium Oxide	10	-	10	
Titanium Oxide	10	-	10	
Silica, amorphous	10	-	-	
Silica, crystalline	0.025		10/(%SiO2 + 2)	Respirable fraction

Biological Limit Values There are no ACGIH Biological Exposure Indices (BEI®) for FLY ASH or components.

DNEL/DMEL Values Not available

PNEC Values Not available

Exposure controls

General Practice good personal hygiene procedures. General room ventilation is normally adequate.

Respiratory protection If there is inadequate ventilation or risk of inhalation of mists or fumes, use suitable respiratory protective equipment in accordance with regulations or professional recommendations.

Eye protection Safety glasses with sideshields, goggles, or face shield with safety glasses or googles.

Skin protection Wear nitrile gloves and work clothing to minimize skin contact.

Environmental Exposure Controls

Contain spills, prevent migration, and observe appropriate regulations for disposal, water emissions, and air emissions.

9. Physical and chemical properties

Appearance

Physical state Solid (powder)

Color Grey to Tan

Odor None

Properties

Flash point	Noncombustible	**Vapor pressure**	Not available
Explosion limits		**Odor threshold**	Not available
Lower:	Not available	**Viscosity**	Not available
Upper:	Not available	**Solubility (water)**	Not available
pH	Not available	**Partition coefficient n-octanol/water**	Not available
Melting point	Not available	**Evaporation rate**	Not available
Boiling point	Not available	**Vapor density**	Not available

9. Physical and chemical properties

Relative density 2.3 – 2.4 **Typical % solids** 100%

10. Stability and reactivity

Conditions to avoid None known

Materials to avoid Strong acids, strong oxidizers

Hazardous decomposition products None known

11. Toxicological information

General information FLY ASH as a mixture has not been evaluated for toxicological effects. Toxicological information for major components are included below.

	Symptoms	Target Organs
Aluminum oxide	Irritation eyes, skin, respiratory system	Eyes, skin, respiratory system
Calcium oxide	Irritation eyes, skin, upper respiratory tract; ulcer, perforation nasal septum; pneumonitis; dermatitis	Eyes, skin, respiratory system
Iron oxide	Benign pneumoconiosis with X-ray shadows indistinguishable for fibrotic pneumoconiosis (siderosis)	Respiratory system
Magnesium oxide	Irritation eyes, nose; metal fume fever: cough, chest pain, flu-like fever	Eyes, respiratory system
Silicon dioxide	(Silica, amorphous) Irritation eyes, pneumoconiosis	Eyes, respiratory system
Silica, crystalline	(As free respirable crystalline silica) Cough, dyspnea (breathing difficulty), wheezing; decreased pulmonary function, progressive respiratory symptoms (silicosis); irritation eyes; [potential occupational carcinogen]	Eyes, respiratory system
Titanium oxide	Lung fibrosis; [potential occupational carcinogen]	Respiratory system

Skin contact FLY ASH as a mixture may irritate skin.

Inhalation FLY ASH as a mixture may irritate respiratory system. Prolonged exposure to crystalline silica may cause cancer.

Eye contact FLY ASH as a mixture may irritate eyes.

CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)

FLY ASH as a mixture has not been tested for carcinogenic, mutagenicity, or toxicity for reproduction. Two components of the alumino-silicate matrix are on the IARC list; Silica dust, crystalline, in the form of quartz or cristabolite (14808-60-7) as Class 1, Carcinogenic to humans (2012); and, Titanium dioxide (13463-67-7) as Class 2B, Possibly carcinogenic to humans (2010). Neither FLY ASH as a mixture nor components of the alumino-silicate matrix are listed for mutagenicity or toxicity for reproduction.

12. Ecological information

Ecotoxicity No data available

Mobility No data available

13. Disposal Considerations

Waste Disposal Cover material to prevent airborne dust and dispose of in a landfill according to federal, state and local regulations for non-hazardous waste.

14. Transportation

DOT Shipping Name:	None	
DOT Hazard Class:	None	
DOT Label(s):	None	
UN/NA Number:	None	
Placards:	None	
IATA:	None	
Marine pollutant	No	No ingredients or components of FLY ASH are listed in 49 CFR Appendix B to 172.101

15. Regulatory information

US Regulations

SARA 302 EHS	No components of FLY ASH are on the EHS list. (40 CFR 302).
SARA 311/312 Classification	Chronic
SARA 313 Supplier Notification	None
TSCA	All components of FLY ASH are on the TSCA list.
California Proposition 65	Titanium dioxide (Airborne, Unbound Particles of Respirable Size)
Massachusetts TURA	No constituents are present above de minimis thresholds.
New Jersey Right to Know	Aluminum Oxide Calcium Oxide (SHHSL – Special Health Hazard Substances List) Iron Oxide Magnesium Oxide Titanium Oxide
Pennsylvania Right to Know	Aluminum Oxide (E – Environmental Hazard) Calcium Oxide Iron Oxide Magnesium Oxide Titanium Oxide

International Regulations

Canada DSL	All components of the alumino-silicate matrix are listed on the Domestic Substances List.
EINECS	All components of the alumino-silicate matrix are listed on the European Inventory of Existing Commercial Chemical Substances list.
REACH	No discrete chemical constituents are on the European Chemicals Agency Candidate List of Substances of Very High Concern for Authorization.

Other

Ozone depleting substances No discrete chemical constituents are on a regulatory list for ozone depleting substances.

16. Other information

EU Classes and Risk Phrases	Xn Harmful R48/20 Harmful: Danger of serious damage to health by prolonged exposure by inhalation. S22 Do not breath dust S38 In case of insufficient ventilation, wear suitable respiratory equipment
Training instructions	There are no special training instructions for the use of FLY ASH. Follow company training instructions, particularly for housekeeping and personal protective equipment use.
Data sources	ACGIH® - American Conference of Governmental Industrial Hygienists TLVs® and BEIs® US OSHA, 29 CFR 1910, Tables Z-1, Z-2, Z-3

Prepared by	The SEFA Group, Inc.
Date of issue	March 1, 2015
Date of printing	3/10/2015
Version	0

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SAFETY DATA SHEET

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product: SEALMASTIC™ TYPES I, II, III
Part Number: 6350055
Manufacturer: W. R. Meadows®, Inc.
Address: 300 Industrial Drive, Hampshire, Illinois 60140
Telephone: (847) 214-2100
In case of emergency, dial (800) 424-9300 (CHEMTREC)
Revision Date: 9/9/2014
Product Use: Dampproofing Product

SECTION 2: HAZARDS IDENTIFICATION/EXPOSURE LIMITS

HMIS	
|Health|	|1|
|Flammability|	|1|
|Reactivity|	|0|
|Personal Protection|	| |

HAZARD STATEMENTS
WARNING!
Causes skin irritation.

PRECAUTIONARY STATEMENTS
Avoid direct contact.

SECTION 3: HAZARDS COMPONENTS

Chemical Name:	CAS Number	% by Weight	SARA 313	Vapor Pressure (mm Hg@20°C)	LEL (@25°C)
1. Petroleum Asphalt	8052-42-4	35-40	No	N/A	N/A
2. Clay	1302-78-9	10-15	No	N/A	N/E

Under the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1966 (SARA) and 40 CFR Part 372, chemicals listed on the 313 List (40 CFR Part 373.65) are identified under the heading "SARA 313." *N/A = Not Applicable*

SECTION 4: EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT: Flush eyes with water for fifteen (15) minutes. If symptoms persist, seek medical attention.
SKIN CONTACT: Wash affected areas with mild soap and water.
INHALATION: Not expected to be an exposure route as supplied. If respiratory symptoms develop, seek medical attention.
INGESTION: Dilute with liquid unless the victim is unconscious or very drowsy. Do not induce vomiting. If vomiting spontaneously occurs, prevent lung aspiration. Seek immediate medical attention.

SECTION 5: FIRE AND EXPLOSIVES HAZARDS

FLASHPOINT: Product will not flash due to water content.
EXTINGUISHING MEDIA: Water fog, foam, dry chemical.
CHEMICAL/COMBUSTION HAZARDS: Oxides and compounds of nitrogen/sulfur, carbon monoxide/dioxide, and incomplete combustion products.
PRECAUTIONS/PERSONAL PROTECTIVE EQUIPMENT: Avoid smoke inhalation. Use appropriate personal protective equipment.

SECTION 6: ACCIDENTAL RELEASE MEASURES

SPILL OR LEAK PROCEDURES: Avoid direct contact. Dike and contain spilled material. Remove source of spill if safe to do so. Apply absorbent and place clean-up material in sealed/marked containers for proper disposal. Clean-up materials will be classified as non-hazardous waste.

SECTION 7: HANDLING AND STORAGE

SAFE HANDLING PROCEDURES: Avoid direct contact.
SAFE STORAGE: Prevent product from freezing.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

	OSHA				ACGIH			
Chemical Name:	PEL	PEL/CEILING	PEL/STEL	SKIN	TLV	TLV/CEILING	TLV/STEL	SKIN
1. Petroleum Asphalt	5 mg/m^3*	N/E	N/E	No	0.5 mg/m^3*	N/E	N/E	N/E
2. Clay	15 mg/m^3+	N/E	N/E	No	10 mg/m^3+	N/E	N/E	N/E

*: Asphalt Fumes +: Total Dust, 5 mg/m^3 Respirable Fraction *N/E: Not Established*

ENGINEERING CONTROLS: None required under normal use conditions.
PERSONAL PROTECTIVE EQUIPMENT: Safety glasses, chemical resistant gloves.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

BOILING POINT: 212 degrees F
VAPOR DENSITY: N/A
% VOLATILE BY VOLUME: N/A
EVAPORATION RATE: <1 (Ether=1)
pH LEVEL: N/A
% VOLATILE BY WEIGHT: 50
WEIGHT PER GALLON: 9.0
PRODUCT APPEARANCE: Black Liquid
VOC CONTENT: 0 g/L

SECTION 10: STABILITY/REACTIVITY

STABILITY: Stable.
HAZARDOUS POLYMERIZATION: Will not occur.
CONDITIONS AND MATERIALS TO AVOID: None recognized.
HAZARDOUS DECOMPOSITION PRODUCTS: None recognized.

SAFETY DATA SHEET

SECTION 11: TOXICOLOGICAL INFORMATION

EYE CONTACT: Direct contact may cause mild irritation.
SKIN CONTACT: Direct contact may cause slight skin irritation. Prolonged/repeated contact may result in irritation.
INHALATION: Not anticipated to be an exposure route.
INGESTION: Not anticipated to be an exposure route.
SIGNS AND SYMPTOMS: Symptoms of eye irritation include tearing, reddening, and swelling. Symptoms of skin irritation include redness and swelling. Gastrointestinal irritation symptoms include nausea, vomiting, and abdominal discomfort. Symptoms of respiratory irritation include runny nose, sore throat, coughing, chest discomfort, shortness of breath, and reduced lung function.
AGGRAVATED MEDICAL CONDITIONS: Pre-existing skin, eye, and respiratory disorders may be aggravated by exposure to this product.
OTHER HEALTH EFFECTS: ACGIH Classifies asphalt as *Not Classifiable as a Human Carcinogen; A4.*

SECTION 12: ECOLOGICAL INFORMATION

ECOTOXICITY: N/E **DEGRADABILITY:** N/E **BIOACCUMULATIVE POTENTIAL:** N/E
SOIL MOBILITY: N/E **OTHER ADVERSE EFFECTS:** None Recognized

SECTION 13: WASTE DISPOSAL INFORMATION

WASTE DISPOSAL INFORMATION: Solidified product can be landfill disposed. No free liquids.

SECTION 14: TRANSPORTATION INFORMATION

HAZARDOUS/NON-HAZARDOUS MATERIAL: Not regulated by DOT.
UN NUMBER: None. **HAZARD CLASS:** N/A **PACKING GROUP:** N/A
UN PROPER SHIPPING NAME: N/A
ENVIRONMENTAL HAZARDS: None recognized.
BULK TRANSPORTATION INFORMATION: None.
SPECIAL PRECAUTIONS: Prevent product from freezing.

SECTION 15: REGULATORY INFORMATION

OTHER REGULATORY CONSIDERATIONS: None recognized.

SECTION 16: OTHER INFORMATION

PREPARATION DATE: 9/9/2014
PREPARED BY: Dave Carey

Meets the Requirements of OSHA Standard 29 CFR 1910.1200 Hazard Communication and EPA Supplier Notification Requirements under Section 313 of the Emergency Planning and Community Right-to-Know Act.

SAFETY DATA SHEET (SDS)

DUCTILE IRON/ COMPACTED GRAPHITE IRON (CGI) CASTINGS

SDS SC-000-042 Rev. 12

DATE ISSUED

10/13

SECTION 1—PRODUCT IDENTIFICATION & COMPANY INFORMATION

PRODUCT NAME

DUCTILE IRON and COMPACTED GRAPHITE IRON (CGI) CASTINGS

OTHER DESIGNATIONS: ASTM (American Society for Testing & Materials) Specification No's., (ACI (Alloy Casting Institute) Alloy Designations—Grades)

ASTM: A395, A536, A476, A874, A897, Compacted Graphite Iron (CGI) A842

PRODUCT IDENTIFICATION (Label Identifier)

DUCTILE IRON PIPE and FITTINGS (Articles)

MANUFACTURER'S NAME United States Pipe and Foundry Company, LLC	**STREET ADDRESS** Two Chase Corporate Drive, Suite 200
EMERGENCY TELEPHONE NO. (205) 254-7601	**MAILING ADDRESS** Two Chase Corporate Drive, Suite 200
TELEPHONE NO. (205) 254-7654	**CITY, STATE, ZIP CODE, COUNTRY** Birmingham, AL 35244
FAX NO. (205) 254-7918	**E-MAIL ADDRESS/WEBSITE** www.uspipe.com

RECOMMENDED USE OF CHEMICAL AND RESTRICTIONS ON USE

Solid casting; no restrictions

SECTION 2—HAZARD IDENTIFICATION

CLASSIFICATION

Castings are metallic articles that do not present hazards in their original form.

OTHER INFORMATION

1. Grinding castings that have not been cleaned or that contain embedded sand may generate significant amounts of dust containing crystalline silica.
2. Fumes from hot processes may contain other compounds with different exposure limits. Dust or fumes generated by machining, grinding, welding or thermal cutting of the casting may produce airborne contaminants. Consult Sections 3 & 8 for further information.

SECTION 3—COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL NAME/COMMON NAME/SYNONYM	Wt %	CAS NUMBER
Carbon (C)	3.0–-4.3	7440-44-0
Chromium (Cr)	0.02–-0.13	7440-47-3
Copper (Cu)	0.01–1.5	7440-50-8
Iron (Fe)	87.7–95.1	7439-89-6
Magnesium (Mg)	0.0001–-0.10	7439-95-4
Manganese (Mn)	<1.2	7439-96-5
Molybdenum (Mo)	0.01–-0.50	7439-98-7
Nickel (Ni)	0.1–-2	7440-02-0
Silicon (Si)	1.8–4	7440-21-3
Tin (Sn)	0.1–0.15	7440-31-5

SECTION 4—FIRST AID MEASURES

EYE CONTACT:	Not applicable
SKIN CONTACT:	No special requirements
INGESTION:	Not applicable
INHALATION	Not applicable

SECTION 5—FIREFIGHTING MEASURES

FLAMMABLE PROPERTIES:	Not applicable
EXTINGUISHING MEDIA:	Not applicable
PROTECTION OF FIREFIGHTERS:	Not applicable

SECTION 6—ACCIDENTAL RELEASE MEASURES

Not applicable

SECTION 7—HANDLING & STORAGE

RECOMMENDED STORAGE

No special requirements

PROCEDURES FOR HANDLING

Proper hand and foot protection is recommended.

SECTION 8—EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS

None Required. There are no health hazards from castings in solid form.

SUBSTANCE	ACGIH TLV mg/m^3	OSHA PEL mg/m^3
Carbon (C)	N/E	N/E
Chromium (Cr)	0.5	1
Copper (Cu)	1	1
Iron (Fe)	N/E	N/E
Magnesium (Mg) oxide	10 (I)	15
Manganese (Mn)	0.02 (R); 0.1 (I)	5 (C)
Molybdenum (Mo) insoluble	10 (I); 3 (R)	15
Nickel (Ni)	1.5 (I)	1
Silicon (Si)		
Total dust	N/E	15
Respirable dust	N/E	5
Tin (Sn)	2	2

SUPPLEMENTAL INFORMATION

Grinding castings that have not been cleaned or that contain embedded sand may generate significant amounts of dust containing crystalline silica.

Fumes from hot processes may contain other compounds with different exposure limits than those listed above. Dust or fumes generated by machining, grinding, welding or thermal cutting of the casting may produce airborne contaminants. Exposure limits for the most common contaminants are offered as reference. Please consult a competent person for guidance on exposure assessment and controls.

In particular, Hexavalent Chromium is an OSHA Expanded Health Standard; refer to OSHA 29 CFR 1910.1026- Chromium (VI) for complete requirements.

SUBSTANCE	ACGIH TLV mg/m^3	OSHA PEL mg/m^3
Chromium Compounds (as Cr)		
Chromium (II) inorganic compounds	N/E	0.5
Chromium (III) inorganic compounds	0.5	0.5
Chromium (VI) inorganic compounds, certain water insoluble	0.01	0.005
Chromium (VI) inorganic compounds, water soluble	0.05	0.005
Chromium (VI) all forms and compounds	N/E	0.005
Copper Compounds (as Cu)		
Fume, as Cu	0.2	0.1
Dusts and mists, as Cu	1	1
Iron Compounds		
Iron oxide (Fe_2O_3) fume	N/E	10
Iron oxide (Fe_2O_3)	5 (R)	N/E
Nickel Compounds (as Ni)		
Insoluble, inorganic compounds	0.2(I)	1
Soluble, inorganic compounds	0.1(I)	1
Nickel oxide	0.2(I)	1
Tin compounds (as Sn)		
Tin Oxide & inorganic compounds, except SnH_4	2	N/E
Inorganic compounds, except oxides, as Sn	N/E	2
Tin Oxides, as Sn	2.0	N/E

TERMS

All exposure limits referenced above are 8 hour time weighted averages (TWA) unless otherwise noted.

N/E = None Established
C = Ceiling
I = Inhalable fraction
R = Respirable fraction
TLV = Threshold Limit Value/American Conference of Industrial Hygienists (ACGIH)
PEL = Permissible Exposure Limit / OSHA
mg/m^3 = milligrams per cubic meter

PERSONAL PROTECTION

Proper hand and foot protection is recommended.

SECTION 9—PHYSICAL & CHEMICAL PROPERTIES

APPEARANCE /PHYSICAL STATE

Solid, silver gray in color

ODOR/ODOR THRESHOLD None	**VAPOR DENSITY** Not applicable
MELTING POINT/FREEZING POINT Approximately 2350°F (1300°C)	**SPECIFIC GRAVITY (relative density)** 7.85 g/cm^3 for iron
BOILING POINT 5000°F (2750°C) for iron	**VAPOR PRESSURE** Not applicable
FLASH POINT Not applicable for solid castings	**EVAPORATION RATE** Not applicable
FLAMMABILITY Not flammable	**SOLUBILITY IN WATER** Insoluble
UPPER AND LOWER FLAMMABILITY LIMITS Not applicable for solid castings	**pH** Not applicable
AUTO IGNITION TEMPERATURE Not applicable	**VISCOSITY** Not applicable

DECOMPOSITION TEMPERATURE	PARTITION COEFFICIENT
Not applicable	Not applicable

SECTION 10—STABILITY & REACTIVITY

CHEMICAL STABILITY
Stable

CONDITIONS TO AVOID
None

REACTIVITY	INCOMPATIBLE MATERIALS
Not reactive	None
HAZARDOUS DECOMPOSITION PRODUCTS	**POSSIBILITY OF HAZARDOUS REACTIONS**
None	Not applicable

SECTION 11—TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

EYE CONTACT:	None
SKIN:	None
INGESTION:	None
INHALATION:	None

Carcinogen Classification of Ingredients

INGREDIENT	OSHA	NTP	IARC	TARGET ORGAN
Nickel (metal)	NL	R	2B	Lung, Nose

TERMS
OSHA—Occupational Safety & Health Administration
Y = Listed as a Human Carcinogen
NTP—National Toxicology Program
K = Known to be a Human Carcinogen
R = Reasonably Anticipated to be a Human Carcinogen (RAHC)
IARC—International Agency for Research on Cancer
1 = Carcinogen to Humans
2A = Probably Carcinogenic to Humans
2B = Possibly Carcinogenic to Humans
3 = Unclassifiable as to Carcinogenicity in Humans
4 = Probably not Carcinogenic to Humans
Other
NL = Not Listed

SECTION 12—ECOLOGICAL INFORMATION

ECOTOXICITY	PERSISTENCE AND DEGRADABILITY
Not applicable	Not applicable
BIOACCUMULATION POTENTIAL	**MOBILITY IN SOIL**
Not applicable	Not applicable

OTHER ADVERSE EFFECTS
Not applicable

SECTION 13—DISPOSAL CONSIDERATIONS

Recover or recycle if possible. Dispose of according to federal, state and local regulations. Dust collected from machining, welding, etc. may be classified as a hazardous waste. Consult federal, state and local regulations.

SECTION 14—TRANSPORT INFORMATION

US DEPARTMENT OF TRANSPORTATION (DOT)-HMR (Hazardous Materials Registration)	CANADIAN TRANSPORTATION OF DANGEROUS GOODS (TDG)
Not Regulated	Not regulated
UN SHIPPING NAME	**UN NUMBER**
Not regulated	Not regulated

TRANSPORT HAZARD CLASS	PACKING GROUP
Not regulated	Not regulated
ENVIRONMENTAL HAZARDS	**LABEL(S) REQUIRED?**
None	No
TRANSPORT IN BULK	**SPECIAL SHIPPING INFORMATION**
Not applicable	Not applicable

SECTION 15—REGULATORY INFORMATION

US-OSHA (Hazard Communication Standard)

Reference 29 CFR 1910.1200 and 1910.1000. A finished casting is an article as defined in the OSHA Hazard Communication Standard 29CFR 1910.1200 (c). Dust or fumes generated by cleaning, machining, grinding, or welding of the casting may produce airborne contaminants, such as chromium, copper, iron, magnesium, manganese, nickel, tin, silcon and silica. For hexavalent chromium references see 29 CFR 1910.1026.

US-EPA (Toxic Substances Control Act–TSCA)

All components of these products are on the TSCA inventory list or are excluded from listing.

US-EPA (SARA Title III)

Releases to the environment of **Chromium, Copper, Manganese and Nickel**, may be subject to reporting under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

CANADA-WHMIS (Workplace Hazardous Materials Information System)

This SDS has been prepared according to the hazard criteria of the Controlled Product Regulations (CPR) and the SDS contains the information required by the CPR.

CANADA DSL (Domestic Substances List) Inventory Status

All components of these products are on the DSL Inventory.

CEPA (Canadian Environmental Protection Act)

Chromium and Nickel are on the CEPA Priorities Substances Lists

EINECS No. (European Inventory of Existing Commercial Chemical Substances)

All components of these products are on the EINECS list.

RoHS (Restriction of Certain Hazardous Substances) Compliance

Castings comply with RoHS

CALIFORNIA PROPOSITION 65 Compliance

WARNING: This product contains or produces chemicals known to the State of California to cause cancer and birth defects (or other reproductive harm). (California Health & Safety Code 25248.5 et seq.)

US STATE REGULATORY INFORMATION

Some of the components listed in Section 3 may be covered under specific state regulations.

SECTION 16 — OTHER INFORMATION

SDS SHEET PREPARED BY	DATE
American Foundry Society, Inc. Occupational Safety & Health Committee (10-Q)	**10/13**

NOTE

This data and label information is offered in good faith as typical values and not as a product specification. No warranty either expressed or implied is hereby made. The recommended industrial hygiene and safe handling procedures are believed to be generally applicable. However, each user should review the recommendations in specific context of the intended use and determine if they are appropriate.

Addendum: Label Information

PRODUCT IDENTIFIER

SC-000-042 Rev. 12

DUCTILE IRON/COMPACTED GRAPHITE IRON (CGI) CASTINGS

SUPPLIER IDENTIFICATION

Company Name United States Pipe & Foundry

Street Address Two Chase Corp. Drive

Mailing Address Suite 200

City Birmingham State AL

Zip/Postal Code 35244 Country USA

Emergency Phone Number (205) 254-7601

Other Info

HAZARD PICTOGRAMS

None*

SIGNAL WORD

None*

PRECAUTIONARY STATEMENTS

None*

HAZARD STATEMENTS

None*

*Castings do not present hazards in their original form.

OTHER INFORMATION

1. Grinding castings that have not been cleaned or that contain embedded sand may generate significant amounts of dust containing crystalline silica.
2. Fumes from hot processes may contain other compounds with different exposure limits. Dust or fumes generated by machining, grinding, welding or thermal cutting of the casting may produce airborne contaminants. Consult Sections 3 & 8 of the SDS for further information.

CONTENTS

*Indicates MSDS

92A

MATERIAL SAFETY DATA SHEET

ACME AUTOMOTIVE FINISHES
101 PROSPECT AVE. N.W.
CLEVELAND, OH 44115

EMERGENCY TELEPHONE NO.
(216) 566-2917
INFORMATION TELEPHONE NO.
(216) 566-2902

DATE OF PREPARATION
1 - Oct - 92

Automotive Finishes

Spray Paints - 3

7500/A3

						Acrylic Lacquer				*Acrylic Lacquer*				*Bumper*			
—SECTION II— CAS No.	HAZARDOUS INGREDIENT (percent by weight)	ACGIH TLV <STEL>	OSHA PEL <STEL>	Units	Vapor Pressure (mm Hg)	7536 Gloss Black	7537 Semi-Gloss Black	7538 Flat Black	7539 Gloss White	7540 Flat White	7541 Aluminum	7542 Clear	7543 Red	7550 Black	7551 Gray	7552 Chrome	7553 Gold
74-98-6	Propane (Propellant)		1000	PPM	760.0	15	15	9	15	14	14	15	22	15	15	15	15
75-28-5	2 Methylpropane (Propellant)	Not Established			760.0			9		14		15		15	15	15	15
64742-89-8	Lt. Aliphatic HC Solvent.	100	100	PPM	53.0						5						
64742-48-9	V. M & P. Naphtha	300	300 <400>	PPM	12.0	5			5								
108-88-3 §	Toluene.	50	100 <150>	PPM (Skin)	22.0	3		5	2	14	5	39	4	28	35		
100-41-4 §	Ethylbenzene.	100 <125>	100 <125>	PPM	7.1					2						1	1
1330-20-7 §	Xylene.	100 <150>	100 <150>	PPM	5.9	1		4	1	12	2		3		4	8	8
67-56-1 §	Methanol	200 <250>	200 <250>	PPM (Skin)	92.0	1											
64-17-5	Ethanol	1000	1000	PPM	44.0				1								
67-63-0 §	2-Propanol	400 <500>	400 <500>	PPM	33.0	1		5	2				3				
71-36-3 §	1-Butanol	C50	C50	PPM (Skin)	5.8			5									
78-83-1	2-Methyl-1-Propanol	50	50	PPM	8.7	2	4				5		1				
123-42-2	Diacetone Alcohol	50	50	PPM	0.8									2			
111-76-2 §	2-Butoxyethanol	25	25	PPM (Skin)	0.8				1								
67-64-1 §	Acetone	750 <1000>	750 <1000>	PPM	180.0	49	47	42	48	25	47	18	47	23	20	50	50
78-93-3 §	Methyl Ethyl Ketone.	200 <300>	200 <300>	PPM	70.0	1	2		2		5		6	3			
108-10-1 §	Methyl Isobutyl Ketone.	50 <75>	50 <75>	PPM	16.0			5									
763-69-9	Ethyl 3-Ethoxypropionate.	Not Established			1.1	6	7	5	7		5	2	7			5	5
123-86-4	n-Butyl Acetate	150 <200>	150 <200>	PPM	10.0								6				
110-98-6	Isobutyl Acetate.	150	150	PPM	12.6	3	9	5	3		5						
628-63-7	Amyl Acetate.	100	100	PPM	4.0										5		
14807-96-6	Talc	2	2	Mg/M3	as Resp. Dust		4	6		5							
13463-67-7	Titanium Dioxide.	10	10[S]	Mg/M3	as Dust (Resp. Fraction)				3	5							
	HMIS® (NFPA) Rating (health - fire - reactivity)					3 4 0	2 4 0	2 4 0	2 4 0	2 4 0	2 4 0	2 4 0	2 4 0	2 4 0	2 4 0	2 4 0	2 4 0
	PAINT-SAFE® Personal Protection					J3	J3	J3	J3	J3	J3	J3	J3	J3	J3	J3	J3

§ Ingredient subject to the reporting requirements of the Superfund Amendments and Reauthorization Act (SARA) Section 313, 40 CFR 372.65 C

Section III — PHYSICAL DATA

PRODUCT WEIGHT –	Not Applicable	*EVAPORATION RATE* –	Faster than Ether
SPECIFIC GRAVITY –	Not Applicable	*VAPOR DENSITY* –	Heavier than Air
BOILING RANGE –	<0-395 °F	*MELTING POINT* –	N.A.
VOLATILE VOLUME –	>75 %	*SOLUBILITY IN WATER* –	N.A.

Section IV — FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATION *FLASH POINT* <0 °F *LEL* 0.5 *UEL* 12.8
RED LABEL – Extremely Flammable. Flash below 21 °F
EXTINGUISHING MEDIA
Carbon Dioxide, Dry Chemical, Foam
UNUSUAL FIRE AND EXPLOSION HAZARDS
Keep containers tightly closed. Isolate from heat, electrical equipment, sparks, and open flame. Closed containers may explode when exposed to extreme heat. Application to hot surfaces requires special precautions. During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.
SPECIAL FIRE FIGHTING PROCEDURES
Full protective equipment including self-contained breathing apparatus should be used. Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

Section V — HEALTH HAZARD DATA

ROUTES OF EXPOSURE
Exposure may be by INHALATION and/or SKIN or EYE contact, depending on conditions of use. To minimize exposure, follow recommendations for proper use, ventilation, and personal protective equipment.
ACUTE Health Hazards
EFFECTS OF OVEREXPOSURE
Irritation of eyes, skin and respiratory system. May cause nervous system depression. Extreme overexposure may result in unconsciousness and possibly death.
7582 School Bus Yellow and 7611 Chevy Orange contain Lead (See TABLE and PRODUCT LABEL). Acute occupational exposure to Lead is uncommon, but results in symptoms similar to chronic overexposure described below.
SIGNS AND SYMPTOMS OF OVEREXPOSURE
Headache, dizziness, nausea, and loss of coordination are indications of excessive exposure to vapors or spray mists.
Redness and itching or burning sensation may indicate eye or excessive skin exposure.
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE
None generally recognized.
EMERGENCY AND FIRST AID PROCEDURES
If INHALED: If any breathing problems occur during use, LEAVE THE AREA and get fresh air. If problems remain or occur later, IMMEDIATELY get medical attention.
If on SKIN: Wash affected area thoroughly with soap and water. Remove contaminated clothing and launder before re-use.
If in EYES: Flush eyes with large amounts of water for 15 minutes. Get medical attention.
IF SWALLOWED: Get medical attention.
CHRONIC Health Hazards
7582 School Bus Yellow and 7611 Chevy Orange contain Lead and/or Chromate (See TABLE and PRODUCT LABEL). 7500 KWIK-SLIKⓇ Gray contains Chromate.
Chronic overexposure to Lead may result in damage to the blood-forming, nervous, urinary, and reproductive systems (including embryotoxic effects). Symptoms include abdominal discomfort or pain, constipation, loss of appetite, metallic taste, nausea, insomnia, nervous irritability, weakness, muscle and joint pains, headache and dizziness.
Chromates are listed by IARC and NTP. Although studies have associated exposure to Chromium VI compounds with an increased risk of respiratory cancer, available evidence indicates that Lead Chromate (Chrome Yellow, Molybdate Orange) DOES NOT present this hazard.
Prolonged overexposure to solvent ingredients in Section II may cause adverse effects to the liver, urinary, blood forming, cardio-vascular, and reproductive systems.
Methyl Ethyl Ketone may increase the nervous system effects of other solvents.
Prolonged and repeated exposure to Hexane in 7557 Plastic Primer and 7630 & 7631 Fluorescent Colors may cause damage to nerve tissue of the arms and legs (peripheral neuropathy), resulting in muscular weakness and loss of sensation. This effect may be increased by the presence of Methyl Ethyl Ketone.
Rats exposed to titanium dioxide dust at 250 mg./m3 developed lung cancer, however, such exposure levels are not attainable in the workplace.
Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage.

Section VI — REACTIVITY DATA

STABILITY – Stable
INCOMPATIBILITY
None known.
HAZARDOUS DECOMPOSITION PRODUCTS
By fire: Carbon Dioxide, Carbon Monoxide, Oxides of Metals in Section II
HAZARDOUS POLYMERIZATION – Will Not Occur

Section VII — SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Remove all sources of ignition. Ventilate and remove with inert absorbent.
WASTE DISPOSAL METHOD
Waste from this product may be hazardous as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261. Waste must be tested for ignitability to determine the applicable EPA hazardous waste numbers. Waste from 7500 KWIK-SLIKⓇ Gray, 7582 School Bus Yellow, and 7611 Chevy Orange (contains Lead and/or Chromium) must be tested for extractability. Waste from products containing Methyl Ethyl Ketone may also require testing for extractability.
Do not incinerate. Depressurize container. Dispose of in accordance with Federal, State, and Local regulations regarding pollution.

Section VIII — PROTECTION INFORMATION

PRECAUTIONS TO BE TAKEN IN USE
7582 School Bus Yellow and 7611 Chevy Orange contain Lead (See TABLE and PRODUCT LABEL). Before initial use of Lead-containing colors, consult OSHA's Standard for Occupational Exposure to Lead (29 CFR 1910.1025).
Use only with adequate ventilation. Avoid breathing vapor and spray mist. Avoid contact with skin and eyes. Wash hands after using.
This coating may contain materials classified as nuisance particulates (listed "as Dust" in Section II) which may be present at hazardous levels only during sanding or abrading of the dried film. If no specific dusts are listed in Section II, the applicable limits for nuisance dusts are ACGIH TLV 10 mg./m3 (total dust), OSHA PEL 15 mg./m3 (total dust), 5 mg./m3 (respirable fraction).
VENTILATION
Local exhaust preferable. General exhaust acceptable if the exposure to materials in Section II is maintained below applicable exposure limits. Refer to OSHA Standards 1910.94, 1910.107, 1910.108.
RESPIRATORY PROTECTION
If personal exposure cannot be controlled below applicable limits by ventilation wear a properly fitted organic vapor/particulate respirator approved by NIOSH/MSHA for protection against materials in Section II.
When sanding, wirebrushing, abrading, burning, or welding the dried film, wear a particulate respirator approved by NIOSH/MSHA for protection against non-volatile materials in Section II.
PROTECTIVE GLOVES
Wear gloves which are recommended by glove supplier for protection against materials in Section II.
EYE PROTECTION
Wear safety spectacles with unperforated sideshields.

Section IX — PRECAUTIONS

DOL STORAGE CATEGORY – 1A
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
Contents are EXTREMELY FLAMMABLE. Keep away from heat, sparks, and open flame.
During use and until all vapors are gone: Keep area ventilated - Do not smoke - Extinguish all flames, pilot lights, and heaters - Turn off stoves, electric tools and appliances, and any other sources of ignition.
Consult NFPA Code. Use approved Bonding and Grounding procedures.
Contents under pressure. Do not puncture, incinerate, or expose to temperature above 120 °F. Heat from sunlight, radiators, stoves, hot water, and other heat sources could cause container to burst. Do not take internally. Keep out of the reach of children.
OTHER PRECAUTIONS
7582 School Bus Yellow and 7611 Chevy Orange contain Lead (See TABLE and PRODUCT LABEL). Do not apply Lead-containing colors on toys or other children's articles, furniture, or any interior surface of a dwelling or facility which may be occupied or used by children. Do not apply on any exterior surface of dwelling units, such as window sills, porches, stairs, or railings to which children may be commonly exposed.
Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal.
The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.

Safety Data Sheet
acc. to OSHA HCS

Printing date 09/25/2014 Revised On 09/25/2014

1 Identification of the substance and manufacturer

Trade name: **MRO SAFETY BLUE (GALLONS)**

Product code: 0000011427
Product category PC9a Paints and coatings.
Manufacturer/Supplier: Seymour of Sycamore
917 Crosby Avenue
Sycamore, IL 60178
Phone: 815-895-9101 www.seymourpaint.com
Emergency telephone number: CHEMTEL 1-800-255-3924, 813-248-0585 *if located outside the U.S.*

2 Hazard(s) identification

Classification of the substance or mixture
Flam. Liq. 2 H225 Highly flammable liquid and vapor.
STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.
Eye Irrit. 2A H319 Causes serious eye irritation.

GHS Hazard pictograms

GHS02 GHS07 GHS08

Signal word Danger
Hazard statements
Highly flammable liquid and vapor.
Causes serious eye irritation.
May cause damage to organs through prolonged or repeated exposure.

Precautionary statements
If medical advice is needed, have product container or label at hand.
Keep out of reach of children.
Read label before use.
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Wash hands thoroughly after handling.
Keep container tightly closed.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting/equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Wear protective gloves/protective clothing/eye protection/face protection.
Do not breathe dust/fume/gas/mist/vapours/spray.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
In case of fire: Use for extinction: CO2, powder or water spray.
If eye irritation persists: Get medical advice/attention.
Get medical advice/attention if you feel unwell.
Store in a well-ventilated place. Keep cool.
Dispose of contents/container in accordance with local/regional/national/international regulations.

3 Composition/information on ingredients

Chemical Description: This product is a mixture of the substances listed below with nonhazardous additions.

Dangerous components:		
64742-47-8	Mineral Spirits	20.53%
7727-43-7	barium sulphate, natural	15.56%
13463-67-7	titanium dioxide	7.01%
108-65-6	PM acetate	2.07%
1330-20-7	xylene (mix)	1.18%
64742-48-9	Naphtha (petroleum), hydrotreated heavy	1.08%

4 First-aid measures

After skin contact: Remove contaminated clothing. Wash exposed area with soap and water.
After eye contact: Rinse opened eye for several minutes under running water.
After swallowing: Rinse out mouth and then drink plenty of water.
Rinse mouth with water. Do not induce vomiting.

Most important symptoms and effects: No further relevant information available.
Indication of any immediate medical attention needed: No further relevant information available.

5 Fire-fighting measures

Special hazards: No further relevant information available.

(Contd. on page 2)

Safety Data Sheet
acc. to OSHA HCS

Trade name: MRO SAFETY BLUE (GALLONS)

(Contd. of page 1)

Protective equipment for firefighters: No special measures required.

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures: Wear protective equipment. Keep unprotected persons away.

Methods and material for containment and cleaning up: Ensure adequate ventilation.
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

7 Handling and storage

Precautions for safe handling Use only in well ventilated areas.

Storage requirements: Keep away from sources of heat and direct sunlight. Do not warehouse in subfreezing conditions.
Store locked up.

8 Exposure controls/personal protection

Components with limit values that require monitoring at the workplace:

7727-43-7 barium sulphate, natural

PEL (USA)	Long-term value: 15* 5** mg/m³ *total dust **respirable fraction
REL (USA)	Long-term value: 10* 5** mg/m³ *total dust **respirable fraction
TLV (USA)	Long-term value: 5* mg/m³ *inhalable fraction; E

108-65-6 PM acetate

WEEL (USA)	Long-term value: 50 ppm

1330-20-7 xylene (mix)

PEL (USA)	Long-term value: 435 mg/m³, 100 ppm
REL (USA)	Short-term value: 655 mg/m³, 150 ppm Long-term value: 435 mg/m³, 100 ppm
TLV (USA)	Short-term value: 651 mg/m³, 150 ppm Long-term value: 434 mg/m³, 100 ppm BEI

Ingredients with biological limit values:

1330-20-7 xylene (mix)

BEI (USA)	1.5 g/g creatinine Medium: urine Time: end of shift Parameter: Methylhippuric acids

Hygienic protection: Keep away from foodstuffs and animal feed. Wash hands after use.
Wash hands after use.
Do not eat or drink while working.

Breathing equipment: Not required.

Hand protection: Protective gloves. The glove material must be impermeable and resistant to the substance.

Eye protection: Tightly sealed goggles

9 Physical and chemical properties

Appearance: Liquid.

Odor threshold: Not determined.

pH-value: Not determined.

Melting point/Melting range Undetermined.

Boiling point: 175 °C (347 °F)

Flash point: -19 °C (-2 °F)

Flammability (solid, gas): Highly flammable.

Decomposition temperature: Not determined.

Auto igniting: Product is not self-igniting.

Danger of explosion: In use, may form flammable/explosive vapour-air mixture.

Lower Explosion Limit: 0.5 Vol %

Upper Explosion Limit: 6.5 Vol %

Vapor pressure: Not determined.

Vapour density Not determined.

Evaporation rate Not determined.

Partition coefficient: n-octonal/water: Not determined.

(Contd. on page 3)

Safety Data Sheet
acc. to OSHA HCS

Printing date 09/25/2014 Revised On 09/25/2014

Trade name: MRO SAFETY BLUE (GALLONS)

(Contd. of page 2)

Solubility: Not determined.
Viscosity: Not determined.

VOC content: 304.4 g/l / 2.54 lb/gl
VOC content (less exempt solvents): 26.2 %
MIR Value: 0.00

Solids content: 72.6 %

10 Stability and reactivity

Conditions to avoid: No decomposition if used according to specifications.
Possibility of hazardous reactions: No dangerous reactions known.
Incompatible materials: No further relevant information available.
Hazardous decomposition: No dangerous decomposition products known.

11 Toxicological information

LD/LC50 values that are relevant for classification:

13463-67-7 titanium dioxide		
Oral	LD50	>20000 mg/kg (rat)
Dermal	LD50	>10000 mg/kg (rbt)
Inhalative	LC50/4 h	>6.82 mg/l (rat)
108-65-6 PM acetate		
Oral	LD50	8500 mg/kg (rat)
Inhalative	LC50/4 h	35.7 mg/l (rat)
1330-20-7 xylene (mix)		
Oral	LD50	8700 mg/kg (rat)
Dermal	LD50	2000 mg/kg (rbt)
Inhalative	LC50/4 h	6350 mg/l (rat)
64742-48-9 Naphtha (petroleum), hydrotreated heavy		
Oral	LD50	>5000 mg/kg (rat)
Dermal	LD50	>3000 mg/kg (rab)

Information on toxicological effects: No data available.
Sensitization: No sensitizing effects known.

Carcinogenic categories

IARC (International Agency for Research on Cancer)		
13463-67-7	titanium dioxide	2B
1330-20-7	xylene (mix)	3

NTP (National Toxicology Program)
None of the ingredients is listed.

OSHA-Ca (Occupational Safety & Health Administration)
None of the ingredients is listed.

12 Ecological information

Aquatic toxicity: Hazardous for water, do not empty into drains.
Persistence and degradability: The product is degradable after prolonged exposure to natural weathering processes.
Bioaccumulative potential: No further relevant information available.
Mobility in soil: No further relevant information available.
Other adverse effects: No further relevant information available.

13 Disposal considerations

Dispose of in accordance with local, state, and federal regulations. Do not puncture, incinerate, or compact. Partially empty cans must be disposed of responsibly. Do not heat or cut empty containers with electric or gas torches.
Recommendation: Completely empty cans should be recycled.

14 Transport information

UN-Number UN1263
DOT Paint
ADR 1263 Paint
Transport hazard class(es):
Class 3 Flammable liquids
Marine pollutant: No
Special precautions for user: Warning: Flammable liquids
EMS Number: F-E,S-E
Packaging Group: II

(Contd. on page 4)

Safety Data Sheet
acc. to OSHA HCS

Printing date 09/25/2014 Revised On 09/25/2014

Trade name: MRO SAFETY BLUE (GALLONS)

(Contd. of page 3)

UN "Model Regulation": UN1263, Paint, 3, II

15 Regulatory information

SARA Section 355 (extremely hazardous substances):

None of the ingredients in this product are listed.

SARA Section 313 (Specific toxic chemical listings):

7727-43-7	barium sulphate, natural
1330-20-7	xylene (mix)

CPSC: This product complies with 16 CFR 1303 and does not contain more than 90 ppm of lead.

California Proposition 65 chemicals known to cause cancer:

13463-67-7	titanium dioxide
100-41-4	ethyl benzene

EPA:

7727-43-7	barium sulphate, natural	D, CBD(inh), NL(oral)
1330-20-7	xylene (mix)	I

16 Other information

Contact: Regulatory Affairs

SAFETY DATA SHEET

Special Naphtholite 66/3

Section 1. Identification

GHS product identifier : Special Naphtholite 66/3

Chemical name : Naphtha (petroleum), hydrotreated light

Synonyms : Low boiling point hydrogen treated naphtha; Hydrotreated light straight run (petroleum); Naphtha, petroleum, hydrotreated light; Hydrotreated light, straight run, petroleum

Material uses : Hydrocarbon Solvent

Code

MSDS # :

Supplier's details : Sunnyside Corporation
225 Carpenter Avenue
Wheeling, IL 60090

Emergency telephone number : Technical Contact: (847) 541-5700
(8am - 4pm CT M-F)
CHEMTREC Emergency:
(800) 424-9300 (United States Only)

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : FLAMMABLE LIQUIDS - Category 2
ACUTE TOXICITY: INHALATION - Category 4
SKIN CORROSION/IRRITATION - Category 2
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2B
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) [Narcotic effects] - Category 3
ASPIRATION HAZARD - Category 1

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : Highly flammable liquid and vapor.
Harmful if inhaled.
Causes skin and eye irritation.
May be fatal if swallowed and enters airways.
May cause drowsiness and dizziness.

Precautionary statements

Prevention : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Wear protective gloves. Wear eye or face protection. Keep away from heat, sparks, open flames and hot surfaces. - No smoking. Use explosion-proof electrical, ventilating, lighting and all material-handling equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Keep container tightly closed. Use only outdoors or in a well-ventilated area. Avoid breathing vapor. Wash hands thoroughly after handling.

Section 2. Hazards identification

Response : IF exposed or concerned: Get medical attention. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or physician if you feel unwell. IF SWALLOWED: Immediately call a POISON CENTER or physician. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing. If skin irritation occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.

Storage : Store locked up. Store in a well-ventilated place. Keep cool.

Disposal : Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazards not otherwise classified : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Substance

Chemical name : Naphtha (petroleum), hydrotreated light

Other means of identification : Low boiling point hydrogen treated naphtha; Hydrotreated light straight run (petroleum); Naphtha, petroleum, hydrotreated light; Hydrotreated light, straight run, petroleum

CAS number/other identifiers

CAS number : 64742-49-0

Ingredient name	%	CAS number
C9-C15 Alkanes	30 - 60	**
C9-C15 Cycloalkanes	10 - 30	**
C7-C8 Cycloalkanes	10 - 30	**
C7-C8 Alkanes	7 - 13	**

* = Various ** = Mixture *** = Proprietary

Any concentration shown as a range is to protect confidentiality or is due to process variation.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that gas or vapor is still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Section 4. First aid measures

Ingestion : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Aspiration hazard if swallowed. Can enter lungs and cause damage. Do not induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : Harmful if inhaled. Can cause central nervous system (CNS) depression. May cause drowsiness and dizziness.

Skin contact : Causes skin irritation.

Ingestion : Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways. Irritating to mouth, throat and stomach.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation : Adverse symptoms may include the following:
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness

Skin contact : Adverse symptoms may include the following:
irritation
redness

Ingestion : Adverse symptoms may include the following:
nausea or vomiting

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : If ingested, this material presents a significant aspiration and chemical pneumonitis hazard. Induction of emesis is not recommended. Consider activated charcoal and/or gastric lavage. If patient is obtunded, protect the airway by cuffed endotracheal intubation or by placement of the body in a Trendelenburg and left lateral decubitus position.

Specific treatments : Treat symptomatically and supportively.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that gas or vapor is still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Specific hazards arising from the chemical : Highly flammable liquid and vapor. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.

Extinguishing media

Section 5. Fire-fighting measures

Suitable extinguishing media : Use dry chemical, CO_2, water spray (fog) or foam.

Unsuitable extinguishing media : Do not use water jet.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not swallow. Avoid breathing vapor or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary

Section 7. Handling and storage

measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container. Non equilibrium conditions may increase the fire hazard associated with this product. Always bond receiving containers to the fill pipe before and during loading. Always confirm that receiving container is properly grounded. Bonding and grounding alone may be inadequate to eliminate fire and explosion hazards. Carefully review operations that may increase the risks such as tank and container filling, tank cleaning, sampling, gauging, loading, filtering, mixing, agitation, etc. In addition to bonding and grounding, efforts to mitigate the hazards may include, but are not limited to, ventilation, inerting and/or reduction of transfer velocities. Always keep nozzle in contact with the container throughout the loading process. Do NOT fill any portable container in or on a vehicle.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Bulk Storage Conditions: Maintain all storage tanks in accordance with applicable regulations. Use necessary controls to monitor tank inventories. Inspect all storage tanks on a periodic basis. Test tanks and associated piping for tightness. Maintain the automatic leak detection devices to assure proper working condition.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
C9-C15 Cycloalkanes C7-C8 Alkanes	**ACGIH TLV (United States).** TWA: 400 ppm 8 hours. Form: Methylcyclohexane **ACGIH TLV (United States).** TWA: 1500 mg/m³
Special Naphtholite 66/3	**ACGIH TLV (United States)** 247 ppm (1200 mg/m³) 8 hour(s) Notes: The TLV for the hydrocarbon solvent is based on the procedure described in Appendix H ("Reciprocal Calculations Method for Certain Refined Hydrocarbon Solvent Vapors") of the ACGIH TLVs ® and BEIs® guidelines. The GGVmixture (ACGIH TLV) is based on Column B (McKee et al., 2005) of Table 1 ("Group Guidance Values") of Appendix H.

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, vapor controls, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Section 8. Exposure controls/personal protection

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety glasses equipped with side shields are recommended as minimum protection in industrial settings. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: Splash goggles. Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. chemical splash goggles. If inhalation hazards exist, a full-face respirator may be required instead.

Skin protection

Hand protection : Chemical-resistant gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Use a properly fitted, air-purifying or supplied-air respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Physical state : Liquid.

Color : Transparent, colorless.

Odor : Characteristic hydrocarbon solvent odor.

pH : Not available.

Boiling point/boiling range : 129 to 144°C (264.2 to 291.2°F)

Flash point : Closed cup: 20.5°C (68.9°F) [Tagliabue.]

Evaporation rate : 1 (butyl acetate = 1)

Lower and upper explosive (flammable) limits : Lower: 0.9%
Upper: 6.7%

Vapor pressure : 1.5 kPa (11 mm Hg) [room temperature]

Vapor density : 4 [Air = 1]

Relative density : 0.76

Density lbs/gal : Estimated 6.34 lbs/gal

Gravity, °API : Estimated 55 @ 60 F

Solubility : Very slightly soluble in the following materials: cold water.

Auto-ignition temperature : 246°C (474.8°F)

Viscosity : Kinematic (room temperature): <0.01 cm^2/s (<1 cSt)

Viscosity SUS : <1 SUS @100 F

Conductivity : <50 picosiemens/meter (unadditized)

Section 10. Stability and reactivity

Reactivity : Not expected to be Explosive, Self-Reactive, Self-Heating, or an Organic Peroxide under US GHS Definition(s).

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas.

Incompatible materials : Reactive or incompatible with the following materials:
oxidizing materials

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Conclusion/Summary : **C9-C15 Alkanes**: In animal studies utilizing mineral spirits containing up to 22% aromatics indicated that the acute central nervous system effects are reversible. Based on existing animal studies, the potential for persistent effects is not clear.

Irritation/Corrosion

Skin : **C9-C15 Alkanes**: Primary dermal irritation studies (four hour exposure) in rabbits utilizing mineral spirits containing less than 2% aromatics resulted in slight to moderate skin irritation. In humans, mineral spirits have produced slight to moderate skin irritation particularly with evaporation from the skin is prevented.

Eyes : No additional information.

Respiratory : **C9-C15 Alkanes**: Animal studies have demonstrated that mineral spirits produced mild respiratory tract irritation at elevated concentrations. Also, sensory respiratory tract irritation was evident by reduced breathing rates in the test animals in certain studies.

Sensitization

Skin : **C9-C15 Alkanes**: In animal studies utilizing mineral spirits containing up to 18%, aromatics skin sensitization is not evident.

Respiratory : No additional information.

Mutagenicity

Conclusion/Summary : **C9-C15 Alkanes**: In vivo and in vitro studies on mineral spirits containing up to 22 % aromatics indicate that these products are not genotoxic.

Carcinogenicity

Conclusion/Summary : **C9-C15 Alkanes**: The National Toxicology Program (NTP) conducted two-year carcinogenicity studies in rats and mice with Stoddard Solvent IIC (less than 2% aromatics). The studies indicated that there was some evidence of carcinogenic activity in male rats (adrenal medulla neoplasms and renal tubule adenoma) but no evidence of carcinogenic activity in female rats. Further, there was equivocal evidence of carcinogenic activity in female mice (hepatocellular adenoma) but no evidence of carcinogenic activity in male mice. A low carcinogenic potential is suggested by a lack of genotoxic potential identified in in vivo and in vitro genetic toxicity tests (with and without metabolic activation).

Reproductive toxicity

Conclusion/Summary : **C9-C15 Alkanes**: There were no treatment-related effects on pregnancy rate, mortality or gross post mortem observations in animal studies utilizing mineral spirits containing less than 2% aromatics.

Teratogenicity

Section 11. Toxicological information

Conclusion/Summary : **C9-C15 Alkanes**: There were no treatment-related effects on pregnancy rate, mortality or gross post mortem observations in animal studies utilizing mineral spirits containing less than 2% aromatics.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
C9-C15 Alkanes	Category 3	Not applicable.	Narcotic effects
C9-C15 Cycloalkanes	Category 3	Not applicable.	Narcotic effects
C7-C8 Cycloalkanes	Category 3	Not applicable.	Narcotic effects
C7-C8 Alkanes	Category 3	Not applicable.	Narcotic effects

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Name	Result
C9-C15 Alkanes	ASPIRATION HAZARD - Category 1
C9-C15 Cycloalkanes	ASPIRATION HAZARD - Category 1
C7-C8 Cycloalkanes	ASPIRATION HAZARD - Category 1
C7-C8 Alkanes	ASPIRATION HAZARD - Category 1

Information on the likely routes of exposure : Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : Harmful if inhaled. Can cause central nervous system (CNS) depression. May cause drowsiness and dizziness.

Skin contact : Causes skin irritation.

Ingestion : Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways. Irritating to mouth, throat and stomach.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation : Adverse symptoms may include the following:
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness

Skin contact : Adverse symptoms may include the following:
irritation
redness

Ingestion : Adverse symptoms may include the following:
nausea or vomiting

Potential chronic health effects

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : Suspected of damaging the unborn child.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Section 11. Toxicological information

Section 12. Ecological information

Toxicity

Conclusion/Summary : Not available.

Persistence and degradability

Not available.

Conclusion/Summary : Not available.

Bioaccumulative potential

Not available.

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

RCRA classification : D001, D018

Section 14. Transport information

	DOT Classification	IMDG	IATA
UN number	UN1268	UN 1268	UN 1268
UN proper shipping name	UN1268, Petroleum Distillates, n. o.s. (Naphtha Solvent), 3, PG II	UN1268, Petroleum Distillates, n. o.s. (Naphtha Solvent), 3, PG II	UN1268, Petroleum Distillates, n. o.s. (Naphtha Solvent), 3, PG II
Transport hazard class(es)	3 	3 	3 
Packing group	II	II	II
Environmental hazards	No.	No.	No.

Section 14. Transport information

Additional information	-	-	-

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 12(b) one-time export**: Nonane, all isomers

United States inventory (TSCA 8b): All components are listed or exempted.

Clean Water Act (CWA) 307: Toluene; Ethylbenzene; Benzene; Naphthalene

Clean Water Act (CWA) 311: Xylene; Toluene; Ethylbenzene; Benzene; Naphthalene

This material is classified as an oil under Section 311 of the Clean Water Act (CWA) and the Oil Pollution Act of 1990 (OPA). Discharges or spills which produce a visible sheen on waters of the United States, their adjoining shorelines, or into conduits leading to surface waters must be reported to the EPA's National Response Center at (800) 424-8802.

SARA 302/304

Composition/information on ingredients

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Fire hazard
Immediate (acute) health hazard
Delayed (chronic) health hazard

Composition/information on ingredients

Name	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
C9-C15 Alkanes	Yes.	No.	No.	Yes.	No.
C9-C15 Cycloalkanes	Yes.	No.	No.	Yes.	No.
C7-C8 Cycloalkanes	Yes.	No.	No.	Yes.	No.
C7-C8 Alkanes	Yes.	No.	No.	Yes.	No.

State regulations

Massachusetts : The following components are listed: NONANE

New York : None of the components are listed.

New Jersey : The following components are listed: NONANE

Pennsylvania : The following components are listed: NONANE

California Prop. 65

WARNING: This product contains less than 0.1% of a chemical known to the State of California to cause cancer.
WARNING: This product contains less than 1% of a chemical known to the State of California to cause birth defects or other reproductive harm.

Section 15. Regulatory information

Ingredient name	%	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
Toluene	<0.1	No.	Yes.	No.	7000 µg/day (ingestion)
Ethylbenzene	<0.1	Yes.	No.	41 µg/day (ingestion) 54 µg/day (inhalation)	No.
Benzene	<0.01	Yes.	Yes.	6.4 µg/day (ingestion) 13 µg/day (inhalation)	24 µg/day (ingestion) 49 µg/day (inhalation)
Naphthalene	<0.01	Yes.	No.	Yes.	No.

International regulations

International lists : **Australia inventory (AICS)**: All components are listed or exempted.
China inventory (IECSC): All components are listed or exempted.
Japan inventory: All components are listed or exempted.
Korea inventory: All components are listed or exempted.
Malaysia Inventory (EHS Register): All components are listed or exempted.
New Zealand Inventory of Chemicals (NZIoC): All components are listed or exempted.
Philippines inventory (PICCS): All components are listed or exempted.
Taiwan inventory (CSNN): All components are listed or exempted.

Canada inventory : All components are listed or exempted.

EU Inventory : All components are listed or exempted.

WHMIS (Canada) : Class B-2: Flammable liquid
Class D-2B: Material causing other toxic effects (Toxic).

Section 16. Other information

National Fire Protection Association (U.S.A.)

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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

History

Date of issue/Date of revision : 2/4/2015.

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

Section 16. Other information

Notice to reader

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BASF
We create chemistry

Safety data sheet

BASF Safety data sheet
Date / Revised: 30.07.2015 Version: 2.0
Product: **MasterSet AC 534 also POZZOLITH NC 534**
(30605441/SDS_GEN_AU/EN)
Date of print 31.07.2015

1. Substance/preparation and manufacturer/supplier identification

MasterSet AC 534 also POZZOLITH NC 534

Use: Product for construction chemicals

Manufacturer/supplier:
BASF Australia Limited (ABN 62 008 437 867)
Level 12, 28 Freshwater Place Southbank
Victoria 3006, AUSTRALIA
Telephone: +61 3 8855-6600
Telefax number: +61 3 8855-6511

Emergency information:
BASF Emergency Advice Number: 1800 803 440 (24h) [within Australia]
BASF Emergency Advice Number: + 61 3 8855 6666 [outside Australia]

2. Hazard identification

Classification of the substance and mixture:
Acute toxicity: Cat. 4 (oral)
Serious eye damage/eye irritation: Cat. 1

Label elements and precautionary statement:

Pictogram:

Signal Word:
Danger

Hazard Statement:
Causes serious eye damage. Harmful if swallowed.

Precautionary Statements (Prevention):
Wear eye/face protection. Do not eat, drink or smoke when using this product. Wash with plenty of water and soap thoroughly after handling.

Precautionary Statements (Response):
Immediately call a POISON CENTER or doctor/physician. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF SWALLOWED: rinse mouth.

Precautionary Statements (Disposal):
Dispose of contents/container to hazardous or special waste collection point.

Other hazards which do not result in classification:
If applicable information is provided in this section on other hazards which do not result in classification but which may contribute to the overall hazards of the substance or mixture.

3. Composition/information on ingredients

Chemical nature

Aqueous solution based on: Calcium nitrate tetrahydrate

Hazardous ingredients

Calcium nitrate tetrahydrate

Content (W/W): >= 25 % - < 75 %	Ox. Sol.: Cat. 3
CAS Number: 13477-34-4	Acute Tox.: Cat. 5 (oral)
	STOT SE (Blood): Cat. 2 (oral)
	STOT RE (Blood): Cat. 2 (oral)

sodium thiocyanate

Content (W/W): >= 5 % - < 15 %	Acute Tox.: Cat. 4 (Inhalation - dust)
CAS Number: 540-72-7	Acute Tox.: Cat. 4 (oral)
	Acute Tox.: Cat. 4 (dermal)
	Aquatic Acute: Cat. 3
	Aquatic Chronic: Cat. 3

4. First-Aid Measures

General advice:
First aid personnel should pay attention to their own safety. Immediately remove contaminated clothing.

If inhaled:
If difficulties occur after vapour/aerosol has been inhaled, remove to fresh air and seek medical attention.

On skin contact:
After contact with skin, wash immediately with plenty of water and soap. Under no circumstances should organic solvent be used. If irritation develops, seek medical attention.

On contact with eyes:
Wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

On ingestion:
Rinse mouth immediately and then drink plenty of water, seek medical attention. Do not induce vomiting unless told to by a poison control center or doctor.

Note to physician:
Symptoms: The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11.
Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

5. Fire-Fighting Measures

Suitable extinguishing media:
foam, water spray, dry powder, carbon dioxide

Unsuitable extinguishing media for safety reasons:
water jet

Specific hazards:
carbon dioxide, carbon monoxide, harmful vapours, nitrogen oxides, fumes/smoke, carbon black

Special protective equipment:
Wear a self-contained breathing apparatus.

Further information:
The degree of risk is governed by the burning substance and the fire conditions. If exposed to fire, keep containers cool by spraying with water. Collect contaminated extinguishing water separately, do not allow to reach sewage or effluent systems. Contaminated extinguishing water must be disposed of in accordance with official regulations.

6. Accidental Release Measures

Personal precautions:
Do not breathe vapour/aerosol/spray mists. Wear eye/face protection. If exposed to high vapour concentration, leave area immediately. Use personal protective clothing. Handle in accordance with good building materials hygiene and safety practice.

Environmental precautions:
Contain contaminated water/firefighting water. Do not discharge into drains/surface waters/groundwater.

Methods for cleaning up or taking up:
For small amounts: Pick up with inert absorbent material (e.g. sand, earth etc.). Dispose of contaminated material as prescribed.
For large amounts: Pump off product.

7. Handling and Storage

Handling

Avoid aerosol formation. Avoid inhalation of mists/vapours. Avoid skin contact. No special measures necessary provided product is used correctly.

Storage

Suitable materials for containers: High density polyethylene (HDPE)
Further information on storage conditions: Keep only in the original container in a cool, dry, well-ventilated place away from ignition sources, heat or flame. Protect from direct sunlight.

Protect from temperatures below: -25 °C

8. Exposure controls and personal protection

Components with occupational exposure limits

2,2',2"-nitrilotriethanol, 102-71-6;
TWA value 5 mg/m3 (ACGIHTLV)
TWA value 5 mg/m3 (OEL (AU))
TWA value 5 mg/m3 (AU NOEL)

Personal protective equipment

Respiratory protection:
Wear respiratory protection if ventilation is inadequate. Combination filter for gases/vapours of organic, inorganic, acid inorganic and alkaline compounds (e.g. EN 14387 Type ABEK).

Hand protection:
Suitable chemical resistant safety gloves (EN 374) also with prolonged, direct contact (Recommended: Protective index 6, corresponding > 480 minutes of permeation time according to EN 374): E.g. nitrile rubber (0.4 mm), chloroprene rubber (0.5 mm), butyl rubber (0.7 mm) etc.
Manufacturer's directions for use should be observed because of great diversity of types.

Eye protection:
Safety glasses with side-shields (frame goggles) (e.g. EN 166)

Body protection:
Body protection must be chosen depending on activity and possible exposure, e.g. apron, protecting boots, chemical-protection suit (according to EN 14605 in case of splashes or EN ISO 13982 in case of dust).

General safety and hygiene measures:
Do not inhale gases/vapours/aerosols. Avoid contact with the skin, eyes and clothing. Avoid exposure - obtain special instructions before use. Handle in accordance with good building materials hygiene and safety practice. Wearing of closed work clothing is recommended. When using, do not eat, drink or smoke. Hands and/or face should be washed before breaks and at the end of the shift. At the end of the shift the skin should be cleaned and skin-care agents applied. Gloves must be inspected regularly and prior to each use. Replace if necessary (e.g. pinhole leaks).

9. Physical and Chemical Properties

Form:	liquid
Colour:	dark brown
Odour:	odourless
Odour threshold:	No applicable information available.
pH value:	approx. 6.5
Melting temperature:	approx. 0 °C Information applies to the solvent.
boiling temperature:	approx. 100 °C
Flash point:	Non-flammable.
Flammability (solid/gas):	not flammable
Thermal decomposition:	No decomposition if stored and handled as prescribed/indicated.
Explosion hazard:	not explosive
Density:	approx. 1.399 g/cm3 (20 °C)
Relative vapour density (air):	Heavier than air.
Solubility in water:	soluble (20 °C)
Miscibility with water:	(20 °C) miscible in all proportions
Hygroscopy:	Non-hygroscopic

Other Information:
If necessary, information on other physical and chemical parameters is indicated in this section.

10. Stability and Reactivity

Conditions to avoid:
See MSDS section 7 - Handling and storage.

Thermal decomposition:	No decomposition if stored and handled as prescribed/indicated.

Substances to avoid:
strong acids, strong bases, strong oxidizing agents, strong reducing agents

Corrosion to metals: Corrosive effects to metal are not anticipated.

Hazardous reactions:
The product is stable if stored and handled as prescribed/indicated.

No hazardous decomposition products if stored and handled as prescribed/indicated.

11. Toxicological Information

Acute toxicity

Assessment of acute toxicity:
Virtually nontoxic after a single ingestion. Virtually nontoxic by inhalation. Virtually nontoxic after a single skin contact. Based on available Data, the classification criteria are not met. The product has not been tested. The statement has been derived from the properties of the individual components.

Irritation

Assessment of irritating effects:
No irritation is expected under intended use and appropriate handling. Based on available Data, the classification criteria are not met.

Respiratory/Skin sensitization

Assessment of sensitization:
The product has not been tested. The statement has been derived from the properties of the individual components.

Germ cell mutagenicity

Assessment of mutagenicity:
The chemical structure does not suggest a specific alert for such an effect. Based on available Data, the classification criteria are not met.

Carcinogenicity

Assessment of carcinogenicity:
The chemical structure does not suggest a specific alert for such an effect. Based on available Data, the classification criteria are not met.

Reproductive toxicity

Assessment of reproduction toxicity:
The chemical structure does not suggest a specific alert for such an effect. Based on available Data, the classification criteria are not met.

Developmental toxicity

Assessment of teratogenicity:
The chemical structure does not suggest a specific alert for such an effect. Based on available Data, the classification criteria are not met.

Repeated dose toxicity and Specific target organ toxicity (repeated exposure)

Assessment of repeated dose toxicity:
No reliable data was available concerning repeated dose toxicity. Based on available Data, the classification criteria are not met.

Other relevant toxicity information

Based on our experience and the information available, no adverse health effects are expected if handled as recommended with suitable precautions for designated uses. The product has not been tested. The statements on toxicology have been derived from the properties of the individual components.

12. Ecological Information

Ecotoxicity

Assessment of aquatic toxicity:
Based on available Data, the classification criteria are not met. There is a high probability that the product is not acutely harmful to aquatic organisms.

Mobility

Assessment transport between environmental compartments:
No data available.

Bioaccumulation potential

Assessment bioaccumulation potential:
Discharge into the environment must be avoided.

Additional information

Other ecotoxicological advice:
Do not discharge product into the environment without control. The product has not been tested. The statements on ecotoxicology have been derived from the properties of the individual components.

13. Disposal Considerations

Observe national and local legal requirements.
Residues should be disposed of in the same manner as the substance/product.

Contaminated packaging:
Contaminated packaging should be emptied as far as possible; then it can be passed on for recycling after being thoroughly cleaned.

14. Transport Information

Domestic transport:

Not classified as a dangerous good under transport regulations

Sea transport
IMDG

Not classified as a dangerous good under transport regulations

Air transport
IATA/ICAO

Not classified as a dangerous good under transport regulations

15. Regulatory Information

Other regulations

If other regulatory information applies that is not already provided elsewhere in this safety data sheet, then it is described in this subsection.

Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP): Not Scheduled

Registration status:

AICS, AU	released / listed

16. Other Information

Vertical lines in the left hand margin indicate an amendment from the previous version.

The data contained in this safety data sheet are based on our current knowledge and experience and describe the product only with regard to safety requirements. The data do not describe the product's properties (product specification). Neither should any agreed property nor the suitability of the product for any specific purpose be deduced from the data contained in the safety data sheet. It is the responsibility of the recipient of the product to ensure any proprietary rights and existing laws and legislation are observed.

SAFETY DATA SHEET

1. Identification

Product identifier **Oatey Purple Primer- NSF Listed for PVC and CPVC**

Other means of identification

Product code 1402E

Synonyms Part Numbers: 30755(TV), 30756(TV), 30757(TV), 30758, 30759, 30927

Recommended use Joining PVC Pipes

Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Company Name Oatey Co.

Address 4700 West 160th St.
Cleveland, OH 44135

Telephone 216-267-7100

E-mail info@oatey.com

Transport Emergency Chemtrec 1-800-424-9300 (Outside the US 1-703-527-3887)

Emergency First Aid 1-877-740-5015

Contact person MSDS Coordinator

2. Hazard(s) identification

Physical hazards	Flammable liquids	Category 2
Health hazards	Acute toxicity, oral	Category 4
	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 2A
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
	Specific target organ toxicity, single exposure	Category 3 narcotic effects
	Aspiration hazard	Category 1

OSHA defined hazards Not classified.

Label elements

Signal word Danger

Hazard statement Highly flammable liquid and vapor. Harmful if swallowed. May be fatal if swallowed and enters airways. Causes skin irritation. Causes serious eye irritation. May cause respiratory irritation. May cause drowsiness or dizziness.

Precautionary statement

Prevention Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Avoid breathing mist or vapor. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection.

Response If swallowed: Immediately call a poison center/doctor. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a poison center/doctor if you feel unwell. Rinse mouth. Do NOT induce vomiting. If skin irritation occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. Take off contaminated clothing and wash before reuse. In case of fire: Use appropriate media to extinguish.

Storage	Store in a well-ventilated place. Keep container tightly closed. Keep cool. Store locked up.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis. May form explosive peroxides. Contains a chemical classified by the US EPA as a suspected possible carcinogen.

Supplemental information

Not applicable.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Acetone	67-64-1	25-40
Cyclohexanone	108-94-1	25-40
Furan, Tetrahydro-	109-99-9	15-30
Methyl ethyl ketone	78-93-3	15-30

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
Skin contact	Take off immediately all contaminated clothing. Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
Ingestion	Call a physician or poison control center immediately. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Aspiration may cause pulmonary edema and pneumonitis.
Most important symptoms/effects, acute and delayed	Irritation of nose and throat. Aspiration may cause pulmonary edema and pneumonitis. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Vapors have a narcotic effect and may cause headache, fatigue, dizziness and nausea. Skin irritation. May cause redness and pain.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed.
General information	Take off all contaminated clothing immediately. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media	Alcohol resistant foam. Water fog. Dry chemical powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	Vapors may form explosive mixtures with air. Vapors may travel considerable distance to a source of ignition and flash back. During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Fire fighting equipment/instructions	In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	Highly flammable liquid and vapor. This product contains tetrahydrofuran that may form explosive organic peroxide when exposed to air or light or with age.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Avoid breathing mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up

Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Take precautionary measures against static discharge. Use only non-sparking tools. Keep combustibles (wood, paper, oil, etc.) away from spilled material. This product is miscible in water.

Large Spills: Stop the flow of material, if this is without risk. Use water spray to reduce vapors or divert vapor cloud drift. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water.

Small Spills: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

Environmental precautions

Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling

Vapors may form explosive mixtures with air. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Explosion-proof general and local exhaust ventilation. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Avoid breathing mist or vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Do not taste or swallow. When using, do not eat, drink or smoke. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Store locked up. Keep away from heat, sparks and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in a cool, dry place out of direct sunlight. Store in original tightly closed container. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Acetone (CAS 67-64-1)	PEL	2400 mg/m3 1000 ppm
Cyclohexanone (CAS 108-94-1)	PEL	200 mg/m3 50 ppm
Furan, Tetrahydro- (CAS 109-99-9)	PEL	590 mg/m3 200 ppm
Methyl ethyl ketone (CAS 78-93-3)	PEL	590 mg/m3 200 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value
Acetone (CAS 67-64-1)	STEL	750 ppm
	TWA	500 ppm
Cyclohexanone (CAS 108-94-1)	STEL	50 ppm
	TWA	20 ppm
Furan, Tetrahydro- (CAS 109-99-9)	STEL	100 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value
	TWA	50 ppm
Methyl ethyl ketone (CAS 78-93-3)	STEL	300 ppm
	TWA	200 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Acetone (CAS 67-64-1)	TWA	590 mg/m3
		250 ppm
Cyclohexanone (CAS 108-94-1)	TWA	100 mg/m3
		25 ppm
Furan, Tetrahydro- (CAS 109-99-9)	STEL	735 mg/m3
		250 ppm
	TWA	590 mg/m3
		200 ppm
Methyl ethyl ketone (CAS 78-93-3)	STEL	885 mg/m3
		300 ppm
	TWA	590 mg/m3
		200 ppm

Biological limit values

ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
Acetone (CAS 67-64-1)	50 mg/l	Acetone	Urine	*
Cyclohexanone (CAS 108-94-1)	80 mg/l	1,2-Cyclohexandiol, with hydrolysis	Urine	*
	8 mg/l	Cyclohexanol, with hydrolysis	Urine	*
Furan, Tetrahydro- (CAS 109-99-9)	2 mg/l	Tetrahydrofuran	Urine	*
Methyl ethyl ketone (CAS 78-93-3)	2 mg/l	MEK	Urine	*

* - For sampling details, please see the source document.

Exposure guidelines

US - California OELs: Skin designation

Cyclohexanone (CAS 108-94-1) Can be absorbed through the skin.

US - Minnesota Haz Subs: Skin designation applies

Cyclohexanone (CAS 108-94-1) Skin designation applies.

US - Tennessee OELs: Skin designation

Cyclohexanone (CAS 108-94-1) Can be absorbed through the skin.

US ACGIH Threshold Limit Values: Skin designation

Cyclohexanone (CAS 108-94-1) Can be absorbed through the skin.
Furan, Tetrahydro- (CAS 109-99-9) Can be absorbed through the skin.

US. NIOSH: Pocket Guide to Chemical Hazards

Cyclohexanone (CAS 108-94-1) Can be absorbed through the skin.

Appropriate engineering controls Explosion-proof general and local exhaust ventilation. Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment

Eye/face protection Face shield is recommended. Wear safety glasses with side shields (or goggles).

Skin protection	
Hand protection	Wear appropriate chemical resistant gloves.
Other	Wear appropriate chemical resistant clothing.
Respiratory protection	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance	
Physical state	Liquid.
Form	Translucent liquid.
Color	Purple
Odor	Solvent.
Odor threshold	Not available.
pH	Not available.
Melting point/freezing point	Not available.
Initial boiling point and boiling range	151 °F (66.11 °C)
Flash point	14.0 - 23.0 °F (-10.0 - -5.0 °C)
Evaporation rate	5.5 - 8
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	1.8
Flammability limit - upper (%)	11.8
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	145 mm Hg @ 20 C
Vapor density	2.5
Relative density	0.84 +/- 0.02 @20°C
Solubility(ies)	
Solubility (water)	Negligible
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Bulk density	7 lb/gal
VOC (Weight %)	505 g/l SQACMD Method 24

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Contact with incompatible materials.
Incompatible materials	Acids. Strong oxidizing agents. Ammonia. Amines. Isocyanates. Caustics.

Hazardous decomposition products No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation May be fatal if swallowed and enters airways. Headache. Nausea, vomiting. May cause irritation to the respiratory system. Vapors have a narcotic effect and may cause headache, fatigue, dizziness and nausea. Prolonged inhalation may be harmful.

Skin contact Causes skin irritation.

Eye contact Causes serious eye irritation.

Ingestion May be fatal if swallowed and enters airways. Harmful if swallowed. Harmful if swallowed. Droplets of the product aspirated into the lungs through ingestion or vomiting may cause a serious chemical pneumonia.

Symptoms related to the physical, chemical and toxicological characteristics Irritation of nose and throat. Aspiration may cause pulmonary edema and pneumonitis. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Skin irritation. May cause redness and pain. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

Information on toxicological effects

Acute toxicity May be fatal if swallowed and enters airways. Narcotic effects. May cause respiratory irritation.

Components	Species	Test Results
Acetone (CAS 67-64-1)		
Acute		
Dermal		
LD50	Rabbit	20 ml/kg
Inhalation		
LC50	Rat	50 mg/l, 8 Hours
Oral		
LD50	Rat	5800 mg/kg
Cyclohexanone (CAS 108-94-1)		
Acute		
Dermal		
LD50	Rabbit	948 mg/kg
Inhalation		
LC50	Rat	8000 ppm, 4 hours
Oral		
LD50	Rat	1540 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Causes skin irritation.

Serious eye damage/eye irritation Causes serious eye irritation.

Respiratory or skin sensitization

Respiratory sensitization Not available.

Skin sensitization This product is not expected to cause skin sensitization.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity In 2012 USEPA Integrated Risk Information System (IRIS) reviewed a two species inhalation lifetime study on THF conducted by NTP (1998). Male rats developed renal tumors and female mice developed liver tumors while neither the female rats nor the male mice showed similar results. Because the carcinogenic mechanisms could not be identified clearly in either species for either tumor, the EPA determined that the male rat and female mouse findings are relevant to the assessment of carcinogenic potential in humans. Therefore, the IRIS review concludes that these data in aggregate indicate that there is "suggestive evidence of carcinogenic potential" following exposure to THF by all routes of exposure.

IARC Monographs. Overall Evaluation of Carcinogenicity

Cyclohexanone (CAS 108-94-1) 3 Not classifiable as to carcinogenicity to humans.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.
Specific target organ toxicity - single exposure	Narcotic effects. May cause drowsiness and dizziness. Respiratory tract irritation.
Specific target organ toxicity - repeated exposure	Not classified.
Aspiration hazard	May be fatal if swallowed and enters airways.
Chronic effects	Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Components		Species	Test Results
Acetone (CAS 67-64-1)			
Aquatic			
Fish	LC50	Fathead minnow (Pimephales promelas)	> 100 mg/l, 96 hours
Cyclohexanone (CAS 108-94-1)			
Aquatic			
Fish	LC50	Fathead minnow (Pimephales promelas)	481 - 578 mg/l, 96 hours

* Estimates for product may be based on additional component data not shown.

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential No data available.

Partition coefficient n-octanol / water (log Kow)

Acetone (CAS 67-64-1)	-0.24
Cyclohexanone (CAS 108-94-1)	0.81
Furan, Tetrahydro- (CAS 109-99-9)	0.46
Methyl ethyl ketone (CAS 78-93-3)	0.29

Mobility in soil No data available.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN number	UN1993
UN proper shipping name	Flammable liquids, n.o.s. (Methyl ethyl ketone RQ = 26274 LBS, Acetone RQ = 13130 LBS)
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Label(s)	3
Packing group	II

Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	IB2, T7, TP1, TP8, TP28
Packaging exceptions	150
Packaging non bulk	202
Packaging bulk	242

IATA

UN number	UN1993
UN proper shipping name	Flammable liquid, n.o.s. (Methyl ethyl ketone, Acetone)
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	II
Environmental hazards	No.
ERG Code	3H
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number	UN1993
UN proper shipping name	FLAMMABLE LIQUID, N.O.S. (Methyl ethyl ketone, Acetone)
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	II
Environmental hazards	
Marine pollutant	No.
EmS	F-E, S-E
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not available.

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

CERCLA Hazardous Substance List (40 CFR 302.4)

Acetone (CAS 67-64-1)	LISTED
Cyclohexanone (CAS 108-94-1)	LISTED
Furan, Tetrahydro- (CAS 109-99-9)	LISTED
Methyl ethyl ketone (CAS 78-93-3)	LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - Yes
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number

Acetone (CAS 67-64-1)	6532
Methyl ethyl ketone (CAS 78-93-3)	6714

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

Acetone (CAS 67-64-1)	35 %WV
Methyl ethyl ketone (CAS 78-93-3)	35 %WV

DEA Exempt Chemical Mixtures Code Number

Acetone (CAS 67-64-1)	6532
Methyl ethyl ketone (CAS 78-93-3)	6714

US state regulations

US. Massachusetts RTK - Substance List

Acetone (CAS 67-64-1)
Cyclohexanone (CAS 108-94-1)
Furan, Tetrahydro- (CAS 109-99-9)
Methyl ethyl ketone (CAS 78-93-3)

US. New Jersey Worker and Community Right-to-Know Act

Acetone (CAS 67-64-1)
Cyclohexanone (CAS 108-94-1)
Furan, Tetrahydro- (CAS 109-99-9)
Methyl ethyl ketone (CAS 78-93-3)

US. Pennsylvania Worker and Community Right-to-Know Law

Acetone (CAS 67-64-1)
Cyclohexanone (CAS 108-94-1)
Furan, Tetrahydro- (CAS 109-99-9)
Methyl ethyl ketone (CAS 78-93-3)

US. Rhode Island RTK

Acetone (CAS 67-64-1)
Cyclohexanone (CAS 108-94-1)
Furan, Tetrahydro- (CAS 109-99-9)
Methyl ethyl ketone (CAS 78-93-3)

US. California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date	27-May-2015
Revision date	-
Version #	01
HMIS® ratings	Health: 2 Flammability: 3 Physical hazard: 0

NFPA ratings

Disclaimer

The information in the sheet was written based on the best knowledge and experience currently available. Oatey Co. cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use.