# Praxair Material Safety Data Sheet

## 1. Chemical Product and Company Identification

| | |
|---|---|
| **Product Name:** Acetylene, dissolved (MSDS No. P-4559-K) | **Trade Names:** Acetylene |
| **Chemical Name:** Acetylene | **Synonyms:** Acetylen, ethine, ethyne, narcylene |
| **Chemical Family:** Alkyne | **Product Grades:** Industrial, 2.6 atomic absorption |

**Telephone:** **Emergencies:** 1-800-645-4633* **Company Name:** Praxair, Inc.
**CHEMTREC:** 1-800-424-9300* 39 Old Ridgebury Road
**Routine:** 1-800-PRAXAIR Danbury, CT 06810-5113

**Call emergency numbers 24 hours a day only for spills, leaks, fire, exposure, or accidents involving this product. For routine information, contact your supplier, Praxair sales representative, or call 1-800-PRAXAIR (1-800-772-9247).*

## 2. Hazards Identification

### EMERGENCY OVERVIEW

**DANGER! Flammable gas under pressure.**
**Can form explosive mixtures with air.**
**Fusible plugs in top, bottom, or valve melt at 208-224°F (98-107°C).**
**Do not discharge at pressures above 15 psig (103 kPa).**
**May cause dizziness and drowsiness.**
**Self-contained breathing apparatus may be required by rescue workers.**
**At normal temperature and pressure, commercial acetylene is a colorless gas with a distinctive garlic-like odor.**

**OSHA REGULATORY STATUS:** This material is considered hazardous by the OSHA Hazard Communications Standard (29 CFR 1910.1200).

**POTENTIAL HEALTH EFFECTS:**

**Effects of a Single (Acute) Overexposure**

**Inhalation.** Asphyxiant. Effects are due to lack of oxygen. Moderate concentrations may cause headache, drowsiness, dizziness, excitation, excess salivation, nausea, vomiting, and unconsciousness. The vapor from a liquid release may also cause incoordination, abdominal pain. Effects may be delayed. Lack of oxygen can kill.

**Skin Contact.** No harm expected from vapor. Liquid may cause frostbite.

**Swallowing.** An unlikely route of exposure, but frostbite of the lips and mouth may result from contact with the liquid. If swallowed, the liquid may cause nausea.





*A vertical line in the left margin indicates revised or new material.*

**Eye Contact.** Vapors containing acetone may irritate the eyes. Liquid may irritate and cause frostbite.

**Effects of Repeated (Chronic) Overexposure.** No harm expected.

**Other Effects of Overexposure.** Asphyxiant. Lack of oxygen can kill.

**Medical Conditions Aggravated by Overexposure.** The toxicology and the physical and chemical properties of this product suggest that overexposure is unlikely to aggravate existing medical conditions.

**CARCINOGENICITY:** This product is not listed by NTP, OSHA, or IARC.

**POTENTIAL ENVIRONMENTAL EFFECTS:** None expected. For further information, see section 12, Ecological Information.

## 3. Composition/Information on Ingredients

**This section covers materials of manufacture only. See sections 8, 10, 11, 15, and 16 for information on by-products generated during use, especially use in welding and cutting. See section 16 for important information about mixtures.**

| COMPONENT | CAS NUMBER | CONCENTRATION |
|---|---|---|
| Acetylene | 74-86-2 | >99%* |

**The symbol > means "greater than."*

***NOTE: Acetylene cylinders are filled with a porous material containing acetone (CAS 67-64-1) into which the acetylene is dissolved.***

## 4. First Aid Measures

**INHALATION:** Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, qualified personnel may give oxygen. Call a physician.

**SKIN CONTACT:** For exposure to liquid, immediately warm frostbite area with warm water not to exceed 105°F (41°C). In case of massive exposure, remove contaminated clothing while showering with warm water. Call a physician.

**SWALLOWING:** If liquid is swallowed, immediately give two glasses of water and induce vomiting if victim is conscious. Call a physician.

**EYE CONTACT:** In case of splash contamination, immediately flush eyes thoroughly with water for at least 15 minutes. Hold the eyelids open and away from the eyeballs to ensure that all surfaces are thoroughly flushed. See a physician, preferably an ophthalmologist, immediately.

***NOTES TO PHYSICIAN:*** *Aspirated acetone may cause severe lung damage. If a large quantity of material has been swallowed, stomach contents should be evacuated quickly in a manner that avoids aspiration. Otherwise, there is no specific antidote. Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient.*

## 5. Fire Fighting Measures

**FLAMMABLE PROPERTIES:** Extremely flammable gas. Forms explosive mixtures with air and oxidizing agents.

**SUITABLE EXTINGUISHING MEDIA:** See the following paragraphs. See CGA Pamphlet SB-4, *Handling Acetylene Cylinders in Fire Situations,* listed in section 16, for further information.

**PRODUCTS OF COMBUSTION:** Carbon monoxide, carbon dioxide

**PROTECTION OF FIREFIGHTERS: DANGER! Flammable gas under pressure.** Evacuate all personnel from danger area. Immediately cool cylinders with water spray from maximum distance, taking care not to extinguish flames. If flames are accidentally extinguished, explosive re-ignition may occur. Use self-contained breathing apparatus. Remove ignition sources if without risk. Stop flow of gas if without risk while continuing cooling water spray. Remove all cylinders from area of fire if without risk. Allow fire to burn out. On-site fire brigades must comply with OSHA 29 CFR 1910.156.

**Specific Physical and Chemical Hazards.** Heat of fire can build pressure in cylinder and cause it to rupture. Acetylene cylinders are provided with pressure relief devices designed to vent contents when exposed to elevated temperature. No part of a cylinder should be subjected to a temperature higher than 125°F (52°C). If venting or leaking acetylene catches fire, do not extinguish flames. Flammable vapors may spread from leak, creating an explosive reignition hazard. Vapors can be ignited by pilot lights, other flames, smoking, sparks, heaters, electrical equipment, static discharge, or other ignition sources at locations distant from product handling point. Explosive atmospheres may linger. Before entering area, especially confined areas, check atmosphere with an approved explosion meter.

**Protective Equipment and Precautions for Firefighters.** Firefighters should wear self-contained breathing apparatus and full fire-fighting turnout gear.

## 6. Accidental Release Measures

**STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:**

**DANGER! Flammable gas under pressure.**

**Personal Precautions.** Forms explosive mixtures with air. Immediately evacuate all personnel from danger area. Use self-contained breathing apparatus where needed. Remove all sources of ignition if without risk. Reduce vapors with fog or fine water spray. Shut off flow if without risk. Ventilate area or move leaking cylinder to well-ventilated area. Flammable gas may spread from leak. Before entering area, especially confined areas, check atmosphere with an appropriate device.

**Environmental Precautions.** Prevent waste from contaminating the surrounding environment. Keep personnel away. Discard any product, residue, disposable container, or liner in an environmentally acceptable manner, in full compliance with federal, state, and local regulations. If necessary, call your local supplier for assistance.

## 7. Handling and Storage

**PRECAUTIONS TO BE TAKEN IN HANDLING:** Keep away from heat, sparks, and open flame. Use only spark-proof tools and explosion-proof equipment. Never use acetylene at pressures exceeding 15 psig (103.5 kPa). Can cause rapid suffocation due to oxygen deficiency. Close valve after each use; keep closed even when empty. Arcs and sparks can ignite combustible materials. Prevent fires. For more information on fire prevention in welding and cutting, see NFPA 51B, *Standard for Fire Prevention During Welding, Cutting, and Other Hotwork,* published by the National Fire Protection Association, 1 Batterymarch Park, PO Box 9101, Quincy, MA

02269-9101; 1-800-344-3555; www.nfpa.org. Do not strike an arc on a compressed gas cylinder. The defect produced by an arc burn could lead to cylinder rupture.

**PRECAUTIONS TO BE TAKEN IN STORAGE:** Acetylene storage in excess of 2,500 cu ft (70.79 $m^3$) is prohibited in buildings with other occupancies. Store and use with adequate ventilation. Separate acetylene cylinders from oxygen and other oxidizers by at least 20 ft (6.1 m), or use a barricade of noncombustible material. This barricade should be at least 5 ft (1.53 m) high and have a fire resistance rating of at least ½ hour. Post "No Smoking or Open Flames" signs in storage and use areas. There must be no sources of ignition. All electrical equipment in storage areas must be explosion-proof. Storage areas must meet national electric codes for Class 1 hazardous areas. Store only where temperature will not exceed 125°F (52°C). For other precautions in using acetylene, see section 16.

**RECOMMENDED PUBLICATIONS:** For further information on storage, handling, and use, see Praxair publication P-14-153, *Guidelines for Handling Gas Cylinders and Containers.* Obtain from your local supplier.

## 8. Exposure Controls/Personal Protection

**See section 16 for important information on by-products generated during use in welding and cutting.**

| COMPONENT | OSHA PEL | ACGIH TLV-TWA (2009) |
|---|---|---|
| Acetylene | N.E.* | Simple asphyxiant |

*N.E.–Not Established.

***NOTE: Acetone, used as a solvent, has a TLV-TWA of 500 ppm for acetone and a TLV-STEL of 750 ppm (ACGIH, 2009). OSHA PEL, 1000 ppm (2400 mg/$m^3$).***

TLV-TWAs should be used as a guide in the control of health hazards and not as fine lines between safe and dangerous concentrations.

IDLH = Not available.

**ENGINEERING CONTROLS:**

**Local Exhaust.** Use a local exhaust system, if necessary, to prevent oxygen deficiency and to keep hazardous fumes and gases in the worker's breathing zone below all applicable exposure limits.

**Mechanical (General).** General exhaust ventilation may be acceptable if it can maintain an adequate supply of air and keep hazardous fumes and gases in the worker's breathing zone below all applicable exposure limits.

**Special.** None

**Other.** None

**PERSONAL PROTECTIVE EQUIPMENT:**

**Skin Protection.** Wear work gloves when handling cylinders; welding gloves for welding and cutting.

**Eye/Face Protection.** Wear goggles with filter lenses selected as per ANSI Z49.1. Provide protective screens and goggles, if necessary, to protect others. Select as per OSHA 29 CFR 1910.33. For welding, see section 16.

**Respiratory Protection.** A respiratory protection program that meet OSHA 29 CFR 1910.134, ANSI Z88.2, or MSHA 30 CFR 72.710 (where applicable) requirements must be followed

whenever workplace conditions warrant respirator use. Use an air-supplied or air-purifying cartridge if the action level is exceeded. Ensure that the respirator has the appropriate protection factor for the exposure level. If cartridge type respirators are used, the cartridge must be appropriate for the chemical exposure (e.g., an organic vapor cartridge). For emergencies or instances with unknown exposure levels, use a self-contained breathing apparatus. Adequate ventilation must keep worker exposure below applicable exposure limits for fumes, gases, and other by products of welding.

**Other Protective Equipment.** As needed, wear hand, head, and body protection, which help to prevent injury from radiation and sparks. See ANSI Z49.1. At a minimum, this includes welder's gloves and protective goggles, and may include arm protectors, aprons, hats, and shoulder protection, as well as substantial clothing. Regardless of protective equipment, never touch live electrical parts.

## 9. Physical and Chemical Properties

| | |
|---|---|
| **APPEARANCE:** | Colorless gas |
| **ODOR:** | Acetylene of 100% purity is odorless, but commercial acetylene has a distinctive, garlic-like odor. |
| **ODOR THRESHOLD:** | Not available. |
| **PHYSICAL STATE:** | Gas at normal temperature and pressure |
| **pH:** | Not applicable. |
| **SUBLIMATION POINT** at 1 atm: | -118°F (-83.3°C) |
| **MELTING POINT** at 10 psig (170 kPa abs): | -116°F (-82.2°C) |
| **BOILING POINT** at 10 psig (170 kPa abs): | -103.4°F (-75.2°C) |
| **FLASH POINT:** | -0°F (-17.8°C) |
| **EVAPORATION RATE** (Butyl Acetate = 1): | Not applicable. |
| **FLAMMABILITY:** | Flammable |
| **FLAMMABLE LIMITS IN AIR**, % by volume: | **LOWER:** 2.5% **UPPER:** 100% |
| **VAPOR PRESSURE** at 70°F (21.1°C): | 649.6 psia (4479 kPa abs)* |
| **VAPOR DENSITY** at 32°F (0°C) and 1 atm: | 0.07314 lb/ft$^3$ (1.1716 kg/m$^3$) |
| **SPECIFIC GRAVITY** ($H_2O$ = 1): | Not applicable. |
| **SPECIFIC GRAVITY** (Air = 1) at 32°F (0°C) and 1 atm: | 0.906 |
| **SOLUBILITY IN WATER** vol/vol at 32°F (0°C): | 1.7 |
| **PARTITION COEFFICIENT: n-octanol/water:** | Not available. |
| **AUTOIGNITION TEMPERATURE:** | 581°F (305°C) at 1 atm |
| **DECOMPOSITION TEMPERATURE:** | Not available. |
| **PERCENT VOLATILES BY VOLUME:** | 100 |
| **MOLECULAR WEIGHT:** | 26.04 |
| **MOLECULAR FORMULA:** | $C_2H_2$ |

*Maximum cylinder pressure: 250 psig (kPa) at 70°F (21.1°C)

## 10. Stability and Reactivity

**CHEMICAL STABILITY:** ☒ Unstable ☐ Stable

Acetylene is stable as shipped. Avoid use at pressures above 15 psig (103 kPa).

**CONDITIONS TO AVOID:** Elevated temperature and pressure and/or the presence of a catalyst.

**INCOMPATIBLE MATERIALS:** Copper, silver, mercury, or their alloys; oxidizing agents; acids; halogens; moisture.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Thermal decomposition or burning may produce $CO/CO_2H_2$. The welding and cutting process may form reaction products such as CO and $CO_2$. Other decomposition products of normal operation originate from the volatilization, reaction, or oxidation of the material being worked.

**POSSIBILITY OF HAZARDOUS REACTIONS:** ☒ May Occur ☐ Will Not Occur

Fire or explosion may result from use at elevated temperatures and pressures or from use with incompatible materials.

## 11. Toxicological Information

**ACUTE DOSE EFFECTS:** No known effects from acetylene gas. The welding process may generate hazardous fumes and gases. (See sections 8, 10, 15, and 16.)

## 12. Ecological Information

**ECOTOXICITY:** No adverse ecological effects expected.

**OTHER ADVERSE EFFECTS:** None known. Acetylene does not contain any Class I or Class II ozone-depleting chemicals.

## 13. Disposal Considerations

**WASTE DISPOSAL METHOD:** Do not attempt to dispose of residual or unused quantities. Return cylinder to supplier.

## 14. Transport Information

**DOT/IMO SHIPPING NAME:** Acetylene, dissolved.

| | | | |
|---|---|---|---|
| **HAZARD CLASS:** 2.1 | **PACKING GROUP/Zone:** None | **IDENTIFICATION NUMBER:** UN1001 | **PRODUCT RQ:** None |

| | |
|---|---|
| **SHIPPING LABEL(s):** | FLAMMABLE GAS |
| **PLACARD (when required):** | FLAMMABLE GAS |

**SPECIAL SHIPPING INFORMATION:** Cylinders should be transported in a secure position, in a well-ventilated vehicle. Cylinders transported in an enclosed, nonventilated compartment of a vehicle can present serious safety hazards.

Shipment of compressed gas cylinders that have been filled without the owner's consent is a violation of federal law [49 CFR 173.301(b)].

**MARINE POLLUTANTS:** Acetylene is not listed as a marine pollutant by DOT.

## 15. Regulatory Information

The following selected regulatory requirements may apply to this product. Not all such requirements are identified. Users of this product are solely responsible for compliance with all applicable federal, state, and local regulations.

**U.S. FEDERAL REGULATIONS:**

EPA (ENVIRONMENTAL PROTECTION AGENCY)

CERCLA: COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT OF 1980 (40 CFR Parts 117 and 302):

**Reportable Quantity (RQ):** None

SARA: SUPERFUND AMENDMENT AND REAUTHORIZATION ACT:

**SECTIONS 302/304:** Require emergency planning based on Threshold Planning Quantity (TPQ) and release reporting based on Reportable Quantities (RQ) of Extremely Hazardous Substances (EHS) (40 CFR Part 355):

**TPQ:** None
**EHS RQ (40 CFR 355):** None

**SECTIONS 311/312:** Require submission of MSDSs and reporting of chemical inventories with identification of EPA hazard categories. The hazard categories for this product are as follows:

| | |
|---|---|
| **IMMEDIATE:** No | **PRESSURE:** Yes |
| **DELAYED:** No | **REACTIVITY:** Yes |
| | **FIRE:** Yes |

**SECTION 313:** Requires submission of annual reports of release of toxic chemicals that appear in 40 CFR Part 372.

Acetylene is not subject to reporting under Section 313.

**40 CFR 68:** RISK MANAGEMENT PROGRAM FOR CHEMICAL ACCIDENTAL RELEASE PREVENTION: Requires development and implementation of risk management programs at facilities that manufacture, use, store, or otherwise handle regulated substances in quantities that exceed specified thresholds.

Acetylene is listed as a regulated substance in quantities of 10,000 lb (4536 kg) or greater.

**TSCA:** TOXIC SUBSTANCES CONTROL ACT: Acetylene is listed on the TSCA inventory.

**OSHA:** OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION:

29 CFR 1910.119: PROCESS SAFETY MANAGEMENT OF HIGHLY HAZARDOUS CHEMICALS: Requires facilities to develop a process safety management program based on Threshold Quantities (TQ) of highly hazardous chemicals.

Acetylene is not listed in Appendix A as a highly hazardous chemical. However, any process that involves a flammable gas on site in one location in quantities of 10,000 lb (4536 kg) or greater is covered under this regulation unless the gas is used as a fuel.

**STATE REGULATIONS:**

**CALIFORNIA:** Acetylene is not listed by California under the SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986 (Proposition 65).

**PENNSYLVANIA:** Acetylene is subject to the PENNSYLVANIA WORKER AND COMMUNITY RIGHT-TO-KNOW ACT (35 P.S. Sections 7301-7320).

## 16. Other Information

Read and understand all labels and instructions supplied with all containers of this product.

**ADDITIONAL SAFETY AND HEALTH HAZARDS:** Using this product in welding and cutting may create additional hazards.

Read and understand the manufacturer's instructions and the precautionary labels on the products used in welding and cutting. For other safe practices information and a more-detailed description of the health hazards of welding and their consequences, ask your welding products supplier for a copy of Praxair's free safety booklet, P-52-529, *Precautions and Safe Practices for Electric Welding and Cutting,* and for other manufacturers' safety publications. For a detailed treatment, get ANSI Z49.1, *Safety in Welding, Cutting, and Allied Processes*, published by the American Welding Society (AWS), 550 N.W. Le Jeune Rd., Miami, FL 33126, http://www.aws.org/, or see OSHA's Web site at http://www.osha-slc.gov/SLTC/weldingcuttingbrazing/. Order AWS documents from Global Engineering Documents, 15 Inverness Way East, Englewood, CO 80112-5710, http://global.ihs.com/.

**FUMES AND GASES** can be dangerous to your health and may cause serious lung disease.

- **Keep your head out of fumes. Do not breathe fumes and gases. Use enough ventilation, local exhaust, or both to keep fumes and gases from your breathing zone and the general area. Short-term overexposure to fumes may cause dizziness, nausea, and dryness or irritation of the nose, throat, and eyes or may cause other similar discomfort.**

Fumes and gases cannot be classified simply. The amount and type depend on the metal being worked and the process, procedure, equipment, and supplies used. Possible dangerous materials may be found in fluxes, electrodes, and other materials. Get an MSDS for every material you use.

Contaminants in the air may add to the hazard of fumes and gases. One such contaminant, chlorinated hydrocarbon vapors from cleaning and degreasing activities, poses a special risk.

To find the quantity and content of fumes and gases, you can take air samples. By analyzing these samples, you can find out what respiratory protection you need. One recommended sampling method is to take air from inside the worker's helmet or from the worker's breathing zone. See AWS F1.1, *Methods for Sampling and Analyzing Gases for Welding and Allied Processes*, available from the American Welding Society, 550 N.W. Le Jeune Rd., Miami, FL 33126.

***NOTES TO PHYSICIAN:***

***Acute:*** *Gases, fumes, and dusts may cause irritation to the eyes, lungs, nose, and throat. Some toxic gases associated with welding and related processes may cause pulmonary edema, asphyxiation, and death. Acute overexposure may include signs and symptoms such as watery eyes, nose and throat irritation, headache, dizziness, difficulty breathing, frequent coughing, or chest pains.*

***Chronic:*** *Protracted inhalation of air contaminants may lead to their accumulation in the lungs, a condition that may be seen as dense areas on chest x-rays. The severity of change is proportional to the length of exposure. The changes seen are not necessarily associated with symptoms or signs of reduced lung function or disease. In addition, the changes on x-rays may be caused by non-work-related factors such as smoking, etc.*

**PROTECTIVE CLOTHING AND EQUIPMENT FOR WELDING OPERATIONS:**

**PROTECTIVE GLOVES:** Wear welding gloves.

**EYE PROTECTION:** Wear a helmet or use a face shield with a filter lens. Select lens per ANSI Z49.1. Provide protective screens and flash goggles if needed to protect others; select per OSHA 29 CFR 1910.133.

**OTHER PROTECTIVE EQUIPMENT:** Wear hand, head, and body protection. (See ANSI Z49.1.) Worn as needed, these help prevent injury from radiation, sparks, and electrical shock. Minimum protection includes welder's gloves and a face shield. For added protection, consider arm protectors, aprons, hats, shoulder protection, and dark, substantial clothing.

**OTHER HAZARDOUS CONDITIONS OF HANDLING, STORAGE, AND USE:** ***Flammable gas under pressure.*** Use piping and equipment adequately designed to withstand pressures. Acetylene systems should be installed only by persons with knowledge of the unique properties of acetylene and trained and experienced in such installation. All piped acetylene systems and associated equipment must be grounded. Electrical equipment must be non-sparking or explosion-proof. Leak check with soapy water; never use a flame. Use a backflow prevention device in any piping. In choosing tools and equipment, avoid materials incompatible with acetylene. Copper, silver, and mercury and their salts, compounds, and high-concentration alloys can form explosive compounds with acetylene. Never use copper piping for acetylene service; use only steel or wrought iron. Brass containing less than 65 percent copper and certain nickel alloys are generally acceptable for use in acetylene service but may not be adequate if high corrosion or excess moisture is present. Never work on a pressurized system. If there is a leak, close the cylinder valve. Blow down the system in an environmentally safe manner in compliance with all federal, state, and local laws; then repair the leak. Never place a compressed gas cylinder where it may become part of an electrical circuit.

**Mixtures.** When you mix two or more chemicals, you can create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an industrial hygienist or other trained person when you evaluate the end product. Chemicals have properties that can cause serious injury or death.

**HAZARD RATING SYSTEMS:**

| **NFPA RATINGS:** | | **HMIS RATINGS:** | |
|---|---|---|---|
| HEALTH | = 0 | HEALTH | = 2 |
| FLAMMABILITY | = 4 | FLAMMABILITY | = 4 |
| INSTABILITY | = 2 | PHYSICAL HAZARD | = 2 |
| SPECIAL | = None | | |

**STANDARD VALVE CONNECTIONS FOR U.S. AND CANADA:**

| | |
|---|---|
| **THREADED:** | The CGA-510 connection is standard for cylinders of greater than 50 cu ft (1.42 $m^3$) capacity. See CGA Pamphlet V-1 for other, limited-standard connections. |
| **PIN-INDEXED YOKE:** | Not applicable. |
| **ULTRA-HIGH-INTEGRITY CONNECTION:** | Not applicable. |

Use the proper CGA connections. **DO NOT USE ADAPTERS.** Additional limited-standard connections may apply. See CGA pamphlet V-1 listed below.

Ask your supplier about free Praxair safety literature as referred to in this MSDS and on the label for this product. Further information can be found in the following materials published by the Compressed Gas Association, Inc. (CGA), 4221 Walney Road, 5th Floor, Chantilly, VA 20151-2923, Telephone (703) 788-2700, http://www.cganet.com/Publication.asp.

| | |
|---|---|
| AV-1 | *Safe Handling and Storage of Compressed Gases* |
| G-1.1 | *Commodity Specification for Acetylene* |
| G-1 | *Acetylene* |
| P-1 | *Safe Handling of Compressed Gases in Containers* |
| SB-4 | *Handling Acetylene Cylinders in Fire Situations* |
| SB-8 | *Use of Oxy-Fuel Gas Welding and Cutting Apparatus* |
| V-1 | *Compressed Gas Cylinder Valve Inlet and Outlet Connections* |
| — | *Handbook of Compressed Gases, Fourth Edition* |

Praxair asks users of this product to study this MSDS and become aware of product hazards and safety information. To promote safe use of this product, a user should (1) notify employees, agents, and contractors of the information in this MSDS and of any other known product hazards and safety information, (2) furnish this information to each purchaser of the product, and (3) ask each purchaser to notify its employees and customers of the product hazards and safety information.

The opinions expressed herein are those of qualified experts within Praxair, Inc. We believe that the information contained herein is current as of the date of this Material Safety Data Sheet. Since the use of this information and the conditions of use of the product are not within the control of Praxair, Inc., it is the user's obligation to determine the conditions of safe use of the product.

Praxair MSDSs are furnished on sale or delivery by Praxair or the independent distributors and suppliers who package and sell our products. To obtain current MSDSs for these products, contact your Praxair sales representative or local distributor or supplier, or download from www.praxair.com. If you have questions regarding Praxair MSDSs, would like the form number and date of the latest MSDS, or would like the names of the Praxair suppliers in your area, phone or write the Praxair Call Center (**Phone:** 1-800-PRAXAIR; **Address:** Praxair Call Center, Praxair, Inc., PO Box 44, Tonawanda, NY 14151-0044).



PRAXAIR®

Praxair, Inc.
39 Old Ridgebury Road
Danbury, CT 06810-5113

# #10 Oil

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision Date: 09/02/2014 Date of issue: 09/02/2014 Version: 1.0

## SECTION 1: IDENTIFICATION

### Product Identifier

**Product Form:** Substance

**Product Name:** #10 Oil

### Intended Use of the Product

Lubricant

### Name, Address, and Telephone of the Responsible Party

**Company**

Ingersoll Rand

800-A Beaty Street, P.O. Box 1600

Davidson, NC 28036

T 1-800-483-4981 (Product Support)

**Manufacturer**

Chemtura Corporation

199 Benson Road

Middlebury, CT 06749, USA

Telephone: US +1 866-530-2775

### Emergency Telephone Number

**Emergency number** : 24-hour emergency Chemtrec numbers: Inside US: 1-800-424-9300 Outside US: 703-527-3887

## SECTION 2: HAZARDS IDENTIFICATION

### Classification of the Substance or Mixture

**Classification (GHS-US)**

Not classified

### Label Elements

**GHS-US Labeling**

No labeling required

### Other Hazards

**Other Hazards Not Contributing to the Classification**: Exposure may aggravate those with pre-existing eye, skin, or respiratory conditions.

**Unknown Acute Toxicity (GHS-US)** Not available

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

### Substances

| Name | Product identifier | % (w/w) | Classification (GHS-US) |
|---|---|---|---|
| Distillates, petroleum, hydrotreated heavy paraffinic | (CAS No) 64742-54-7 | 90 - 100 | Not classified |

## SECTION 4: FIRST AID MEASURES

### Description of First Aid Measures

**General:** Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label if possible).

**Inhalation:** Remove to fresh air and keep at rest in a position comfortable for breathing. Obtain medical attention if breathing difficulty persists.

**Skin Contact:** Rinse immediately with plenty of water. Obtain medical attention if irritation develops or persists.

**Eye Contact:** Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention.

**Ingestion:** Do NOT induce vomiting. Rinse mouth. Immediately call a POISON CENTER or doctor/physician.

### Most Important Symptoms and Effects Both Acute and Delayed

**General:** Not expected to present a significant hazard under anticipated conditions of normal use.

**Inhalation:** May cause respiratory irritation.

**Skin Contact:** May cause skin irritation.

**Eye Contact:** May cause eye irritation.

**Ingestion:** Ingestion is likely to be harmful or have adverse effects.

**Chronic Symptoms:** None known.

### Indication of Any Immediate Medical Attention and Special Treatment Needed

If you feel unwell, seek medical advice (show the label where possible).

## SECTION 5: FIRE-FIGHTING MEASURES

### Extinguishing Media

**Suitable Extinguishing Media:** Use extinguishing media appropriate for surrounding fire.

**Unsuitable Extinguishing Media:** Do not use a heavy water stream. Use of heavy stream of water may spread fire.

### Special Hazards Arising From the Substance or Mixture

**Fire Hazard:** Not considered flammable but may burn at high temperatures.

**Explosion Hazard:** Product is not explosive.

**Reactivity:** Hazardous reactions will not occur under normal conditions.

### Advice for Firefighters

**Precautionary Measures Fire:** Exercise caution when fighting any chemical fire.

**Firefighting Instructions:** Use water spray or fog for cooling exposed containers.

**Protection During Firefighting:** Do not enter fire area without proper protective equipment, including respiratory protection.

**Hazardous Combustion Products**:Not available

**Other information:** Refer to Section 9 for flammability properties.

### Reference to Other Sections

Refer to section 9 for flammability properties.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

### Personal Precautions, Protective Equipment and Emergency Procedures

**General Measures:** Avoid contact with skin, eyes, or clothing. Avoid breathing (vapor, mist, spray).

**For Non-Emergency Personnel**

**Protective Equipment:** Use appropriate personal protection equipment (PPE).

**Emergency Procedures:** Evacuate unnecessary personnel.

**For Emergency Personnel**

**Protective Equipment:** Equip cleanup crew with proper protection.

**Emergency Procedures:** Stop leak if safe to do so. Eliminate ignition sources. Ventilate area.

### Environmental Precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

### Methods and Material for Containment and Cleaning Up

**For Containment:** Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.

**Methods for Cleaning Up:** Clear up spills immediately and dispose of waste safely. Spills should be contained with mechanical barriers. Transfer spilled material to a suitable container for disposal. Contact competent authorities after a spill.

### Reference to Other Sections

See Heading 8. Exposure controls and personal protection.

## SECTION 7: HANDLING AND STORAGE

### Precautions for Safe Handling

**Hygiene Measures:** Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

### Conditions for Safe Storage, Including Any Incompatibilities

**Technical Measures:** Comply with applicable regulations.

**Storage Conditions:** Store in a dry, cool and well-ventilated place. Keep container closed when not in use. Keep/Store away from direct sunlight, extremely high or low temperatures and incompatible materials.

**Incompatible Materials:** Strong acids. Strong bases. Strong oxidizers.

### Specific End Use(s)

Lubricant

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control Parameters

No Occupational Exposure Limits (OELs) have been established for this product or its chemical components.

### Exposure Controls

**Appropriate Engineering Controls:** Ensure adequate ventilation, especially in confined areas. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure all national/local regulations are observed.

**Personal Protective Equipment:** Protective goggles. Gloves. Protective clothing.

**Materials for Protective Clothing:** Chemically resistant materials and fabrics.

**Hand Protection:** Wear chemically resistant protective gloves.

**Eye Protection:** Chemical goggles or safety glasses.

**Skin and Body Protection:** Wear suitable protective clothing.

**Respiratory Protection:** Use a NIOSH-approved respirator or self-contained breathing apparatus whenever exposure may exceed established Occupational Exposure Limits.

**Environmental Exposure Controls:** Do not allow the product to be released into the environment.

**Consumer Exposure Controls:** Do not eat, drink or smoke during use

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### Information on Basic Physical and Chemical Properties

| | | |
|---|---|---|
| **Physical State** | : | Liquid |
| **Appearance** | : | Amber |
| **Odor** | : | Mild |
| **Odor Threshold** | : | Not available |
| **pH** | : | Not available |
| **Relative Evaporation Rate (butylacetate=1)** | : | Not available |
| **Melting Point** | : | Not available |
| **Freezing Point** | : | Not available |
| **Boiling Point** | : | Not available |
| **Flash Point** | : | > 210 °C (> 410 °F) |
| **Auto-ignition Temperature** | : | Not available |
| **Decomposition Temperature** | : | Not available |
| **Flammability (solid, gas)** | : | Not available |
| **Lower Flammable Limit** | : | Not available |
| **Upper Flammable Limit** | : | Not available |
| **Vapor Pressure** | : | Not available |
| **Relative Vapor Density at 20 °C** | : | Not available |
| **Relative Density** | : | Not available |
| **Specific Gravity** | : | 0.86-0.87 |
| **Solubility** | : | Insoluble |
| **Partition coefficient: n-octanol/water** | : | Not available |
| **Viscosity** | : | Not available |
| **Explosion Data – Sensitivity to Mechanical Impact** | : | Not expected to present an explosion hazard due to mechanical impact. |
| **Explosion Data – Sensitivity to Static Discharge** | : | Not expected to present an explosion hazard due to static discharge. |

## SECTION 10: STABILITY AND REACTIVITY

**Reactivity:** Hazardous reactions will not occur under normal conditions.

**Chemical Stability:** Stable under recommended handling and storage conditions (see section 7).

**Possibility of Hazardous Reactions:** Hazardous polymerization will not occur.

**Conditions to Avoid:** Direct sunlight. Extremely high or low temperatures. Ignition sources. Incompatible materials.

**Incompatible Materials:** Strong acids. Strong bases. Strong oxidizers.

**Hazardous Decomposition Products:** Carbon oxides (CO, $CO_2$).

## SECTION 11: TOXICOLOGICAL INFORMATION

### Information on Toxicological Effects - Product

**Acute Toxicity:** Not classified

**LD50 and LC50 Data:** Not available

**Skin Corrosion/Irritation:** Not classified

**Serious Eye Damage/Irritation:** Not classified

**Respiratory or Skin Sensitization:** Not classified

**Germ Cell Mutagenicity:** Not classified

**Teratogenicity:** Not available

**Carcinogenicity:** Not classified

**Specific Target Organ Toxicity (Repeated Exposure):** Not classified

**Reproductive Toxicity:** Not classified

**Specific Target Organ Toxicity (Single Exposure):** Not classified

**Aspiration Hazard:** Not classified

**Symptoms/Injuries After Inhalation:** May cause respiratory irritation.

**Symptoms/Injuries After Skin Contact:** May cause skin irritation.

**Symptoms/Injuries After Eye Contact:** May cause eye irritation.

**Symptoms/Injuries After Ingestion:** Ingestion is likely to be harmful or have adverse effects.

**Chronic Symptoms:** None known.

### Information on Toxicological Effects - Ingredient(s)

**LD50 and LC50 Data:** Not available

## SECTION 12: ECOLOGICAL INFORMATION

**Toxicity** Not classified

| **Distillates, petroleum, hydrotreated heavy paraffinic (64742-54-7)** | |
|---|---|
| LC50 Fish 1 | > 5000 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss) |
| EC50 Daphnia 1 | > 1000 mg/l (Exposure time: 48 h - Species: Daphnia magna) |

**Persistence and Degradability** Not available

**Bioaccumulative Potential** Not available

**Mobility in Soil** Not available

### Other Adverse Effects

**Other Information:** Avoid release to the environment.

## SECTION 13: DISPOSAL CONSIDERATIONS

**Waste Disposal Recommendations:** Dispose of waste material in accordance with all local, regional, national, and international regulations.

**Ecology – Waste Materials:** Avoid release to the environment.

## SECTION 14: TRANSPORT INFORMATION

**14.1 In Accordance with DOT** Not regulated for transport

**14.2 In Accordance with IMDG** Not regulated for transport

**14.3 In Accordance with IATA** Not regulated for transport

**14.4 In Accordance with TDG** Not regulated for transport

## SECTION 15: REGULATORY INFORMATION

### US Federal Regulations

| **Distillates, petroleum, hydrotreated heavy paraffinic (64742-54-7)** |
|---|
| Listed on the United States TSCA (Toxic Substances Control Act) inventory |

### US State Regulations

Neither this product nor its chemical components appear on any US state lists.

### Canadian Regulations

| **#10 Oil** | |
|---|---|
| WHMIS Classification | Uncontrolled product according to WHMIS classification criteria. |
| | |

| **Distillates, petroleum, hydrotreated heavy paraffinic (64742-54-7)** |
|---|
| Listed on the Canadian DSL (Domestic Substances List) inventory. |

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all of the information required by CPR.

## SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

**Revision date** : 09/02/2014

**Other Information** : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

**Party Responsible for the Preparation of This Document**

Ingersoll Rand
800-A Beaty Street, P.O. Box 1600
Davidson, NC 28036
T 1-800-483-4981 (Product Support)

*This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.*

North America GHS US 2012 & WHMIS

## 1. MATERIAL AND COMPANY IDENTIFICATION

**Material Name** : **Ethylene Glycol Antifreeze Grade**
**Uses** : Chemical intermediate. Advice in this document relates only to product as originally supplied. Other derivative chemicals will have different properties and hazards. Advice should be sought on their safe handling and use.
**Product Code** : U1281
**Company** : **Shell Chemical LP**
PO Box 2463
HOUSTON TX 77252-2463
USA
**MSDS Request** : 1-800-240-6737
**Customer Service** : 1-855-697-4355

**Emergency Telephone Number**
**Chemtrec Domestic (24 hr)** : 1-800-424-9300
**Chemtrec International (24 hr)** : 1-703-527-3887

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

| Chemical Name | CAS No. | Concentration |
|---|---|---|
| Ethylene Glycol | 107-21-1 | 90.00 - 100.00 % |
| Diethylene glycol | 111-46-6 | 0.01 - 10.00 % |

## 3. HAZARDS IDENTIFICATION

**Emergency Overview**

**Appearance and Odour** : Colourless. Slightly viscous liquid. Mild.

**Health Hazards** : Harmful if swallowed.

**Health Hazards**

**Inhalation** : Vapours expected to be slightly irritating.
**Skin Contact** : May cause moderate irritation to skin.
**Eye Contact** : Moderately irritating to eyes. Vapours may be irritating to the eye.
**Ingestion** : Harmful if swallowed. May cause drowsiness and dizziness.
**Other Information** : Possibility of organ or organ system damage from prolonged exposure; see Chapter 11 for details. Target organ(s): Kidney.
Intentional abuse, misuse or other massive exposure may cause multiple organ damage and / or death.
**Signs and Symptoms** : Kidney toxicity may be recognized by blood in the urine or increased or decreased urine flow. Other signs and symptoms can include nausea, vomiting, abdominal cramps, diarrhoea,

lumbar pain shortly after ingestion, and possibly narcosis and death. Eye irritation signs and symptoms may include a burning sensation, redness, swelling, and/or blurred vision. Skin irritation signs and symptoms may include a burning sensation, redness, swelling, and/or blisters. Respiratory irritation signs and symptoms may include a temporary burning sensation of the nose and throat, coughing, and/or difficulty breathing.

**Aggravated Medical Condition** : Pre-existing medical conditions of the following organ(s) or organ system(s) may be aggravated by exposure to this material: Kidney.

## 4. FIRST AID MEASURES

**Inhalation** : Remove to fresh air. If rapid recovery does not occur, transport to nearest medical facility for additional treatment.

**Skin Contact** : Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available. If persistent irritation occurs, obtain medical attention.

**Eye Contact** : Immediately flush eyes with large amounts of water for at least 15 minutes while holding eyelids open. Transport to the nearest medical facility for additional treatment.

**Ingestion** : DO NOT DELAY.
Do not induce vomiting. If victim is alert, rinse mouth and drink 1/2 to 1 glass of water to help dilute the material. Do not give liquids to a drowsy, convulsing, or unconscious person. Transport to nearest medical facility for additional treatment. If vomiting occurs spontaneously, keep head below hips to prevent aspiration.

**Advice to Physician** : May cause significant renal, respiratory, and CNS toxicity. May cause significant acidosis. Call a doctor or poison control center for guidance.

## 5. FIRE FIGHTING MEASURES

**Flash point** : 121 °C / 250 °F (ASTM D-93 / PMCC)

**Specific Hazards** : Material will not burn unless preheated. Carbon monoxide may be evolved if incomplete combustion occurs. Containers exposed to intense heat from fires should be cooled with large quantities of water.

**Extinguishing Media** : Alcohol-resistant foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.

**Unsuitable Extinguishing Media** : Do not use water in a jet.

**Protective Equipment for Firefighters** : Wear full protective clothing and self-contained breathing apparatus.

**Additional Advice** : Evacuate the area of all non-essential personnel. Keep adjacent containers cool by spraying with water.

## 6. ACCIDENTAL RELEASE MEASURES

| | | |
|---|---|---|
| **Protective measures** | : | Avoid contact with spilled or released material. For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. Prevent from spreading or entering into drains, ditches or rivers by using sand, earth, or other appropriate barriers. Use appropriate containment to avoid environmental contamination. Ventilate contaminated area thoroughly. |
| **Clean Up Methods** | : | Contain run-off from residue flush and dispose of properly. Soak up residue with an absorbent such as clay, sand or other suitable material.<br>For small liquid spills (< 1 drum), transfer by mechanical means to a labelled, sealable container for product recovery or safe disposal. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely. For large liquid spills (> 1 drum), transfer by mechanical means such as vacuum truck to a salvage tank for recovery or safe disposal. Do not flush away residues with water. Retain as contaminated waste. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely. Transfer to a salvage tank for recovery or safe disposal. Do not flush away residues with water. Retain as contaminated waste. |
| **Additional Advice** | : | See Chapter 13 for information on disposal. Observe all relevant local regulations. Notify authorities if any exposure to the general public or the environment occurs or is likely to occur. Dike and contain spill water. |

## 7. HANDLING AND STORAGE

| | | |
|---|---|---|
| **General Precautions** | : | Avoid breathing vapours or contact with material. Only use in well ventilated areas. Wash thoroughly after handling. On guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material. |
| **Handling** | : | Use local exhaust extraction over processing area. Handle and open container with care in a well-ventilated area. Do not empty into drains. When handling product in drums, safety footwear should be worn and proper handling equipment should be used. Handling Temperature: Ambient. 60 °C maximum |
| **Storage** | : | Tanks must be clean, dry and rust-free. Keep container tightly closed. Must be stored in a diked (bunded) well-ventilated area, away from sunlight, ignition sources and other sources of heat. Cleaning, inspection and maintenance of storage tanks is a specialist operation which requires the implementation of strict procedures and precautions. Drums should be stacked to a maximum of 3 high. Storage Temperature: Ambient. 60 °C maximum |
| **Product Transfer** | : | Keep containers closed when not in use. Do not pressurize drum |

containers to empty.

**Recommended Materials** : Stainless steel. Mild steel. Carbon steel

**Additional Information** : Ensure that all local regulations regarding handling and storage facilities are followed.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Occupational Exposure Limits

| Material | Source | Type | ppm | mg/m3 | Notation |
|---|---|---|---|---|---|
| Ethylene Glycol | OSHA Z1A | Ceiling | 50 ppm | 125 mg/m3 | |
| | ACGIH | Ceiling | | 100 mg/m3 | |
| | Aerosol. | | | | |

### Biological Exposure Index (BEI)

No biological limit allocated.

**Additional Information** : Shell has adopted as Interim Standards the OSHA Z1A values that were established in 1989 and later rescinded.
Wash hands before eating, drinking, smoking and using the toilet. Launder contaminated clothing before re-use.

**Exposure Controls** : No exposure controls are ordinarily required under normal conditions of use. It is good general industrial hygiene practice to minimize exposure to the material.

**Personal Protective Equipment** : Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.

**Respiratory Protection** : If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation. Check with respiratory protective equipment suppliers. Where air-filtering respirators are suitable, select an appropriate combination of mask and filter.

**Hand Protection** : Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739, AS/NZS:2161) made from the following materials may provide suitable chemical protection: Longer term protection: PVC. Neoprene rubber. Nitrile rubber.
Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.

**Protective Clothing** : Skin protection not ordinarily required beyond standard issue work clothes. Chemical resistant gloves/gauntlets, boots, and apron.

| | | |
|---|---|---|
| **Monitoring Methods** | : | Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate. Examples of sources of recommended air monitoring methods are given below or contact supplier. Further national methods may be available. National Institute of Occupational Safety and Health (NIOSH), USA: Manual of Analytical Methods, http://www.cdc.gov/niosh/nmam/nmammenu.html. Occupational Safety and Health Administration (OSHA), USA: Sampling and Analytical Methods http://www.osha.gov/dts/sltc/methods/toc.html Health and Safety Executive (HSE), UK: Methods for the Determination of Hazardous Substances, http://www.hsl.gov.uk/publications/mdhs.aspx. |
| **Environmental Exposure Controls** | : | The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include: Adequate ventilation to control airborne concentrations. Exhaust emission systems should be designed in accordance with local conditions; the air should always be moved away from the source of vapour generation and the person working at this point. Eye washes and showers for emergency use. |

## 9. PHYSICAL AND CHEMICAL PROPERTIES

The physical and chemical property data are typical values and do not constitute a specification.

| | | |
|---|---|---|
| Appearance | : | Colourless. Slightly viscous liquid. |
| Odour | : | Mild. |
| Boiling point | : | 190 - 240 °C / 374 - 464 °F |
| Flash point | : | 121 °C / 250 °F (ASTM D-93 / PMCC) |
| Vapour pressure | : | < 10 Pa at 20 °C / 68 °F |
| Specific gravity | : | 1.115 |
| Density | : | Typical 1,113 kg/m3 at 20 °C / 68 °F (ASTM D-4052) |
| Water solubility | : | Completely Soluble |
| Solubility in other solvents | : | Data not available. |
| Dynamic viscosity | : | Data not available. |
| Kinematic viscosity | : | 26 mm2/s at 20 °C / 68 °F |
| Vapour density (air=1) | : | 2.1 |
| State of aggregation | : | Liquid/Solid |
| Stability | | Stable. |
| Surface tension | : | Data not available. |

## 10. STABILITY AND REACTIVITY

| | | |
|---|---|---|
| **Stability** | : | Stable under normal conditions of use. Reacts with strong oxidising agents. |
| **Conditions to Avoid** | : | High Temperature. |

| | | |
|---|---|---|
| **Materials to Avoid** | : | Strong oxidising agents. Strong acids. Strong bases. |
| **Hazardous Decomposition Products** | : | Thermal decomposition is highly dependent on conditions. A complex mixture of airborne solids, liquids and gases, including carbon monoxide, carbon dioxide and other organic compounds will be evolved when this material undergoes combustion or thermal or oxidative degradation. |
| **Hazardous Reactions** | : | Data not available. |

## 11. TOXICOLOGICAL INFORMATION

| | | |
|---|---|---|
| **Basis for Assessment** | : | Information given is based on product testing, and/or similar products, and/or components. |
| **Acute Oral Toxicity** | : | Low toxicity: LD50 >2000 mg/kg , Rat (Ethylene Glycol)<br>Ingestion may cause drowsiness and dizziness. |
| **Acute Dermal Toxicity** | : | Low toxicity: LD50 >2000 mg/kg , Rabbit (Ethylene Glycol) |
| **Acute Inhalation Toxicity** | : | Low toxicity: LC50 >20 mg/l / 1 hours, Rat (Ethylene Glycol) |
| **Skin corrosion/irritation** | : | Moderately irritating to skin (but insufficient to classify). |
| **Serious eye damage/irritation** | : | Moderately irritating to eyes (but insufficient to classify). |
| **Respiratory Irritation** | : | Inhalation of vapours or mists may cause irritation to the respiratory system. |
| **Sensitisation** | : | Not expected to be a sensitiser. |
| **Repeated Dose Toxicity** | : | Kidney: can cause kidney damage. |
| **Germ cell mutagenicity** | : | No evidence of mutagenic activity. |
| **Carcinogenicity** | : | Tumours produced in animals are not considered relevant to humans. (Diethylene glycol) |

| **Material** | : | **Carcinogenicity Classification** |
|---|---|---|
| Ethylene Glycol | : | ACGIH Group A4: Not classifiable as a human carcinogen. |

| | | |
|---|---|---|
| **Reproductive and Developmental Toxicity** | : | May impair fertility based on animal studies. (Ethylene Glycol)<br><br>Causes foetotoxicity in animals; considered to be secondary to maternal toxicity. (Ethylene Glycol) |

## 12. ECOLOGICAL INFORMATION

Information given is based on product testing.

**Acute Toxicity**

| | | |
|---|---|---|
| **Fish** | : | Low toxicity: LC/EC/IC50 > 100 mg/l |
| **Aquatic crustacea** | : | Low toxicity: LC/EC/IC50 > 100 mg/l |
| **Algae/aquatic plants** | : | Low toxicity: LC/EC/IC50 > 100 mg/l |
| **Microorganisms** | : | Low toxicity: LC/EC/IC50 > 100 mg/l |

| | | |
|---|---|---|
| **Mobility** | : | Dissolves in water.<br>If product enters soil, it will be highly mobile and may contaminate groundwater. |
| **Persistence/degradability** | : | Readily biodegradable.<br>Oxidises rapidly by photo-chemical reactions in air. |
| **Bioaccumulation** | : | Does not bioaccumulate significantly. |

**Other Adverse Effects** : Data not available.

## 13. DISPOSAL CONSIDERATIONS

**Material Disposal** : Recover or recycle if possible. Waste arising from a spillage or tank cleaning should be disposed of in accordance with prevailing regulations, preferably to a recognised collector or contractor. The competence of the collector or contractor should be established beforehand. Remove all packaging for recovery or waste disposal.
Do not dispose into the environment, in drains or in water courses. Waste product should not be allowed to contaminate soil or water.

**Container Disposal** : Dispose in accordance with prevailing regulations, preferably to a recognised collector or contractor. The competence of the collector or contractor should be established beforehand.

**Local Legislation** : Disposal should be in accordance with applicable regional, national, and local laws and regulations.

## 14. TRANSPORT INFORMATION

**US Department of Transportation Classification (49CFR)**

| | |
|---|---|
| Identification number | UN 3082 |
| UN proper shipping name | Environmentally hazardous substances, liquid, n.o.s. |
| Technical name | (Ethylene glycol) |
| Class / Division | 9 |
| Packing group | III |
| Hazardous subst./material RQ | Ethylene glycol (5,000 LB) |
| Emergency Response Guide No. . | 171 |

**IMDG**
This material is not classified as dangerous under IMDG regulations.

**IATA (Country variations may apply)**
This material is either not classified as dangerous under IATA regulations or needs to follow country specific requirements.

**Additional Information** : **This product may be transported under nitrogen blanketing. Nitrogen is an odourless and invisible gas. Exposure to nitrogen may cause asphyxiation or death. Personnel must observe strict safety precautions when involved with a confined space entry.**

## 15. REGULATORY INFORMATION

**The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.**

## Federal Regulatory Status

### Notification Status

| | | | |
|---|---|---|---|
| AICS | Listed. | | |
| DSL | Listed. | | |
| INV (CN) | Listed. | | |
| ENCS (JP) | Listed. | (2)-230 | |
| TSCA | Listed. | | |
| EINECS | Listed. | 203-473-3 | |
| KECI (KR) | Listed. | KE-13169 | |
| PICCS (PH) | Listed. | | |
| ISHL (JP) | Listed. | (2)-230 | |
| NZIOC | Listed. | HSR001534 | HSNO Approved |

### Comprehensive Environmental Release, Compensation & Liability Act (CERCLA)

| | |
|---|---|
| Ethylene Glycol Antifreeze Grade (107-21-1) | Reportable quantity: 5,000 lbs |
| Ethylene Glycol (107-21-1) | Reportable quantity: 5,000 lbs |

### SARA Hazard Categories (311/312)

Immediate (Acute) Health Hazard.

### SARA Toxic Release Inventory (TRI) (313)

Ethylene Glycol (107-21-1)

## State Regulatory Status

### California Safe Drinking Water and Toxic Enforcement Act (Proposition 65)

This material does not contain any chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

### New Jersey Right-To-Know Chemical List

| | |
|---|---|
| Ethylene Glycol (107-21-1) | Listed. |

### Pennsylvania Right-To-Know Chemical List

| | |
|---|---|
| Ethylene Glycol (107-21-1) | Environmental hazard.<br>Listed. |

| | |
|---|---|
| Diethylene glycol (111-46-6) | Listed. |

## 16. OTHER INFORMATION

| | | |
|---|---|---|
| **HMIS Rating (Health, Fire, Reactivity)** | : | 3, 1, 0 |
| **NFPA Rating (Health, Fire, Reactivity)** | : | 1, 1, 0 |
| **MSDS Version Number** | : | 17.2 |
| **MSDS Effective Date** | : | 08/01/2012 |
| **MSDS Revisions** | : | A vertical bar (\|) in the left margin indicates an amendment from the previous version. |
| **MSDS Regulation** | : | The content and format of this MSDS is in accordance with the OSHA Hazard Communication Standard, 29 CFR 1910.1200. |
| **Uses and Restrictions** | : | Keep out of reach of children and pets.<br>Do not use in the manufacture or preparation of foods or pharmaceuticals.<br>Do not use in theatrical fogs or other artificial smoke generator applications.<br>Do not use in aircraft deicing applications. |
| **MSDS Distribution** | : | The information in this document should be made available to all who may handle the product |
| **Disclaimer** | : | The information contained herein is based on our current knowledge of the underlying data and is intended to describe the product for the purpose of health, safety and environmental requirements only. No warranty or guarantee is expressed or implied regarding the accuracy of these data or the results to be obtained from the use of the product. |

**Distributed by: Rainbow Technology Corp.**
**1.800.637.6047 or 205.733.0333**
**Product #: 4747**

# MATERIAL SAFETY DATA SHEET

IDENTITY (as used on label): BARBASOL NON-AEROSOL THERAPEUTIC SHAVE CREAM
SECTION I
MANUFACTURER: Raani Corporation DATE ISSUED: April 28, 2009
ADDRESS: 5202 West 70th Place, Bedford Park, Illinois, 60638
EMERGENCY TELEPHONE NUMBER: 1-800-535-5053 (INFOTRAC)
TELEPHONE NUMBER FOR INFORMATION: (708) 496-8025

## SECTION II - Hazardous Ingredients / Identity Information

| Hazardous Components (chemical identity) | OSHA PEL | ACGIH | TLV | %w/w |
|---|---|---|---|---|
| Potassium hydroxide (CAS#215-181-3) | not listed | 2 mg/m3 | not listed | 0.2 - 0.8 % |
| Sodium silicate (CAS# 1344-09-8) | not listed | not listed | not listed | 0.2 – 0.8 % |
| Ammonium hydroxide (C.A.S.# 16393-49-0) | none listed | none listed | not listed | 0.2 – 0.8 % |
| Boric Acid (CAS# 10043-35-3) | 15 mg//m3 | 10 mg/m3 | 10 mg/m3 | 1.0 –3.0 % |

## SECTION III - Physical / Chemical Characteristics

Boiling Point: N/A Specific Gravity: 1.02 Melting Point: N/A
Vapor Pressure (mm Hg): N/A Vapor Density (air = 1): N/A
Evaporation Rate (Butyl Acetate = 1): N/A
Solubility in Water: Completely disperses %Non-volatiles: 30 – 40 %
Appearance and Odor: Off-white soft solid with Characteristic odor

## SECTION IV - Fire & Explosion Hazard Data

Flash Point (Closed cup): N/A Flammable Limits - UEL: N/ALEL: N/A
Extinguishing Media: Foam, water or CO2 where applicable
Special Fire Fighting Procedures: None needed

## SECTION V - Reactivity Data

STABILITY Stable [X] Unstable [ ]
Incompatibility (Materials to Avoid): Cotton or leather clothing, ferrous metals
Hazardous Decomposition or Byproducts: Sulfur dioxide or hydrogen sulfide
Hazardous Polymerization: May Occur [ ] Will not Occur [X]
Chemicals or Conditions to Avoid: Strong-oxidizing agents

SECTION VI - Health Hazard Data

Routes of Entry: Skin? [X] Eyes? [X] Inhalation? [ ] Ingestion? [X]

Health Hazards: Acute [X] Chronic [ ]
May cause acute caustic burns (pH = 12) during prolonged contact with living tissue Product is a keratolytic...dissolves skin and hair upon prolonged contact.

Carcinogenicity: NTP? not listed IARC? not listed OSHA Regulated? No

Signs & Symptoms of Exposure: May be acute reddening or burning of the eyes or reddening of exposed skin. Severe gastrointestinal difficulty may occur if ingested.

Medical Conditions Aggravated by Exposure: Any inflammations of the skin or scalp may be aggravated seriously.

Emergency & First Aid Procedures: For eye contact, irrigate eye with warm water for ten minutes minimum, then seek medical attention. If swallowed, give two glasses of water. Do not induce vomiting. Seek medical attention immediately. Never give an unconscious person anything by mouth.

SECTION VII - Precautions For Safe Handling and Use

If Material is Released or Spilled: Sweep or shovel spillage into appropriate waste receptacle. Wash down residue with water and/or detergent.
Waste Disposal Method: General refuse disposal is adequate; should be acceptable to local, state and federal requirements.
Precautions to be taken in Handling & Storage: Floors may become slippery if spilled.

SECTION VIII - Control Measures

Respiratory Protection: Needed [ ] Not Needed [X]
Ventilation: Local Needed [ ] Not Needed [X]
Eye Protection: Needed [X] Not Needed [ ]
Protective Gloves: Needed [X] Not Needed [ ]
Protective Clothing: Needed [ ] Not Needed [X]

To the best of Raani's knowledge, this product is not regulated by CERCLA/RCRA as a hazardous waste or material. However, this product has not been tested for toxicity characteristics. DOT classification: Toiletries.

The information presented herein is believed to be factual as it has been derived from the works and opinions of persons deemed to be qualified. However, nothing contained in this document is to be taken as a warranty or representation for which Raani Corporation bears responsibility.

# 880 CROWN & CHASSIS GREASE

## MSDS Number

BCKHR

## National Stock Number

9150-00N003562

## Product Name

880 CROWN & CHASSIS GREASE

## Manufacturer

TEXAS REFINERY CORP

## Product Identification

Product ID:880 CROWN & CHASSIS GREASE
MSDS Date:01/01/1985
FSC:9150
NIIN:00N003562
MSDS Number: BCKHR

## Responsible Party

TEXAS REFINERY CORP.

Emergency Phone: 817-332-1161

Cage: 26016

## Contractor

TEXAS REFINERY CORP

FORT WORTH, TX 76101-5000

US

817-332-1161

Cage: 26016

## Ingredients

GREASE,PETROLEUM

## Hazards

Effects of Overexposure:MFR STATES CLASSED AS NON-TOXIC.

## Fire Fighting

Flash Point:470F COC
Extinguishing Media:NORMAL FOR HYDROCARBONS, CO*2,FOAM,DRY POWDER.
Fire Fighting Procedures:NORMAL FOR HYDROCARBONS.

## Accidental Release

Spill Release Procedures:CLEAN UP MECHANICALLY.

## Handling

Handling and Storage Precautions:NORMAL FOR GREASES.

## Exposure Controls

Respiratory Protection:NONE REQUIRED ACCD TO MFR
Ventilation:LOCAL EXHAUST
Protective Gloves:NONE REQUIRED
Eye Protection:NON ACCD TO MFR
Supplemental Safety and Health

## Chemical Properties

Boiling Pt:B.P. Text:>450F

Vapor Pres:Spec Gravity:Solubility in Water:NEGLIGIBLE
Appearance and Odor:RED GREASE W/MINERAL OIL ODOR.

## Stability

Stability Indicator/Materials to Avoid:YES
HIGH OXIDIZING AGENTS
Hazardous Decomposition Products:NONE ACCD TO MFR

## Disposal

Waste Disposal Methods:MFR RECM SOLID WASTE DUMP IF IAW FED,STATE & LOCAL CODES.

# Safety Data Sheet

According to OSHA HCS 2012 (29 CFR 1910.1200)

## Section 1: Identification

**Product Identifier:** **No. 2 Diesel Fuel**

**Other means of identification:** #2DSL ULS (All Grades); #2DSL HS (All Grades); #2DSL LS (All Grades); CARB DSL (All Grades); DIST CARB-Diesel (All Grades); Distillate,Diesel (All Grades); Gas Oil (All Grades); Hydrodewaxer Diesel (All Grades); Diesel Fuel (All Grades); EPA Diesel Fuel (All Grades); No. 2 Diesel (All Grades); No. 2 Diesel Fuel Oil (All Grades); No. 2 Distillate; No. 2 Diesel with Renewable Diesel (All Grades); Super Diesel Fuel (All Grades); Distillate Blend Stock; Fuels, Diesel; Virgin Diesel Fuel

**SDS Number:** **001847**

**MARPOL Annex I Category:** Gas Oils, Including Ship's Bunkers

**Intended Use:** Fuel

**Uses Advised Against:** All others

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

**Manufacturer:**
Phillips 66 Company
P.O. Box 4428
Houston, Texas 77210

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

**Customer Service:**
800-527-5476 **Technical Information:** 800-527-5476

## Section 2: Hazards Identification

**Classified Hazards**

H226 -- Flammable liquids -- Category 3
H315 -- Skin corrosion/irritation -- Category 2
H304 -- Aspiration Hazard -- Category 1
H332 -- Acute toxicity, Inhalation -- Category 4
H373 -- Specific target organ toxicity (repeated exposure) -- Category 2
H351 -- Carcinogenicity -- Category 2
H410 -- Hazardous to the aquatic environment, chronic toxicity -- Category 1

**Other Hazards**

Electrostatic charge may be generated during pumping and other operations

### Label Elements

**DANGER**

Flammable liquid and vapor
Causes skin irritation
May be fatal if swallowed and enters airways
Harmful if inhaled
May cause damage to organs through prolonged or repeated exposure
Suspected of causing cancer
Very toxic to aquatic life with long lasting effects

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 away from any possible contact with water, because of violent reaction and possible flash fire; Ground/bond container and receiving equipment; Use explosion-proof electrical/ventilating/lighting equipment; Use only non-sparking tools; Take precautionary measures against static discharge; Do not breathe dust/fume/gas/mist/vapours/spray; Wash thoroughly after handling; Use only outdoors or in a well-ventilated area; Avoid release to the environment; Wear protective gloves / protective clothing / eye protection / face protection; Call a POISON CENTER or doctor/physician if you feel unwell; IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician; Do NOT induce vomiting; IF ON SKIN: Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower; IF ON SKIN:; Wash with plenty of soap and water; If skin irritation occurs:; Get medical advice/attention; IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing; Take off contaminated clothing and wash before reuse; In case of fire: Use dry chemical, carbon dioxide, or foam for extinction; Store in a well-ventilated place. Keep cool; Dispose of contents/container to approved disposal facility

## Section 3: Composition / Information on Ingredients

| Chemical Name | CASRN | Concentration[1] |
|---|---|---|
| Fuels, diesel, no. 2 | 68476-34-6 | 95-100 |
| Naphthalene | 91-20-3 | <1 |

**Total Sulfur:** < 0.1 wt%

[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 flush affected area(s) with large amounts of water. If skin surface is damaged, apply a clean dressing and seek medical attention. If skin surface is not damaged, cleanse affected area(s) thoroughly by washing with mild soap and water or a waterless hand cleaner. If irritation or redness develops, seek medical attention. Wash contaminated clothing before reuse. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician. (see Note to Physician)

**Inhalation (Breathing):** If respiratory symptoms or other symptoms of exposure develop, move victim away from source of exposure and into fresh air in a position comfortable for breathing. If symptoms persist, seek immediate medical attention. If victim is not breathing, clear airway and immediately begin artificial respiration. If breathing difficulties develop, oxygen should be administered by qualified personnel. Seek immediate medical attention.

**Ingestion (Swallowing):** Aspiration hazard: Do not induce vomiting or give anything by mouth because this material can enter the lungs and cause severe lung damage. If victim is drowsy or unconscious and vomiting, place on the left side with the head down. If possible, do not leave victim unattended and observe closely for adequacy of breathing. Seek medical attention.

**Most important symptoms and effects, both acute and delayed:** While significant vapor concentrations are not likely, high concentrations can cause minor respiratory irritation, headache, drowsiness, dizziness, loss of coordination, disorientation and fatigue. Ingestion can cause irritation of the digestive tract, nausea, diarrhea, and vomiting. Dry skin and possible irritation with repeated or prolonged exposure.

**Notes to Physician:** When using high-pressure equipment, injection of product under the skin can occur. In this case, the casualty should be sent immediately to the hospital. Do not wait for symptoms to develop. High-pressure hydrocarbon injection injuries may produce substantial necrosis of underlying tissue despite an innocuous appearing external wound. These injuries often require extensive emergency surgical debridement and all injuries should be evaluated by a specialist in order to assess the extent of injury. Early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

## Section 5: Fire-Fighting Measures

**NFPA 704 Hazard Class**

**Health:** 1 **Flammability:** 2 **Instability:** 0


0 (Minimal)
1 (Slight)
2 (Moderate)
3 (Serious)
4 (Severe)

**Extinguishing Media:** Dry chemical, carbon dioxide, or foam is recommended. Water spray is recommended to cool or protect exposed materials or structures. 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. Water may be ineffective for extinguishment, unless used under favorable conditions by experienced fire fighters.

**Specific hazards arising from the chemical**

**Unusual Fire & Explosion Hazards:** Flammable This material can be ignited by heat, sparks, flames, or other sources of ignition (e.g., static electricity, pilot lights, mechanical/electrical equipment, and electronic devices such as cell phones, computers, calculators, and pagers which have not been certified as intrinsically safe). Vapors may travel considerable distances to a source of ignition where they can ignite, flash back, or explode. May create vapor/air explosion hazard indoors, in confined spaces, outdoors, or in sewers. This product will float and can be reignited on surface water. Vapors are heavier than air and can accumulate in low areas. 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 nitrogen and sulfur 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:** Flammable Spillages of liquid product will create a fire hazard and may form an explosive atmosphere. Keep all sources of ignition and hot metal surfaces away from spill/release if safe to do so. The use of explosion-proof electrical equipment is recommended. 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 foam on spills to minimize vapors. 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.

## Section 7: Handling and Storage

**Precautions for safe handling:** Keep away from ignition sources such as heat/sparks/open flame – No smoking. Take precautionary measures against static discharge. Nonsparking tools should be used. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe vapors or mists. Use only outdoors or in well-ventilated area. Wear protective gloves/clothing and eye/face protection. Wash thoroughly after handling. Use good personal hygiene practices and wear appropriate personal protective equipment (see section 8). Flammable May vaporize easily at ambient temperatures. The vapor is heavier than air and may create an explosive mixture of vapor and air. Beware of accumulation in confined spaces and low lying areas. Open container slowly to relieve any pressure. The use of explosion-proof electrical equipment is recommended and may be required (see appropriate fire codes). Refer to NFPA-70 and/or API RP 2003 for specific bonding/grounding requirements. 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. Keep contaminated clothing away from sources of ignition such as sparks or open flames.

High pressure injection of hydrocarbon fuels, hydraulic oils or greases under the skin may have serious consequences even though no symptoms or injury may be apparent. This can happen accidentally when using high pressure equipment such as high pressure grease guns, fuel injection apparatus or from pinhole leaks in tubing of high pressure hydraulic oil equipment.

For use as a motor fuel only. Do not use as a solvent due to its flammable and potentially toxic properties. Siphoning by mouth can result in lung aspiration which can be harmful or fatal.

The use of hydrocarbon fuel in an area without adequate ventilation may result in hazardous levels of incomplete combustion products (e.g. carbon monoxide, oxides of sulfur and nitrogen, benzene and other hydrocarbons) and/or dangerously low oxygen levels.

Diesel engine exhaust contains hazardous combustion products and has been identified as a cancer hazard. Exposure should be minimized to reduce potential risk.

Static Accumulation Hazard: Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding of tanks, transfer piping, and storage tank level floats are 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. Special care should be given to ensure that special slow load procedures for "switch loading" are followed to avoid the static ignition hazard that can exist when higher flash point material (such as fuel oil or diesel) is loaded into tanks previously containing low flash point products (such as gasoline or naphtha). 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'.

**Conditions for safe storage:** Keep container(s) tightly closed and properly labeled. Use and store this material in cool, dry, well-ventilated areas away from heat, direct sunlight, hot metal surfaces, and all sources of ignition. Store only in approved containers. Post area "No Smoking or Open Flame." Keep away from any incompatible material (see Section 10). Protect container(s) against physical damage. Outdoor or detached storage is preferred. Indoor storage should meet OSHA standards and appropriate fire codes.

"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 |
|---|---|---|---|
| Fuels, diesel, no. 2 | TWA: 100 mg/m$^3$<br>Skin | --- | TWA: 100 mg/m$^3$<br>(Phillips 66 Guidelines) |

| | | | |
|---|---|---|---|
| Naphthalene | STEL: 15 ppm<br>TWA: 10 ppm<br>10 ppm TWA; skin; A3 - confirmed animal carcinogen with unknown relevance to humans; TLV basis: upper respiratory tract irritation<br>Skin | TWA: 10 ppm : 50 mg/m$^3$ | --- |

**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 protection that meets or exceeds ANSI Z.87.1 is recommended to protect against potential eye contact, irritation, or injury. Depending on conditions of use, a face shield may be necessary.

**Skin/Hand Protection:** The use of gloves impervious to the specific material handled is advised to prevent skin contact. Users should check with manufacturers to confirm the breakthrough performance of their products. Depending on exposure and use conditions, additional protection may be necessary to prevent skin contact including use of items such as chemical resistant boots, aprons, arm covers, hoods, coveralls, or encapsulated suits. 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 organic vapor cartridges/canisters 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).

**Other Protective Equipment:** Eye wash and quick-drench shower facilities should be available in the work area. Thoroughly clean shoes and wash contaminated clothing before reuse.

**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

**Note:** Unless otherwise stated, values are determined at 20°C (68°F) and 760 mm Hg (1 atm). Data represent typical values and are not intended to be specifications.

**Appearance:** Straw colored to dyed red
**Physical Form:** Liquid
**Odor:** Diesel fuel
**Odor Threshold:** No data
**pH:** Not applicable
**Vapor Density (air=1):** > 3
**Upper Explosive Limits (vol % in air):** 10.0
**Lower Explosive Limits (vol % in air):** 0.3
**Evaporation Rate (nBuAc=1):** <1
**Particle Size:** N/A
**Percent Volatile:** Negligible @ ambient conditions
**Flammability (solid, gas):** N/A

**Flash Point:** 125 - 180 °F / 52 - 82 °C
**Test Method:** Pensky-Martens Closed Cup (PMCC), ASTM D93, EPA 1010
**Initial Boiling Point/Range:** 300 - 690 °F / 149 - 366 °C
**Vapor Pressure:** 0.40 mm Hg
**Partition Coefficient (n-octanol/water) (Kow):** No data
**Melting/Freezing Point:** No data
**Auto-ignition Temperature:** 500 °F / 260 °C
**Decomposition Temperature:** No data
**Specific Gravity (water=1):** 0.81-0.88 @ 60ºF (15.6ºC)
**Bulk Density:** 7.08 lbs/gal
**Viscosity:** N/D
**Solubility in Water:** Negligible

## Section 10: Stability and Reactivity

**Reactivity:** Not chemically reactive.

**Chemical stability:** Stable under normal ambient and anticipated conditions of use.

**Possibility of hazardous reactions:** Hazardous reactions not anticipated.

**Conditions to avoid:** Avoid high temperatures and all sources of ignition. Prevent vapor accumulation.

**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** | Harmful if inhaled | | 4.65 mg/L (mist) |
| | | | |
| **Dermal** | Unlikely to be harmful | | > 4.1 g/kg |
| | | | |
| **Oral** | Unlikely to be harmful | | > 5 g/kg |
| | | | |

**Aspiration Hazard:** May be fatal if swallowed and enters airways.

**Skin Corrosion/Irritation:** Causes skin irritation. Repeated exposure may cause skin dryness or cracking.

**Serious Eye Damage/Irritation:** Causes mild eye irritation.

**Skin Sensitization:** Not expected to be a skin sensitizer.

**Respiratory Sensitization:** Not expected to be a respiratory sensitizer.

**Specific Target Organ Toxicity (Single Exposure):** Not expected to cause organ effects from single exposure.

**Specific Target Organ Toxicity (Repeated Exposure):** May cause damage to organs through prolonged or repeated exposure. Repeated dermal application of petroleum gas oils for 90 days resulted in decreased liver, thymus, and spleen weights, and altered bone marrow function. Microscopic alterations included liver hypertrophy and necrosis, decreased hematopoesis and lymphocyte depletion.

**Carcinogenicity:** Suspected of causing cancer. Petroleum middle distillates have been shown to cause skin tumors in mice following repeated and prolonged skin contact. Follow-up studies have shown that these tumors are produced through a non-genotoxic mechanism associated with frequent cell damage and repair, and that they are not likely to cause tumors in the absence of prolonged skin irritation.

**Germ Cell Mutagenicity:** Not expected to cause heritable genetic effects.

**Reproductive Toxicity:** Not expected to cause reproductive toxicity.

**Other Comments:** Diesel engine exhaust has been classified by the International Agency for Research on Cancer (IARC) and National Toxicology Program (NTP) as a carcinogen.

**Information on Toxicological Effects of Components**

**Naphthalene**

*Carcinogenicity:* Naphthalene has been evaluated in two year inhalation studies in both rats and mice. The US National Toxicology Program (NTP) concluded that there is clear evidence of carcinogenicity in male and female rats based on increased incidences of respiratory epithelial adenomas and olfactory epithelial neuroblastomas of the nose. NTP found some evidence of carcinogenicity in female mice (alveolar adenomas) and no evidence of carcinogenicity in male mice. Naphthalene has been identified as a carcinogen by IARC and NTP.

## Section 12: Ecological Information

**GHS Classification:**
**H410 -- Hazardous to the aquatic environment, chronic toxicity -- Category 1**
Very toxic to aquatic life with long lasting effects.

**Toxicity:** Experimental studies of gas oils show that acute aquatic toxicity values are typically in the range 2-20 mg/L. These values are consistent with the predicted aquatic toxicity of these substances based on their hydrocarbon compositions. They should be regarded as toxic to aquatic organisms, with the potential to cause long term adverse effects in the aquatic environment.

**Persistence and Degradability:** Gas oils are complex combinations of individual hydrocarbon species. Based on the known or expected properties of individual constituents, category members are not predicted to be readily biodegradable. Some hydrocarbon constituents of gas oils are predicted to meet the criteria for persistence; on the other hand, some components can be easily degraded by microorganisms under aerobic conditions.

**Persistence per IOPC Fund definition:** Non-Persistent

**Bioaccumulative Potential:** Gas oil components have measured or calculated Log Kow values in the range of 3.9 to 6 which indicates a high potential to bioaccumulate. Lower molecular weight compounds are readily metabolized and the actual bioaccumulation potential of higher molecular weight compounds is limited by the low water solubility and large molecular size.

**Mobility in Soil:** Releases to water will result in a hydrocarbon film floating and spreading on the surface. For the lighter components, volatilization is an important loss process and reduces the hazard to aquatic organisms. In air, the hydrocarbon vapors react readily with hydroxyl radicals with half-lives of less than one day. Photoxidation on the water surface is also a significant loss process particularly for polycyclic aromatic compounds. In water, the majority of components will be adsorbed on sediment. Adsorption is the most predominant physical process on release to soil. Adsorbed hydrocarbons will slowly degrade in both water and soil.

**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. However, it would likely be identified as a federally regulated RCRA hazardous waste for the following characteristic(s) shown below. 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.

Container contents should be completely used and containers should be emptied prior to discard. Container residues and rinseates could be considered to be hazardous wastes.

**EPA Waste Number(s)**
• D001 - Ignitability characteristic

## Section 14: Transport Information

**U.S. Department of Transportation (DOT)**

**Shipping Description:** *Aquatic toxicity studies indicate this material may be classified as a Marine Pollutant under IMDG Code. It is not currently regulated as a marine pollutant by the USDOT. If there is not a Shipping Description or other DOT marking, labeling, placarding and packaging references shown in this section, it is not regulated as a hazardous material by the USDOT.*

UN1202, Diesel fuel, Combustible liquid III
**Non-Bulk Package Marking:** Not Regulated *[49 CFR 173.150(f)(2)]*
**Non-Bulk Package Labeling:** Not Regulated *[49 CFR 173.150(f)(2)]*
**Bulk Package/Placard Marking:** Combustible / 1993
**Packaging - References:** None; None; 49 CFR 173.241
*(Exceptions; Non-bulk; Bulk)*
**Emergency Response Guide:** 128
**Note:** **NA1993 may be used instead of UN1202 for domestic land transportation.
*Bulk Package/Placard Marking would also be changed to:* 1202
*Container(s) greater than 5 liters (liquids) or 5 kilograms (solids), shipped by water mode and ALL bulk shipments may require the shipping description to contain the "Marine Pollutant" notation [49 CFR 172.203(l)] and the container(s) to display the [Marine Pollutant Mark] [49 CFR 172.322].*

**International Maritime Dangerous Goods (IMDG)**

**Shipping Description:** *If flashpoint is >60° C closed-cup and the material meets the IMDG definition of a Marine Pollutant, an alternate shipping name such as "Environmentally hazardous substance, n.o.s." with hazard class 9 and PG III must be used.*
UN1202, Diesel fuel, 3, III, ( FP° C cc), *[where FP is the material's flash point in degrees Celsius closed cup]*
**Non-Bulk Package Marking:** Diesel fuel, UN1202
**Labels:** Flammable liquid
**Placards/Marking (Bulk):** Flammable / 1202
**Packaging - Non-Bulk:** P001, LP01
**EMS:** F-E, S-E
**Note:** *Proper Shipping name can be:* Gas Oil *or* Diesel fuel *or* Heating Oil, light
*If transported in bulk by marine vessel in international waters, product is being carried under the scope of MARPOL Annex I.*
*If container(s) is greater than 5 liters (liquids) or 5 kilograms (solids), shipment may require the shipping description to contain the "Marine Pollutant" description [IMDG 5.4.1.4.3.5] and the container(s) to display the Marine Pollutant mark [IMDG 5.2.1.6].*

**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 if flashpoint is >60° C closed-cup*
UN1202
**Proper Shipping Name:** Diesel fuel
**Hazard Class/Division:** 3
**Packing Group:** III
**Non-Bulk Package Marking:** Diesel fuel, UN1202
**Labels:** Flammable liquid
**ERG Code:** 3L
**Note:** *If container(s) is greater than 5 liters (liquids) or 5 kilograms (solids), shipment may require the container to display the "Environmentally hazardous substance" mark [IATA 7.1.6.3].*

| | LTD. QTY | Passenger Aircraft | Cargo Aircraft Only |
|---|---|---|---|
| **Packaging Instruction #:** | Y344 | 355 | 366 |
| **Max. Net Qty. Per Package:** | 10 L | 60 L | 220 L |

## 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 Hazard:** | yes |
| **Chronic Health Hazard:** | Yes |
| **Fire Hazard:** | Yes |
| **Pressure Hazard:** | No |
| **Reactive Hazard:** | No |

**CERCLA/SARA - Section 313 and 40 CFR 372:**
This material contains the following chemicals subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR 372:

| Chemical Name | Concentration[1] | de minimis |
|---|---|---|
| Naphthalene | <1 | 0.1% |

**EPA (CERCLA) Reportable Quantity (in pounds):**
EPA's Petroleum Exclusion applies to this material - (CERCLA 101(14)).

**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 |
|---|---|
| Naphthalene | Cancer |

**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:**
B3 - Combustible liquid
D1B - Toxic materials
D2A - Very toxic materials
D2B - Toxic materials

**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: |
|---|---|---|---|
| 18-Jul-2013 | 06-Mar-2013 | 001847 | FINAL |

**Revised Sections or Basis for Revision:**
Physical Properties (Section 9); Shipping information (Section 14)

**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.

# Material Safety Data Sheet

## SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

## DIESEL FUEL No. 2

**Product Use:** Fuel [See Section 16 for Additional Product Numbers]
**Synonyms:** 15 S Diesel Fuel 2, Alternative Low Aromatic Diesel (ALAD), Calco LS Diesel 2, CALCO ULS C-B0-B5 DF2, CALCO ULS C-B0-B5 DF2 DYED, CALCO ULS C-B2 DF2, CALCO ULS C-B2 DF2 DYED, CALCO ULS C-B5 DF2, CALCO ULS C-B5 DF2 DYED, Calco ULS DF2, Calco ULS Diesel 2, CALCO ULS S-B0-B5 DF2 DYED, Calco ULS S-B5 DF2, Calco ULS S-B5 DF2 DYED, CALCO ULS TC-B1 DF2, CALCO ULS TC-B1 DF2 DYED, CALCO ULS TC-B2 DF2, CALCO ULS TC-B2 DF2 DYED, CALCO ULS TC-B3 DF2, CALCO ULS TC-B3 DF2 DYED, CALCO ULS TC-B4 DF2, CALCO ULS TC-B4 DF2 DYED, CALCO ULS TC-B5 DF2, CALCO ULS TC-B5 DF2 DYED, CALCO ULS TX-B1 DF2, CALCO ULS TX-B1 DF2 DYED, CALCO ULS TX-B2 DF2, CALCO ULS TX-B2 DF2 DYED, CALCO ULS TX-B3 DF2, CALCO ULS TX-B3 DF2 DYED, CALCO ULS TX-B4 DF2, CALCO ULS TX-B4 DF2 DYED, CALCO ULS TX-B5 DF2, CALCO ULS TX-B5 DF2 DYED, Chevron LS Diesel 2, Chevron ULS Diesel 2, CT ULS C-B0-B5 DF2, CT ULS C-B0-B5 DF2 DYED, CT ULS C-B2 DF2, CT ULS C-B5 DF2, CT ULS S-B0-B5 DF2 DYED, CT ULS S-B5 DF2, CT ULS S-B5 DF2 DYED, CT ULS S-BO-B5 DF2, CT ULS SPECIAL DF2 DYED, CT ULS TC-B1 DF2, CT ULS TC-B2 DF2, CT ULS TC-B3 DF2, CT ULS TC-B4 DF2, CT ULS TC-B5 DF2, CT ULS TX-B1 DF2, CT ULS TX-B2 DF2, CT ULS TX-B3 DF2, CT ULS TX-B4 DF2, CT ULS TX-B5 DF2, Diesel Fuel Oil, Diesel Grade No. 2, Diesel No. 2-D S15, Diesel No. 2-D S500, Diesel No. 2-D S5000, Distillates, straight run, Gas Oil, HS Diesel 2, HS Heating Fuel 2, Light Diesel Oil Grade No. 2-D, LS Diesel 2, LS Heating Fuel 2, Marine Diesel, RR Diesel Fuel, Texaco Diesel, Texaco Diesel No. 2, ULS C-B0-B5 DF2, ULS C-B0-B5 DF2 DYED, ULS C-B2 DF2, ULS C-B2 DF2 DYED, ULS C-B5 DF2, ULS C-B5 DF2 DYED, ULS S-B0-B5 DF2 DYED, ULS S-B5 DF2, ULS S-BO-B5 DF2, ULS TC-B1 DF2, ULS TC-B1 DF2 DYED, ULS TC-B2 DF2, ULS TC-B2 DF2 DYED, ULS TC-B3 DF2, ULS TC-B3 DF2 DYED, ULS TC-B4 DF2, ULS TC-B4 DF2 DYED, ULS TC-B5 DF2, ULS TC-B5 DF2 DYED, ULS TX-B1 DF2, ULS TX-B1 DF2 DYED, ULS TX-B3 DF2, ULS TX-B3 DF2 DYED, ULS TX-B4 DF2, ULS TX-B4 DF2 DYED, ULS TX-B5 DF2, ULS TX-B5 DF2 DYED, Ultra Low Sulfur Diesel 2
**Company Identification**
Chevron Products Company
Marketing, MSDS Coordinator
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**
MSDS Requests: http://www.chevron.com/contact/
Technical Information: (510) 242-5357

SPECIAL NOTES: This MSDS covers all Chevron, Texaco and Calco CARB & non-CARB Diesel No. 2 Fuels. The sulfur content is less than 0.5% (mass). Red dye is added to non-taxable fuel. (MSDS 6894)
SPECIAL NOTES: This MSDS covers all Chevron and Calco CARB Low Sulfur Diesel No. 2 Fuels. Red

dye is added to non-taxable fuel. (MSDS 7098)

## SECTION 2 COMPOSITION/ INFORMATION ON INGREDIENTS

| COMPONENTS | CAS NUMBER | AMOUNT |
|---|---|---|
| Diesel Fuel No. 2 | 68476-34-6 | 95 - 100 %vol/vol |
| Fatty Acid Methyl Esters (FAME) | Mixture | 0 - 5 %vol/vol |
| Total sulfur | Mixture | 0 - 0.5 %weight |
| Naphthalene | 91-20-3 | 0.02 - 0.2 %weight |

## SECTION 3 HAZARDS IDENTIFICATION

**********

***EMERGENCY OVERVIEW***

- COMBUSTIBLE LIQUID AND VAPOR
- CAUSES SKIN IRRITATION
- MAY CAUSE RESPIRATORY TRACT IRRITATION IF INHALED
- MAY CAUSE LUNG DAMAGE IF SWALLOWED
- MAY CAUSE DIZZINESS, DROWSINESS AND REDUCED ALERTNESS
- CONTAINS MATERIAL THAT MAY CAUSE DAMAGE TO:
- LIVER
- BLOOD/BLOOD FORMING ORGANS
- THYMUS
- MAY CAUSE CANCER BASED ON ANIMAL DATA
- TOXIC TO AQUATIC ORGANISMS. MAY CAUSE LONG-TERM ADVERSE EFFECTS IN THE AQUATIC ENVIRONMENT

**********

**IMMEDIATE HEALTH EFFECTS**

**Eye:** Not expected to cause prolonged or significant eye irritation.

**Skin:** Contact with the skin causes irritation. Symptoms may include pain, itching, discoloration, swelling, and blistering. 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:** Because of its low viscosity, this material can directly enter the lungs, if swallowed, or if subsequently vomited. Once in the lungs it is very difficult to remove and can cause severe injury or death. May be irritating to mouth, throat, and stomach. Symptoms may include pain, nausea, vomiting, and diarrhea.

**Inhalation:** The vapor or fumes from this material may cause respiratory irritation. Mists of this material may cause respiratory irritation. Symptoms of respiratory irritation may include coughing and difficulty breathing. Excessive or prolonged breathing of this material 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:**

**Cancer:** Whole diesel engine exhaust has been classified as a Group 2A carcinogen (probably carcinogenic to humans) by the International Agency for Research on Cancer (IARC). Prolonged or repeated exposure to this material may cause cancer. Contains naphthalene, which has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC). Diesel exhaust particulate has been classified as reasonably anticipated to be a human carcinogen in the National Toxicology Program's Ninth Report on Carcinogens. The National Institute of

Occupational Safety and Health (NIOSH) has recommended that whole diesel exhaust be regarded as potentially causing cancer. Diesel engine exhaust is known to the State of California to cause cancer.
**Target Organs:** Contains material that may cause damage to the following organ(s) following repeated skin contact based on animal data: Liver Blood/Blood Forming Organs Thymus
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:** Wash skin with water immediately and remove contaminated clothing and shoes. Get medical attention if any symptoms develop. 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 or if any other symptoms develop.
**Note to Physicians:** Ingestion of this product or subsequent vomiting may result in aspiration of light hydrocarbon liquid, which may cause pneumonitis.

## SECTION 5 FIRE FIGHTING MEASURES

See Section 7 for proper handling and storage.

**FIRE CLASSIFICATION:**
OSHA Classification (29 CFR 1910.1200): Combustible liquid.

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

**FLAMMABLE PROPERTIES:**
**Flashpoint:** (Pensky-Martens Closed Cup) 52 °C (125 °F) Minimum
**Autoignition:** 257 °C (494 °F)
**Flammability (Explosive) Limits (% by volume in air):** Lower: 0.6 Upper: 4.7

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

**PROTECTION OF FIRE FIGHTERS:**
**Fire Fighting Instructions:** 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 the vicinity of the spill or released vapor. If this material is released into the work area, evacuate the area immediately. Monitor area with combustible gas indicator.
**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. All equipment used when handling the product must be grounded. A vapor suppressing foam may be used to reduce vapors. Use clean non-sparking tools to

collect absorbed material. 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:** Liquid evaporates and forms vapor (fumes) which can catch fire and burn with explosive force. Invisible vapor spreads easily and can be set on fire by many sources such as pilot lights, welding equipment, and electrical motors and switches. Fire hazard is greater as liquid temperature rises above 29C (85F).
Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Do not breathe vapor or fumes. Do not breathe mist. Wash thoroughly after handling. Keep out of the reach of children.
**Unusual Handling Hazards:** WARNING! Do not use as portable heater or appliance fuel. Toxic fumes may accumulate and cause death. Slow heat generation may occur with oil-soaked rags, spent filter aids and spent absorbent material and may cause spontaneous combustion if stored near combustibles and not handled properly. Store biodiesel soaked rags, filter aids, and spill absorbent material in approved safety disposal containers and dispose of properly. Biodiesel soaked rags may be washed with soap and water and allowed to dry in well ventilated area.
**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'.
**General Storage Information:** DO NOT USE OR STORE near heat, sparks, flames, or hot surfaces . USE AND STORE ONLY IN WELL VENTILATED AREA. Keep container closed when not in use.
**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:** Wear protective clothing to prevent skin contact. Selection of protective clothing may include gloves, apron, boots, and complete facial protection depending on operations conducted. Suggested materials for protective gloves include: Chlorinated Polyethylene (or Chlorosulfonated Polyethylene), Nitrile Rubber, Polyurethane, Viton.
**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.
When used as a fuel, this material can produce carbon monoxide in the exhaust. Determine if airborne concentrations are below the occupational exposure limit for carbon monoxide. If not, wear an approved positive-pressure air-supplying respirator.
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 |
|---|---|---|---|---|---|
| Diesel Fuel No. 2 | ACGIH | 100 mg/m3 | -- | -- | Skin A3 total hydrocarbon |
| Diesel Fuel No. 2 | CVX | -- | 1000 mg/m3 | -- | -- |
| Naphthalene | ACGIH | 10 ppm (weight) | 15 ppm (weight) | -- | Skin |
| Naphthalene | OSHA Z-1 | 50 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:** Varies depending on specification
**Physical State:** Liquid
**Odor:** Petroleum odor
**pH:** Not Applicable
**Vapor Pressure:** 0.04 kPa (Approximate) @ 40 °C (104 °F)
**Vapor Density (Air = 1):** >1
**Boiling Point:** 175.6°C (348°F) - 370°C (698°F)
**Solubility:** Soluble in hydrocarbons; insoluble in water
**Freezing Point:** Not Applicable
**Melting Point:** Not Applicable
**Specific Gravity:** 0.8 - 0.88 @ 15.6°C (60.1°F) (Typical)
**Viscosity:** 1.9 cSt - 4.1 cSt @ 40°C (104°F)

## 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:** None known (None expected)
**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.

**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 naphthalene. GENERAL TOXICITY: Exposure to naphthalene has been reported to cause methemoglobinemia and/or hemolytic anemia, especially in humans deficient in the enzyme glucose-6-phosphate dehydrogenase. Laboratory animals given repeated oral doses of naphthalene have developed cataracts. REPRODUCTIVE TOXICITY AND BIRTH DEFECTS: Naphthalene did not cause birth defects when administered orally to rabbits, rats, and mice during pregnancy, but slightly reduced litter size in mice at dose levels that were lethal to the pregnant females. Naphthalene has been reported to cross the human placenta. GENETIC TOXICITY: Naphthalene caused chromosome aberrations and sister chromatid exchanges in Chinese hamster ovary cells, but was not a mutagen in several other in-vitro tests.CARCINOGENICITY: In a study conducted by the National Toxicology Program (NTP), mice exposed to 10 or 30 ppm of naphthalene by inhalation daily for two years had chronic inflammation of the nose and lungs and increased incidences of metaplasia in those tissues. The incidence of benign lung tumors (alveolar/bronchiolar adenomas) was significantly increased in the high-dose female group but not in the male groups. In another two-year inhalation study conducted by NTP, exposure of rats to 10, 30, and 60 ppm naphthalene caused increases in the incidences of a variety of nonneoplastic lesions in the nose. Increases in nasal tumors were seen in both sexes, including olfactory neuroblastomas in females at 60 ppm and adenomas of the respiratory epithelium in males at all exposure levels. The relevance of these effects to humans has not been established. No carcinogenic effect was reported in a 2-year feeding study in rats receiving naphthalene at 41 mg/kg/day.

This product contains gas oils.
CONCAWE (product dossier 95/107) has summarized current health, safety and environmental data available for a number of gas oils, typically hydrodesulfurized middle distillates, CAS 64742-80-9, straight-run middle distillates, CAS 64741-44-2, and/or light cat-cracked distillate CAS 64741-59-9.
CARCINOGENICITY: All materials tested have caused the development of skin tumors in mice, but all featured severe skin irritation and sometimes a long latency period before tumors developed. Straight-run and cracked gas oil samples were studied to determine the influence of dermal irritation on the carcinogenic activity of middle distillates. At non-irritant doses the straight-run gas oil was not carcinogenic, but at irritant doses, weak activity was demonstrated. Cracked gas oils, when diluted with mineral oil, demonstrated carcinogenic activity irrespective of the occurrence of skin irritation. Gas oils were tested on male mice to study tumor initiating/promoting activity. The results demonstrated that while a straight-run gas oil sample was neither an initiator or promotor, a blend of straight-run and FCC stock was both a tumor initiator and a promoter.
GENOTOXICITY: Hydrotreated & hydrodesulfurized gas oils range in activity from inactive to weakly positive in in-vitro bacterial mutagenicity assays. Mouse lymphoma assays on straight-run gas oils without subsequent hydrodesulphurization gave positive results in the presence of S9 metabolic activation. In-vivo bone marrow cytogenetics and sister chromatic exchange assay exhibited no activity for straight-run

components with or without hydrodesulphurization. Thermally or catalytically cracked gas oils tested with in-vitro bacterial mutagenicity assays in the presence of S9 metabolic activation were shown to be mutagenic. In-vitro sister chromatic exchange assays on cracked gas oil gave equivocal results both with and without S9 metabolic activation. In-vivo bone marrow cytogenetics assay was inactive for two cracked gas oil samples. Three hydrocracked gas oils were tested with in-vitro bacterial mutagenicity assays with S9, and one of the three gave positive results. Twelve distillate fuel samples were tested with in-vitro bacterial mutagenicity assays & with S9 metabolic activation and showed negative to weakly positive results. In one series, activity was shown to be related to the PCA content of samples tested. Two in-vivo studies were also conducted. A mouse dominant lethal assay was negative for a sample of diesel fuel. In the other study, 9 samples of No 2 heating oil containing 50% cracked stocks caused a slight increase in the number of chromosomal aberrations in bone marrow cytogenetics assays. DEVELOPMENTAL TOXICITY: Diesel fuel vapor did not cause fetotoxic or teratogenic effects when pregnant rats were exposed on days 6-15 of pregnancy. Gas oils were applied to the skin of pregnant rats daily on days 0-19 of gestation. All but one (coker light gas oil) caused fetotoxicity (increased resorptions, reduced litter weight, reduced litter size) at dose levels that were also maternally toxic.

This product may contain significant amounts of Polynuclear Aromatic Hydrocarbons (PAH's) which have been shown to cause skin cancer after prolonged and frequent contact with the skin of test animals. Brief or intermittent skin contact with this product is not expected to have serious effects if it is washed from the skin. While skin cancer is unlikely to occur in human beings following use of this product, skin contact and breathing, of mists, vapors or dusts should be reduced to a minimum.

## SECTION 12 ECOLOGICAL INFORMATION

**ECOTOXICITY**
This material is expected to be toxic to aquatic organisms and may cause long-term adverse effects in the aquatic environment. The ecotoxicity hazard is based on an evaluation of data for the components or a similar material.

**ENVIRONMENTAL FATE**
**Ready Biodegradability:** This material is not expected to be readily biodegradable. On release to the environment the lighter components of diesel fuel will generally evaporate but depending on local environmental conditions (temperature, wind, mixing or wave action, soil type, etc.) the remainder may become dispersed in the water column or absorbed to soil or sediment. Diesel fuel would not be expected to be readily biodegradable. In a modified Strum test (OECD method 301B) approximately 40% biodegradation was recorded over 28 days. However, it has been shown that most hydrocarbon components of diesel fuel are degraded in soil in the presence of oxygen. Under anaerobic conditions, such as in anoxic sediments, rates of biodegradation are negligible. 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. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by US EPA under RCRA (40 CFR 261) or other State 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.

**DOT Shipping Description:** UN1202, GAS OIL, COMBUSTIBLE LIQUID, III ADDITIONAL INFORMATION: NON-BULK PACKAGES ARE NOT REGULATED IN THE U.S.A. SEE 49 CFR 173.150 (F) FOR SPECIAL PROVISIONS FOR VESSEL AND AIRCRAFT.

**IMO/IMDG Shipping Description:** UN1268, PETROLEUM DISTILLATES, N.O.S. (DIESEL FUEL, GASOIL), 3, III, FLASH POINT SEE SECTION 5 OR 9, MARINE POLLUTANT (DIESEL FUEL, GASOIL)

**ICAO/IATA Shipping Description:** UN1202, GAS OIL, 3, III

## SECTION 15 REGULATORY INFORMATION

**EPCRA 311/312 CATEGORIES:**

| | | |
|---|---|---|
| 1. | Immediate (Acute) Health Effects: | YES |
| 2. | Delayed (Chronic) Health Effects: | YES |
| 3. | Fire Hazard: | YES |
| 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.

| | |
|---|---|
| Diesel Fuel No. 2 | 07 |
| Naphthalene | 01-2B, 02, 03, 04, 05, 06, 07 |

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

**WHMIS CLASSIFICATION:**
Class B, Division 3: Combustible Liquids
Class D, Division 2, Subdivision A: Very Toxic Material -
Chronic Toxic Effects
Carcinogenicity
Class D, Division 2, Subdivision B: Toxic Material -
Skin or Eye Irritation

## SECTION 16 OTHER INFORMATION

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

**HMIS RATINGS:** Health: 2* Flammability: 2 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).

**Additional Product Number(s):** CPS 203408, CPS 270059, CPS203410, CPS203413, CPS203417, CPS203431, CPS203436, CPS203437, CPS203441, CPS203443, CPS203447, CPS203449, CPS203450, CPS220122, CPS225114, CPS225115, CPS225150, CPS266176, CPS270000, CPS270005, CPS270030, CPS270031, CPS270032, CPS270033, CPS270034, CPS270040, CPS270041, CPS270042, CPS270043, CPS270044, CPS270045, CPS270046, CPS270047, CPS270048, CPS270049, CPS270050, CPS270051, CPS270052, CPS270053, CPS270054, CPS270058, CPS270060, CPS270062, CPS270063, CPS270064, CPS270065, CPS270068, CPS270069, CPS270070, CPS270081, CPS270082, CPS270083, CPS270084, CPS270085, CPS270086, CPS270087, CPS270088, CPS270089, CPS270090, CPS270091, CPS270094, CPS270095, CPS270096, CPS270100, CPS270101, CPS270102, CPS270103, CPS270104, CPS270105, CPS270106, CPS270107, CPS270108, CPS270109, CPS270110, CPS270111, CPS270112, CPS270113, CPS270114, CPS270115, CPS270116, CPS270117, CPS270118, CPS270119, CPS270120, CPS270121, CPS270122, CPS270123, CPS270124, CPS271006, CPS272006, CPS272007, CPS272008, CPS272009, CPS272010, CPS272011, CPS272012, CPS272013, CPS272093, CPS272102, CPS272126, CPS272129, CPS272130, CPS272131, CPS272152, CPS272185, CPS272190, CPS272195, CPS272593, CPS272601, CPS272602, CPS272693, CPS272793, CPS273003, CPS273030, CPS273053, CPS275000
**REVISION STATEMENT:** This revision updates the following sections of this Material Safety Data Sheet: 1, 16
**Revision Date:** OCTOBER 22, 2012

**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 Governmental 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

## 1. Identification

**Product number** 1000008124

**Product identifier** **DUST MOP FLOOR DRESSING**

**Company information** Sprayway, Inc.
1005 S. Westgate Drive
Addison, IL 60101 United States

**Company phone** General Assistance 1-630-628-3000

**Emergency telephone US** 1-866-836-8855

**Emergency telephone outside US** 1-952-852-4646

**Version #** 01

**Recommended use** Not available.

**Recommended restrictions** None known.

## 2. Hazard(s) identification

| | | |
|---|---|---|
| **Physical hazards** | Flammable aerosols | Category 1 |
| **Health hazards** | Aspiration hazard | Category 1 |
| **Environmental hazards** | Not classified. | |
| **OSHA defined hazards** | Not classified. | |

**Label elements**

**Signal word** Danger

**Hazard statement** Extremely flammable aerosol. May be fatal if swallowed and enters airways.

**Precautionary statement**

**Prevention** 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.

**Response** If swallowed: Immediately call a poison center/doctor. Do NOT induce vomiting.

**Storage** Store locked up. Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F.

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

**Hazard(s) not otherwise classified (HNOC)** None known.

**Supplemental information** None.

## 3. Composition/information on ingredients

**Mixtures**

| Chemical name | Common name and synonyms | CAS number | % |
|---|---|---|---|
| Distillates (Petroleum), Hydrotreated Light | | 64742-47-8 | 60 - 80 |
| Propane | | 74-98-6 | 10 - 20 |
| White Mineral Oil | | 8042-47-5 | 10 - 20 |
| Other components below reportable levels | | | 2.5 - 10 |

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

## 4. First-aid measures

**Inhalation** If symptoms develop move victim to fresh air. Get medical attention if symptoms persist.

| | |
|---|---|
| **Skin contact** | Take off immediately all contaminated clothing. Rinse skin with water/shower. Get medical attention if irritation develops and persists. |
| **Eye contact** | Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Get medical attention if irritation develops and persists. |
| **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** | Aspiration may cause pulmonary edema and pneumonitis. Direct contact with eyes may cause temporary irritation. |
| **Indication of immediate medical attention and special treatment needed** | Provide general supportive measures and treat symptomatically. 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. Dry chemicals. 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** | Contents under pressure. Pressurized container may explode when exposed to heat or flame. During fire, gases hazardous to health may be formed. |
| **Special protective equipment and precautions for firefighters** | Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. |
| **Fire-fighting equipment/instructions** | Move containers from fire area if you can do so without risk. Cool containers exposed to heat with water spray and remove container, if no risk is involved. Containers should be cooled with water to prevent vapor pressure build up. For massive fire in cargo area, use unmanned hose holder or monitor nozzles, if possible. If not, withdraw and let fire burn out. |
| **Specific methods** | Use standard firefighting procedures and consider the hazards of other involved materials. Move containers from fire area if you can do so without risk. In the event of fire and/or explosion do not breathe fumes. |
| **General fire hazards** | Extremely flammable aerosol. |

## 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. 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** | Refer to attached safety data sheets and/or instructions for use. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil, etc.) away from spilled material. Stop leak if you can do so without risk. Move the cylinder to a safe and open area if the leak is irreparable. Use water spray to reduce vapors or divert vapor cloud drift. Isolate area until gas has dispersed. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. For waste disposal, see section 13 of the SDS.<br><br>Never return spills in original containers for re-use. |
| **Environmental precautions** | Avoid discharge into drains, water courses or onto the ground. |

## 7. Handling and storage

| | |
|---|---|
| **Precautions for safe handling** | Pressurized container: Do not pierce or burn, even after use. Do not use if spray button is missing or defective. Do not spray on a naked flame or any other incandescent material. Do not smoke while using or until sprayed surface is thoroughly dry. Do not cut, weld, solder, drill, grind, or expose containers to heat, flame, sparks, or other sources of ignition. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Do not re-use empty containers. Avoid prolonged or repeated contact with skin. Provide adequate ventilation. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Observe good industrial hygiene practices. |

**Conditions for safe storage, including any incompatibilities**

Level 3 Aerosol.

Store locked up. Pressurized container. Protect from sunlight and do not expose to temperatures exceeding 50°C/122 °F. Do not puncture, incinerate or crush. Do not handle or store near an open flame, heat or other sources of ignition. This material can accumulate static charge which may cause spark and become an ignition source. Store in a well-ventilated place. Refrigeration recommended. 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 |
|---|---|---|
| Propane (CAS 74-98-6) | PEL | 1800 mg/m3<br>1000 ppm |

**US. NIOSH: Pocket Guide to Chemical Hazards**

| Components | Type | Value |
|---|---|---|
| Propane (CAS 74-98-6) | TWA | 1800 mg/m3<br>1000 ppm |

**Biological limit values** No biological exposure limits noted for the ingredient(s).

**Appropriate engineering controls** Explosion-proof general and local exhaust ventilation.

**Individual protection measures, such as personal protective equipment**

**Eye/face protection** Face shield is recommended. Wear safety glasses with side shields (or goggles).

**Hand protection** Wear appropriate chemical resistant gloves.

**Skin protection**

**Other** Wear suitable protective clothing.

**Respiratory protection** If permissible levels are exceeded use NIOSH mechanical filter / organic vapor cartridge or an air-supplied respirator.

**Thermal hazards** Wear appropriate thermal protective clothing, when necessary.

**General hygiene considerations** When using do not 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** Gas.

**Form** Aerosol.

**Color** Not available.

**Odor** Not available.

**Odor threshold** Not available.

**pH** Not available.

**Melting point/freezing point** Not available.

**Initial boiling point and boiling range** 107.26 °F (41.81 °C) estimated

**Flash point** -156.0 °F (-104.4 °C) Propellant estimated

**Evaporation rate** Not available.

**Flammability (solid, gas)** Not available.

**Upper/lower flammability or explosive limits**

**Flammability limit - lower (%)** 0.7 % estimated

**Flammability limit - upper (%)** 8.5 % estimated

**Explosive limit - lower (%)** Not available.

**Explosive limit - upper (%)** Not available.

| | |
|---|---|
| **Vapor pressure** | 35 - 50 psig @20C estimated |
| **Vapor density** | Not available. |
| **Relative density** | Not available. |
| **Solubility(ies)** | |
| **Solubility (water)** | Not available. |
| **Partition coefficient (n-octanol/water)** | Not available. |
| **Auto-ignition temperature** | 439.95 °F (226.64 °C) estimated |
| **Decomposition temperature** | Not available. |
| **Viscosity** | Not available. |
| **Other information** | |
| **Specific gravity** | 0.748 estimated |

## 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. Hazardous polymerization does not occur. |
| **Conditions to avoid** | Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Contact with incompatible materials. |
| **Incompatible materials** | Strong oxidizing agents. Fluorine. Chlorine. Nitrates. |
| **Hazardous decomposition products** | No hazardous decomposition products are known. |

## 11. Toxicological information

**Information on likely routes of exposure**

| | |
|---|---|
| **Ingestion** | Droplets of the product aspirated into the lungs through ingestion or vomiting may cause a serious chemical pneumonia. Smallest quantities reaching the lungs through swallowing or subsequent vomiting may result in lung edema or pneumonia. |
| **Inhalation** | Not available. |
| **Skin contact** | No adverse effects due to skin contact are expected. |
| **Eye contact** | Direct contact with eyes may cause temporary irritation. |
| **Symptoms related to the physical, chemical and toxicological characteristics** | If aspirated into lungs during swallowing or vomiting, may cause chemical pneumonia, pulmonary injury or death. Aspiration may cause pulmonary edema and pneumonitis. Direct contact with eyes may cause temporary irritation. |

**Information on toxicological effects**

| | |
|---|---|
| **Acute toxicity** | May be fatal if swallowed and enters airways. Expected to be a low hazard for usual industrial or commercial handling by trained personnel. |

| Components | Species | Test Results |
|---|---|---|
| Distillates (Petroleum), Hydrotreated Light (CAS 64742-47-8) | | |
| **Acute** | | |
| *Dermal* | | |
| LD50 | Rabbit | > 2000 mg/kg |
| | | > 2000 mg/kg, 24 Hours |
| *Inhalation* | | |
| LC50 | Rat | > 7.5 mg/l, 6 Hours |
| | | > 4.6 mg/l, 4 Hours |
| *Oral* | | |
| LD50 | Rat | > 5000 mg/kg |
| Propane (CAS 74-98-6) | | |
| **Acute** | | |
| *Inhalation* | | |
| LC50 | Mouse | 1237 mg/l, 120 Minutes |

| Components | Species | Test Results |
|---|---|---|
| | | 52 %, 120 Minutes |
| | Rat | 1355 mg/l |
| | | 658 mg/l/4h |
| White Mineral Oil (CAS 8042-47-5) | | |
| **Acute** | | |
| *Dermal* | | |
| LD50 | Rabbit | > 2000 mg/kg, 24 Hours |
| *Inhalation* | | |
| LC50 | Rat | 2.18 mg/l, 4 Hours |
| *Oral* | | |
| LD50 | Rat | 5000.0001 mg/kg |

* Estimates for product may be based on additional component data not shown.

**Skin corrosion/irritation** Prolonged skin contact may cause temporary irritation.

**Serious eye damage/eye irritation** Direct contact with eyes may cause temporary irritation.

**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.

**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** May be fatal if swallowed and enters airways.

**Chronic effects** Prolonged or repeated contact may cause drying, cracking, or irritation.

## 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 |
|---|---|---|---|
| Distillates (Petroleum), Hydrotreated Light (CAS 64742-47-8) | | | |
| **Aquatic** | | | |
| Fish | LC50 | Rainbow trout,donaldson trout (Oncorhynchus mykiss) | 2.9 mg/l, 96 hours |
| White Mineral Oil (CAS 8042-47-5) | | | |
| **Aquatic** | | | |
| Fish | LC50 | Fish | 10000.0001, 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)**

| | |
|---|---|
| Propane | 2.36 |

**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. Contents under pressure. Do not puncture, incinerate or crush. 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. Do not re-use empty containers. |

## 14. Transport information

**DOT**

| | |
|---|---|
| **UN number** | UN1950 |
| **UN proper shipping name** | Aerosols, flammable |
| **Transport hazard class(es)** | |
| **Class** | 2.1 |
| **Subsidiary risk** | - |
| **Label(s)** | 2.1 |
| **Packing group** | Not applicable. |
| **Special precautions for user** | Read safety instructions, SDS and emergency procedures before handling. |
| **Special provisions** | N82 |
| **Packaging exceptions** | 306 |
| **Packaging non bulk** | None |
| **Packaging bulk** | None |

This product meets the exception requirements of section 173.306 as a limited quantity and may be shipped as a limited quantity. Until 12/31/2020, the "Consumer Commodity - ORM-D" marking may still be used in place of the new limited quantity diamond mark for packages of UN 1950 Aerosols. Limited quantities require the limited quantity diamond mark on cartons after 12/31/20 and may be used now in place of the "Consumer Commodity ORM-D" marking and both may be displayed concurrently.

**IATA**

| | |
|---|---|
| **UN number** | UN1950 |
| **UN proper shipping name** | Aerosols, flammable |
| **Transport hazard class(es)** | |
| **Class** | 2.1 |
| **Subsidiary risk** | - |
| **Label(s)** | 2.1 |
| **Packing group** | Not applicable. |
| **Environmental hazards** | No. |
| **Special precautions for user** | Read safety instructions, SDS and emergency procedures before handling. |
| **Other information** | |
| **Passenger and cargo aircraft** | Forbidden. |
| **Cargo aircraft only** | Forbidden. |
| **Packaging Exceptions** | LTD QTY |

**IMDG**

| | |
|---|---|
| **UN number** | UN1950 |
| **UN proper shipping name** | AEROSOLS |
| **Transport hazard class(es)** | |
| **Class** | 2.1 |
| **Subsidiary risk** | - |
| **Label(s)** | 2.1 |
| **Packing group** | Not applicable. |
| **Environmental hazards** | |
| **Marine pollutant** | No. |
| **EmS** | Not available. |
| **Special precautions for user** | Read safety instructions, SDS and emergency procedures before handling. |
| **Packaging Exceptions** | LTD QTY |

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

**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.
All components are on the U.S. EPA TSCA Inventory List.

**TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)**

Not regulated.

**CERCLA Hazardous Substance List (40 CFR 302.4)**

Not 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 - Yes
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)**

Propane (CAS 74-98-6)

**Safe Drinking Water Act (SDWA)** Not regulated.

**US state regulations**

**US. Massachusetts RTK - Substance List**

Propane (CAS 74-98-6)

**US. New Jersey Worker and Community Right-to-Know Act**

Propane (CAS 74-98-6)

**US. Pennsylvania Worker and Community Right-to-Know Law**

Propane (CAS 74-98-6)

**US. Rhode Island RTK**

Propane (CAS 74-98-6)

**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 |
| 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) | No |
| New Zealand | New Zealand Inventory | No |
| Philippines | Philippine Inventory of Chemicals and Chemical Substances (PICCS) | No |
| 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** 05-28-2015

**Version #** 01

**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 given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be 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.

# Material Safety Data Sheet

## SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

## Chevron Gas Engine Oil 541

**Product Use:** Engine Oil
**Synonyms:** Chevron Gas Engine Oil 541 SAE 15W-40, Chevron Gas Engine Oil 541 SAE 40
**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: (800) LUBE TEK

## SECTION 2 COMPOSITION/ INFORMATION ON INGREDIENTS

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

## SECTION 3 HAZARDS IDENTIFICATION

**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.

## 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.

## SECTION 5 FIRE FIGHTING MEASURES

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

**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.

## 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.
**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:** Brown

**Physical State:** Liquid
**Odor:** Petroleum odor
**pH:** Not Applicable
**Vapor Pressure:** <0.01 mmHg @ 37.8 °C (100 °F)
**Vapor Density (Air = 1):** >1
**Boiling Point:** 315°C (599°F)
**Solubility:** Soluble in hydrocarbons; insoluble in water
**Freezing Point:** Not Applicable
**Specific Gravity:** 1 g/ml
**Density:** 0.88 kg/l @ 15°C (59°F) (Typical)
**Viscosity:** 14.95 mm2/s - 16.25 mm2/s @ 100°C (212°F)
**Evaporation Rate:** 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:** None known (None expected)
**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.
**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). 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.

**ENVIRONMENTAL FATE**
**Ready Biodegradability:** 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.

## 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

## 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), EINECS (European Union), ENCS (Japan), IECSC (China), PICCS (Philippines), TSCA (United States).

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

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

**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).

**LABEL RECOMMENDATION:**
Label Category : ENGINE OIL 1 - ENG1

**REVISION STATEMENT:** This revision updates the following sections of this Material Safety Data Sheet: 8,11,12,14,16
**Revision Date:** SEPTEMBER 01, 2009

**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 Governmental 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.**

# MATERIAL SAFETY DATA SHEET
## *VALVE REGULATED LEAD ACID BATTERY, NON-SPILLABLE*
**(US, CN, EU Version for International Trade)**

## SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

**PRODUCT NAME:** **Valve Regulated Lead Acid Battery**
**OTHER PRODUCT NAMES:** Gel: Absorbed Electrolyte Sealed; Valve-Regulated Non-Spillable Battery; Battery Non-Spillable 49 CFR 173.159a

**MANUFACTURER:** East Penn Manufacturing Company, Inc.
**DIVISION:** Deka Road
**ADDRESS:** Lyon Station, PA 19536 USA

**EMERGENCY TELEPHONE NUMBERS:**
US: CHEMTREC 1-800-424-9300
CN: CHEMTREC 1-800-424-9300
Outside US: 1-703-527-3887

**NON-EMERGENCY HEALTH/SAFETY INFORMATION:** 1-610-682-6361

**CHEMICAL FAMILY:** This product is a gel/absorbed electrolyte type lead acid storage battery.

**PRODUCT USE:** Industrial/Commercial electrical storage batteries.

This product is considered a Hazardous Substance, Preparation or Article that is regulated under US-OSHA; CAN-WHMIS; IOSH; ISO; UK-CHIP; or EU Directives (67/548/EEC-Dangerous Substance Labelling, 98/24/EC-Chemical Agents at Work, 99/45/EC-Preparation Labelling, 2001/58/EC-MSDS Content, and 1907/2006/EC-REACH), and an MSDS/SDS is required for this product considering that when used as recommended or intended, or under ordinary conditions, it may present a health and safety exposure or other hazard.

Additional Information
This product may not be compatible with all environments, such as those containing liquid solvents or extreme temperature or pressure. Please request information if considering use under extreme conditions or use beyond current product labelling.

## SECTION 2: HAZARDS IDENTIFICATION

**GHS Classification:**

| Health | Environmental | Physical |
|---|---|---|
| Acute Toxicity – Not listed (NL)<br>Eye Corrosion – Corrosive*<br>Skin Corrosion – Corrosive*<br>Skin Sensitization – NL<br>Mutagenicity/Carcinogenicity – NL<br>Reproductive/Developmental – NL<br>Target Organ Toxicity (Repeated) – NL | Aquatic Toxicity – NL | NFPA – Flammable gas, hydrogen (during charging)<br>CN - NL<br>EU - NL |

***as sulfuric acid**

**GHS Label: Valve Regulated Lead Acid Gel Battery, Non-Spillable**

**Symbols**: C (Corrosive)

| **Hazard Statements** | **Precautionary Statements** |
|---|---|
| Contact with internal components may cause irritation or severe burns. Irritating to eyes, respiratory system, and skin. | Keep out of reach of children. Keep containers tightly closed. Avoid heat, sparks, and open flame while charging batteries. Avoid contact with internal acid/ gel. |

**EMERGENCY OVERVIEW:** May form explosive air/gas mixture during charging. Contact with internal components may cause irritation or severe burns. Irritating to eyes, respiratory system, and skin. Prolonged inhalation or ingestion may result in serious damage to health. Pregnant women exposed to internal components may experience reproductive/developmental effects.

**POTENTIAL HEALTH EFFECTS:**

**EYES:** Direct contact of internal electrolyte gel with eyes may cause severe burns or blindness.

**SKIN:** Direct contact of internal electrolyte gel with the skin may cause skin irritation or damaging burns.

**INGESTION:** Swallowing this product may cause severe burns to the esophagus and digestive tract and harmful or fatal lead poisoning. Lead ingestion may cause nausea, vomiting, weight loss, abdominal spasms, fatigue, and pain in the arms, legs and joints.

**INHALATION:** Respiratory tract irritation and possible long-term effects.

**ACUTE HEALTH HAZARDS:**

Repeated or prolonged contact may cause mild skin irritation.

**CHRONIC HEALTH HAZARDS:**

Lead poisoning if persons are exposed to internal components of the batteries. Lead absorption may cause nausea, vomiting, weight loss, abdominal spasms, fatigue, pain in the arms, legs and joints. Other effects may include central nervous system damage, kidney dysfunction, and potential reproductive effects. Chronic inhalation of sulfuric acid mist may increase the risk of lung cancer.

**MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:**

Respiratory and skin diseases may predispose the user to acute and chronic effects of sulfuric acid and/or lead. Children and pregnant women must be protected from lead exposure. Persons with kidney disease may be at increased risk of kidney failure.

Additional Information

No health effects are expected related to normal use of this product as sold.

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

| INGREDIENTS (Chemical/Common Names): | CAS No.: | % by Wt: | EC No.: |
|---|---|---|---|
| Lead, inorganic | 7439-92-1 | 60–75 (average: 67) | 231-100-4 |
| Sulfuric acid | 7664-93-9 | 5–15 (average: 10) | 231-639-5 |
| Antimony | 7440-36-0 | 0–0.1 (average: <0.1) | 231-146-5 |
| Arsenic | 7440-38-2 | <0.1 | 231-148-6 |
| Tin | 7440-31-5 | 0–0.1 (average: <0.1) | 231-141-8 |
| Polypropylene | 9003-07-0 | 2–10 (average: 4) | NA |

NA: Not applicable; ND: Not determined

Additional Information

These ingredients reflect components of the finished product related to performance of the product as distributed into commerce.

## SECTION 4: FIRST AID MEASURES

**EYE CONTACT:** Flush eyes with large amounts of water for at least 15 minutes. Seek immediate medical attention if eyes have been exposed directly to acid gel.

**SKIN CONTACT:** Flush affected area(s) with large amounts of water using deluge emergency shower, if available, shower for at least 15 minutes. Remove contaminated clothing. If symptoms persist, seek medical attention.

**INGESTION:** If swallowed, give large amounts of water. Do NOT induce vomiting or aspiration into the lungs may occur and can cause permanent injury or death.

**INHALATION:** If breathing difficulties develop, remove person to fresh air. If symptoms persist, seek medical attention.

## SECTION 5: FIRE-FIGHTING MEASURES

**SUITABLE/UNSUITABLE EXTINGUISHING MEDIA:**

Dry chemical, carbon dioxide, water, foam. Do not use water on live electrical circuits.

**SPECIAL FIREFIGHTING PROCEDURES & PROTECTIVE EQUIPMENT:**

Use appropriate media for surrounding fire. Do not use carbon dioxide directly on cells. Avoid breathing vapours. Use full

protective equipment (bunker gear) and self-contained breathing apparatus.
**UNUSUAL FIRE AND EXPLOSION HAZARDS:**
Batteries evolve flammable hydrogen gas during charging and may increase fire risk in poorly ventilated areas near sparks, excessive heat or open flames.
**SPECIFIC HAZARDS IN CASE OF FIRE:**
Thermal shock may cause battery case to crack open. Containers may explode when heated.

Additional Information
Firefighting water runoff and dilution water may be toxic and corrosive and may cause adverse environmental impacts.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

**PERSONAL PRECAUTIONS:**
Avoid Contact with Skin. Neutralize any spilled electrolyte with neutralizing agents, such as soda ash, sodium bicarbonate, or very dilute sodium hydroxide solutions.
**ENVIRONMENTAL PRECAUTIONS:**
Prevent spilled material from entering sewers and waterways.
**SPILL CONTAINMENT & CLEANUP METHODS/MATERIALS:**
Add neutralizer/absorbent to spill area. Sweep or shovel spilled material and absorbent and place in approved container. Dispose of any non-recyclable materials in accordance with local, state, provincial or federal regulations.

Additional Information
**Lead acid batteries and their plastic cases are recyclable.** Contact your East Penn representative for recycling information.

## SECTION 7: HANDLING AND STORAGE

**PRECAUTIONS FOR SAFE HANDLING AND STORAGE:**
- Keep containers tightly closed when not in use.
- If battery case is broken, avoid contact with internal components.
- Do not handle near heat, sparks, or open flames.
- Protect containers from physical damage to avoid leaks and spills.
- Place cardboard between layers of stacked batteries to avoid damage and short circuits.
- Do not allow conductive material to touch the battery terminals. A dangerous short-circuit may occur and cause battery failure and fire.

**OTHER PRECAUTIONS (e.g.; Incompatibilities):**
Keep away from combustible materials, organic chemicals, reducing substances, metals, strong oxidizers and water.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

**ENGINEERING CONTROLS/SYSTEM DESIGN INFORMATION:**
Charge in areas with adequate ventilation.
**VENTILATION:**
General dilution ventilation is acceptable.
**RESPIRATORY PROTECTION:**
Not required for normal conditions of use. See also special firefighting procedures (Section 5).
**EYE PROTECTION:**
Wear protective glasses with side shields or goggles.
**SKIN PROTECTION:**
Wear chemical resistant gloves as a standard procedure to prevent skin contact.
**OTHER PROTECTIVE CLOTHING OR EQUIPMENT:** None required under normal-use conditions for gel/absorbed electrolyte-type batteries.
**Wash hands after handling.**

**EXPOSURE GUIDELINES & LIMITS:**

| | | | |
|---|---|---|---|
| OSHA | Permissible Exposure Limit (PEL/TWA) | Lead, inorganic (as Pb) | 0.05 $mg/m^3$ |
| | | Sulfuric acid | 1.00 $mg/m^3$ |
| | | Antimony | 0.50 $mg/m^3$ |

**EXPOSURE GUIDELINES & LIMITS:**

| | | | | |
|---|---|---|---|---|
| | | Arsenic | 0.01 mg/m$^3$ | |
| | | Tin | 2.00 mg/m$^3$ | |
| ACGIH | 2007 Threshold Limit Value (TLV) | Lead, inorganic (as Pb) | 0.05 mg/m$^3$ | |
| | | Sulfuric acid | 0.20 mg/m$^3$ | |
| | | Antimony | 0.50 mg/m$^3$ | |
| | | Arsenic | 0.01 mg/m$^3$ | |
| | | Tin | 2.00 mg/m$^3$ | |
| Quebec | Permissible Exposure Value (PEV) | Lead, inorganic (as Pb) | 0.15 mg/m$^3$ | |
| | | Sulfuric acid | 1.00 mg/m$^3$ | TWA |
| | | | 3.00 mg/m$^3$ | STEV |
| | | Antimony | 0.50 mg/m$^3$ | |
| | | Arsenic | 0.10 mg/m$^3$ | |
| | | Tin | 2.00 mg/m$^3$ | |
| Ontario | Occupational Exposure Level (OEL) | Lead (designated substance) | 0.10 mg/m$^3$ | |
| | | Sulfuric acid | 1.00 mg/m$^3$ | TWAEV |
| | | | 3.00 mg/m$^3$ | STEV |
| | | Antimony | 0.50 mg/m$^3$ | |
| | | Arsenic (designated substance) | 0.01 mg/m$^3$ | |
| | | Tin | 2.00 mg/m$^3$ | |
| Netherlands | Maximaal Aanvaarde Concentratie (MAC) | Lead, inorganic (as Pb) | 0.15 mg/m$^3$ | |
| | | Sulfuric acid | 1.00 mg/m$^3$ | |
| Germany | Maximale Arbeitsplatzkonzentrationen (MAK) | Lead, inorganic (as Pb) | 0.10 mg/m$^3$ | |
| | | Sulfuric acid | 1.00 mg/m$^3$ | TWA |
| | | | 2.00 mg/m$^3$ | STEL |
| | | Antimony | 0.50 mg/m$^3$ | |
| United Kingdom | Occupational Exposure Standard (OES) | Lead | 0.15 mg/m$^3$ | |
| | | Antimony | 0.50 mg/m$^3$ | |
| | | Arsenic | 0.10 mg/m$^3$ | |
| | | Tin | 2.00mg/m$^3$ | |

TWA: 8-Hour Time-Weighted Average; STE: Short-Term Exposure; mg/m$^3$: milligrams per cubic metre of air; NE: Not Established; STEV: Short-term exposure value; TWAEV: Time-weighted average exposure value; STEL: Short-term exposure limit

Additional Information

- Batteries are housed in polypropylene cases which are regulated as total dust or respirable dust only when they are ground up during recycling. The OSHA PEL for dust is 15 mg/m$^3$ as total dust or 5 mg/m$^3$ as respirable dust.
- May be required to meet Domestic Requirements for a Specific Destination(s).

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

| | |
|---|---|
| **APPEARANCE:** | Industrial/commercial lead acid gel battery |
| **ODOR:** | Odourless |
| **ODOR THRESHOLD:** | NA |
| **PHYSICAL STATE:** | Sulfuric Acid, Gelatinous/ Lead, solid |
| **pH:** | <1 |
| **BOILING POINT:** | 235-240° F (113–116° C) (as sulfuric acid) |
| **MELTING POINT:** | NA |
| **FREEZING POINT:** | NA |
| **VAPOUR PRESSURE:** | 10 mmHg |
| **VAPOUR DENSITY (AIR = 1):** | > 1 |
| **SPECIFIC GRAVITY ($H_2O$ = 1):** | 1.27–1.33 |
| **EVAPORATION RATE (n-BuAc=1):** | < 1 |
| **SOLUBILITY IN WATER:** | 100% (as sulfuric acid) |
| **FLASH POINT:** | Below room temperature (as hydrogen gas) |
| **AUTO-IGNITION TEMPERATURE:** | NA |
| **LOWER EXPLOSIVE LIMIT (LEL):** | 4% (as hydrogen gas) |

**UPPER EXPLOSIVE LIMIT (UEL):** 74% (as hydrogen gas)
**PARTITION COEFFICIENT:** NA
**VISCOSITY (poise @ 25° C):** Not Available
**DECOMPOSITION TEMPERATURE:** Not Available

**FLAMMABILITY/HMIS HAZARD CLASSIFICATIONS (US/CN/EU): As sulfuric acid**
HEALTH: 3 FLAMMABILITY: 0 REACTIVITY: 2

## SECTION 10: STABILITY AND REACTIVITY

**STABILITY:** This product is stable under normal conditions at ambient temperature.
**INCOMPATIBILITY (MATERIAL TO AVOID):** Strong bases, combustible organic materials, reducing agents, finely divided metals, strong oxidizers, and water.
**HAZARDOUS DECOMPOSITION OR BY-PRODUCTS:** Thermal decomposition will produce sulfur dioxide, sulfur trioxide, carbon monoxide, sulfuric acid mist, and hydrogen.
**HAZARDOUS POLYMERIZATION:** Will not occur
**CONDITIONS TO AVOID:** Overcharging, sources of ignition

## SECTION 11: TOXICOLOGICAL INFORMATION

**ACUTE TOXICITY (Test Results Basis and Comments):**
Sulfuric acid: $LD_{50}$, Rat: 2140 mg/kg
$LC_{50}$, Guinea pig: 510 mg/$m^3$
Lead: No data available for elemental lead

**SUBCHRONIC/CHRONIC TOXICITY (Test Results and Comments):**
Repeated exposure to lead and lead compounds in the workplace may result in nervous system toxicity. Some toxicologists report abnormal conduction velocities in persons with blood-lead levels of 50 µg/100 ml or higher. Heavy lead exposure may result in central nervous system damage, encephalopathy and damage to the blood-forming (hematopoietic) tissues.

Additional Information
- Very little chronic toxicity data available for elemental lead.
- Lead is listed by IARC as a 2B carcinogen: possible carcinogen in humans. Arsenic is listed by IARC, ACGIH, and NTP as a carcinogen, based on studies with high doses over long periods of time. The other ingredients in this product, present at equal to or greater than 0.1% of the product, are not listed by OSHA, NTP, or IARC as suspect carcinogens.
- The 19th Amendment to EC Directive 67/548/EEC classified lead compounds, but not lead in metal form, as possibly toxic to reproduction. Risk phrase 61: May cause harm to the unborn child, applies to lead compounds, especially soluble forms.

## SECTION 12: ECOLOGICAL INFORMATION

**PERSISTENCE & DEGRADABILITY:**
Lead is very persistent in soils and sediments. No data available on biodegradation.
**BIOACCUMULATIVE POTENTIAL (Including Mobility):**
Mobility of metallic lead between ecological compartments is low. Bioaccumulation of lead occurs in aquatic and terrestrial animals and plants, but very little bioaccumulation occurs through the food chain. Most studies have included lead compounds, not solid inorganic lead.
**AQUATIC TOXICITY (Test Results & Comments):**
Sulfuric acid: 24-hour $LC_{50}$, fresh water fish (***Brachydanio rerio***): 82 mg/l
96-hour LOEC, fresh water fish (***Cyprinus carpio)***: 22 mg/l (lowest observable effect concentration)
Lead (metal): No data available

Additional Information
- No known effects on stratospheric ozone depletion.
- Volatile organic compounds: 0% (by Volume)
- Water Endangering Class (WGK): NA

## SECTION 13: DISPOSAL CONSIDERATIONS

**WASTE DISPOSAL METHOD:** Lead acid batteries are recyclable when sent to a secondary lead smelter. Following local, State/Provincial, and Federal/National regulations applicable to end-of-life characteristics will be the responsibility of the end-user.

**HAZARDOUS WASTE CLASS/CODE:**
US - Not applicable to finished product as manufactured for distribution into commerce.
CN – Not applicable to finished product as manufactured for distribution into commerce.
EWC – Not applicable to finished product as manufactured for distribution into commerce.

| Additional Information |
|---|
| Not Included – **Recycle** or dispose as allowed by local jurisdiction for the end-of-life characteristics as-disposed. |

## SECTION 14: TRANSPORT INFORMATION

**GROUND – US-DOT/CAN-TDG/EU-ADR/APEC-ADR:**
Proper Shipping Name — Not regulated as a Hazardous Material

**AIRCRAFT – ICAO-IATA:**
Proper Shipping Name — Not regulated as a Hazardous Material

**VESSEL – IMO-IMDG:**
Proper Shipping Name — Not regulated as a Hazardous Material

Additional Information
- Each battery and the outer packaging must be plainly and durably marked “Non-spillable” or “Non-spillable Battery”
- Non-Spillable Battery complies with the provisions listed in 49 CFR 173.159a; therefore, must not be marked with an identification number or hazardous label and is not subject to hazardous shipping paper requirements.
- Transport requires proper packaging and paperwork, including the Nature and Quantity of goods, per applicable origin/destination/customs points as-shipped.

## SECTION 15: REGULATORY INFORMATION

| **INVENTORY STATUS:** |
|---|
| All components are listed on the TSCA; EINECS/ELINCS; and DSL, unless noted otherwise below. |

**U.S. FEDERAL REGULATIONS:**

**TSCA Section 8b – Inventory Status**: All chemicals comprising this product are either exempt or listed on the TSCA Inventory.

**TSCA Section 12b – Export Notification**: If the finished product contains chemicals subject to TSCA Section 12b export notification, they are listed below:

| Chemical | CAS # |
|---|---|
| None | NA |

**CERCLA (COMPREHENSIVE RESPONSE COMPENSATION, AND LIABILITY ACT)**
Chemicals present in the product which could require reporting under the statute:

| Chemical | CAS # |
|---|---|
| Lead | 7439-92-1 |
| Sulfuric acid | 7664-93-9 |

**SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)**
The finished product contains chemicals subject to the reporting requirements of Section 313 of SARA Title III.

| Chemical | CAS # | % wt |
|---|---|---|
| Lead | 7439-92-1 | 67 |

| | | |
|---|---|---|
| Sulfuric acid | 7664-93-9 | 10 |

**CERCLA SECTION 311/312 HAZARD CATEGORIES**: Note that the finished product is exempt from these regulations, but lead and sulfuric acid above the thresholds are reportable on Tier II reports.

| | |
|---|---|
| Fire Hazard | No |
| Pressure Hazard | No |
| Reactivity Hazard | No |
| Immediate Hazard | Yes (Internal acid gel is Corrosive) |
| Delayed Hazard | No |

Sulfuric Acid is regulated as an Extremley Hazardous Substance.

**STATE REGULATIONS (US):**

**California Proposition 65**

The following chemicals identified to exist in the finished product as distributed into commerce are known to the State of California to cause cancer, birth defects, or other reproductive harm:

| Chemical | CAS # | % Wt |
|---|---|---|
| Arsenic (as arsenic oxides) | 7440-38-2 | <0.1 |
| Strong inorganic acid mists including sulfuric acid | NA | 10 |
| Lead | 7439-92-1 | 67 |

**California Consumer Product Volatile Organic Compound Emissions**

This Product is not regulated as a Consumer Product for purposes of CARB/OTC VOC Regulations, as-sold for the intended purpose and into the industrial/Commercial supply chain.

**INTERNATIONAL REGULATIONS (Non-US):**

**Canadian Domestic Substance List (DSL)**

All ingredients remaining in the finished product as distributed into commerce are included on the Domestic Substances List.

**WHMIS Classifications**

Class E: Corrosive materials present at greater than 1%

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the Controlled Products Regulations.

**NPRI and Ontario Regulation 127/01**

This product contains the following chemicals subject to the reporting requirements of Canada NPRI +/or Ont. Reg. 127/01:

| Chemical | CAS # | % Wt |
|---|---|---|
| Lead | 7439-92-1 | 67 |
| Sulfuric acid | 7664-93-9 | 10 |

**European Inventory of Existing Commercial Chemical Substances (EINECS)**

All ingredients remaining in the finished product as distributed into commerce are exempt from, or included on, the European Inventory of Existing Commercial Chemical Substances.

**European Communities (EC) Hazard Classification according to directives 67/548/EEC and 1999/45/EC.**

| R-Phrases | S-Phrases |
|---|---|
| 35, 36, 38 | 1/2, 26, 30, 45 |

Additional Information

This product may be subject to Restriction of Hazardous Substances (RoHS) regulations in Europe and China, or may be regulated under additional regulations and laws not identified above, such as for uses other than described or as-designed/as-intended by the manufacturer, or for distribution into specific domestic destinations.

**SECTION 16: OTHER INFORMATION**

**OTHER INFORMATION:**

Distribution into Quebec to follow Canadian Controlled Product Regulations (CPR) 24(1) and 24(2).
Distribution into the EU to follow applicable Directives to the Use, Import/Export of the product as-sold.

**SOURCES OF INFORMATION:**

International Agency for Research on Cancer (1987), ***IARC Monographs on the Evaluation of Carcinogenic Risks to Humans: Overall Evaluations of Carcinogenicity: An updating of IARC Monographs Volumes 1-42, Supplement 7, Lyon,*** France.
Ontario Ministry of Labour Regulation 654/86. Regulations Respecting Exposure to Chemical or Biological Agents.
RTECS – Registry of Toxic Effects of Chemical Substances, National institute for Occupational Safety and Health.

**MSDS/SDS PREPARATION INFORMATION:**

DATE OF ISSUE: ***30 April 2013*** SUPERCEDES: ***29 November 2010***

**DISCLAIMER:**

This Material Safety Data Sheet is based upon information and sources available at the time of preparation or revision date. The information in the MSDS was obtained from sources which we believe are reliable, but are beyond our direct supervision or control. We make no Warranty of Merchantability, Fitness for any particular purpose, or any other Warranty, Expressed or Implied, with respect to such information, and we assume no liability resulting from its use. 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 of, or disposal of the product. It is the obligation of each user of the product to determine the suitability of this product and comply with the requirements of all applicable laws regarding use and disposal of this product. For additional information concerning East Penn Manufacturing Co., Inc. products or questions concerning the content of this MSDS please contact your East Penn representative.

**END**

# SAFETY DATA SHEET

## SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

**PRODUCT**

**Product Name:** **MOBILFLUID 424**
**Product Description:** Base Oil and Additives
**Product Code:** 201520508030, 522334-00, 971955
**Intended Use:** Hydraulic fluid

**COMPANY IDENTIFICATION**

**Supplier:** **EXXON MOBIL CORPORATION**
3225 GALLOWS RD.
FAIRFAX, VA. 22037 USA

| | |
|---|---|
| **24 Hour Health Emergency** | 609-737-4411 |
| **Transportation Emergency Phone** | 800-424-9300 |
| **ExxonMobil Transportation No.** | 281-834-3296 |
| **Product Technical Information** | 800-662-4525, 800-947-9147 |
| **MSDS Internet Address** | http://www.exxon.com, http://www.mobil.com |

## SECTION 2 COMPOSITION / INFORMATION ON INGREDIENTS

**Reportable Hazardous Substance(s) or Complex Substance(s)**

| Name | CAS# | Concentration* |
|---|---|---|
| ZINC ALKYLDITHIOPHOSPHATE | 68649-42-3 | 1 - 2.5% |

* All concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume.

## SECTION 3 HAZARDS IDENTIFICATION

This material is not considered to be hazardous according to regulatory guidelines (see (M)SDS Section 15).

**POTENTIAL HEALTH EFFECTS**

Excessive exposure may result in eye, skin, or respiratory irritation. High-pressure injection under skin may cause serious damage.

| | | | | | | |
|---|---|---|---|---|---|---|
| **NFPA Hazard ID:** | Health: | 0 | Flammability: | 1 | Reactivity: | 0 |
| **HMIS Hazard ID:** | Health: | 0 | Flammability: | 1 | Reactivity: | 0 |

**NOTE:** This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

## SECTION 4 FIRST AID MEASURES

### INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

### SKIN CONTACT

Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

### EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

### INGESTION

First aid is normally not required. Seek medical attention if discomfort occurs.

## SECTION 5 FIRE FIGHTING MEASURES

### EXTINGUISHING MEDIA

**Appropriate Extinguishing Media:** Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

**Inappropriate Extinguishing Media:** Straight Streams of Water

### FIRE FIGHTING

**Fire Fighting Instructions:** Evacuate area. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Firefighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

**Unusual Fire Hazards:** Pressurized mists may form a flammable mixture.

**Hazardous Combustion Products:** Smoke, Fume, Aldehydes, Sulfur oxides, Incomplete combustion products, Oxides of carbon

### FLAMMABILITY PROPERTIES

**Flash Point [Method]:** >198°C (389°F) [ASTM D-92]
**Flammable Limits (Approximate volume % in air):** LEL: 0.9 UEL: 7.0
**Autoignition Temperature:** N/D

## SECTION 6 ACCIDENTAL RELEASE MEASURES

**NOTIFICATION PROCEDURES**

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. US regulations require reporting releases of this material to the environment which exceed the applicable reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

**PROTECTIVE MEASURES**

Avoid contact with spilled material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

For emergency responders: Respiratory protection: respiratory protection will be necessary only in special cases, e.g., formation of mists. Half-face or full-face respirator with filter(s) for dust/organic vapor or Self Contained Breathing Apparatus (SCBA) can be used depending on the size of spill and potential level of exposure. If the exposure cannot be completely characterized or an oxygen deficient atmosphere is possible or anticipated, SCBA is recommended. Work gloves that are resistant to hydrocarbons are recommended. Gloves made of polyvinyl acetate (PVA) are not water-resistant and are not suitable for emergency use. Chemical goggles are recommended if splashes or contact with eyes is possible. Small spills: normal antistatic work clothes are usually adequate. Large spills: full body suit of chemical resistant, antistatic material is recommended.

**SPILL MANAGEMENT**

**Land Spill:** Stop leak if you can do it without risk. Recover by pumping or with suitable absorbent.

**Water Spill:** Stop leak if you can do it without risk. Confine the spill immediately with booms. Warn other shipping. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

**ENVIRONMENTAL PRECAUTIONS**

Large Spills: Dike far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

## SECTION 7 HANDLING AND STORAGE

**HANDLING**

Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source). When the material is handled in bulk, an electrical spark could ignite any flammable vapors from liquids or residues that may be present (e.g., during switch-loading operations). Use proper bonding and/or ground procedures. However, bonding and grounds may not eliminate the hazard from static accumulation. Consult local applicable standards for guidance. Additional references include American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practice on Static Electricity) or CENELEC CLC/TR 50404 (Electrostatics - Code of practice for the avoidance of hazards due to static electricity).

**Static Accumulator:** This material is a static accumulator.

**STORAGE**

The container choice, for example storage vessel, may effect static accumulation and dissipation. Do not store in open or unlabelled containers. Keep away from incompatible materials.

## SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

**EXPOSURE LIMIT VALUES**

**Exposure limits/standards for materials that can be formed when handling this product:** When mists/aerosols can occur the following are recommended: 5 mg/m³ - ACGIH TLV (inhalable fraction), 5 mg/m³ - OSHA PEL.

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

**ENGINEERING CONTROLS**

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

**PERSONAL PROTECTION**

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

**Respiratory Protection:** If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

No special requirements under ordinary conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

**Hand Protection:** Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

No protection is ordinarily required under normal conditions of use.

**Eye Protection:** If contact is likely, safety glasses with side shields are recommended.

**Skin and Body Protection:** Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

No skin protection is ordinarily required under normal conditions of use. In accordance with good

industrial hygiene practices, precautions should be taken to avoid skin contact.

**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. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

**ENVIRONMENTAL CONTROLS**

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

## SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

**Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.**

**GENERAL INFORMATION**

**Physical State:** Liquid
**Color:** Amber
**Odor:** Characteristic
**Odor Threshold:** N/D

**IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION**

**Relative Density (at 15 °C):** 0.884
**Flash Point [Method]:** >198°C (389°F) [ASTM D-92]
**Flammable Limits (Approximate volume % in air):** LEL: 0.9 UEL: 7.0
**Autoignition Temperature:** N/D
**Boiling Point / Range:** > 316°C (600°F) [Estimated]
**Vapor Density (Air = 1):** > 2 at 101 kPa [Estimated]
**Vapor Pressure:** < 0.013 kPa (0.1 mm Hg) at 20 °C [Estimated]
**Evaporation Rate (n-butyl acetate = 1):** N/D
**pH:** N/A
**Log Pow (n-Octanol/Water Partition Coefficient):** > 3.5 [Estimated]
**Solubility in Water:** Negligible
**Viscosity:** 55 cSt (55 mm2/sec) at 40 °C | 9.6 cSt (9.6 mm2/sec) at 100°C
**Oxidizing Properties:** See Hazards Identification Section.

**OTHER INFORMATION**

**Freezing Point:** N/D
**Melting Point:** N/A
**Pour Point:** -36°C (-33°F)
**DMSO Extract (mineral oil only), IP-346:** < 3 %wt

## SECTION 10 STABILITY AND REACTIVITY

**STABILITY:** Material is stable under normal conditions.

**CONDITIONS TO AVOID:** Excessive heat. High energy sources of ignition.

**MATERIALS TO AVOID:** Strong oxidizers

**HAZARDOUS DECOMPOSITION PRODUCTS:** Material does not decompose at ambient temperatures.

**HAZARDOUS POLYMERIZATION:** Will not occur.

## SECTION 11 TOXICOLOGICAL INFORMATION

**ACUTE TOXICITY**

| Route of Exposure | Conclusion / Remarks |
|---|---|
| **Inhalation** | |
| Toxicity: No end point data for material. | Minimally Toxic. Based on assessment of the components. |
| Irritation: No end point data for material. | Negligible hazard at ambient/normal handling temperatures. Based on assessment of the components. |
| | |
| **Ingestion** | |
| Toxicity: No end point data for material. | Minimally Toxic. Based on assessment of the components. |
| | |
| **Skin** | |
| Toxicity: No end point data for material. | Minimally Toxic. Based on assessment of the components. |
| Irritation: No end point data for material. | Negligible irritation to skin at ambient temperatures. Based on assessment of the components. |
| | |
| **Eye** | |
| Irritation: No end point data for material. | May cause mild, short-lasting discomfort to eyes. Based on assessment of the components. |

**CHRONIC/OTHER EFFECTS**

**Contains:**

Base oil severely refined: Not carcinogenic in animal studies. Representative material passes IP-346, Modified Ames test, and/or other screening tests. Dermal and inhalation studies showed minimal effects; lung non-specific infiltration of immune cells, oil deposition and minimal granuloma formation. Not sensitizing in test animals.

**The following ingredients are cited on the lists below:** None.

--REGULATORY LISTS SEARCHED--

| | | |
|---|---|---|
| 1 = NTP CARC | 3 = IARC 1 | 5 = IARC 2B |
| 2 = NTP SUS | 4 = IARC 2A | 6 = OSHA CARC |

## SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

**ECOTOXICITY**

Material -- Not expected to be harmful to aquatic organisms.

**MOBILITY**

Base oil component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

**PERSISTENCE AND DEGRADABILITY**

**Biodegradation:**

Base oil component -- Expected to be inherently biodegradable

**BIOACCUMULATION POTENTIAL**

Base oil component -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

## SECTION 13 DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

**DISPOSAL RECOMMENDATIONS**

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products. Protect the environment. Dispose of used oil at designated sites. Minimize skin contact. Do not mix used oils with solvents, brake fluids or coolants.

**REGULATORY DISPOSAL INFORMATION**

RCRA Information: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed as hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrositivity or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

**Empty Container Warning** Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, 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.

## SECTION 14 TRANSPORT INFORMATION

**LAND (DOT):** Not Regulated for Land Transport

**LAND (TDG):** Not Regulated for Land Transport

**SEA (IMDG):** Not Regulated for Sea Transport according to IMDG-Code

**AIR (IATA):** Not Regulated for Air Transport

## SECTION 15 REGULATORY INFORMATION

**OSHA HAZARD COMMUNICATION STANDARD:** When used for its intended purposes, this material is not classified as hazardous in accordance with OSHA 29 CFR 1910.1200.

**Complies with the following national/regional chemical inventory requirements::** AICS, DSL, ENCS, KECI, PICCS, TSCA

**EPCRA SECTION 302:** This material contains no extremely hazardous substances.

**SARA (311/312) REPORTABLE HAZARD CATEGORIES:** None.

**SARA (313) TOXIC RELEASE INVENTORY:**

| Chemical Name | CAS Number | Typical Value |
|---|---|---|
| ZINC ALKYLDITHIOPHOSPHATE | 68649-42-3 | 1 - 2.5% |

**The following ingredients are cited on the lists below:**

| Chemical Name | CAS Number | List Citations |
|---|---|---|
| TOLUENE | 108-88-3 | 15 |
| ZINC ALKYLDITHIOPHOSPHATE | 68649-42-3 | 13, 15, 17 |

--REGULATORY LISTS SEARCHED--

| | | | |
|---|---|---|---|
| 1 = ACGIH ALL | 6 = TSCA 5a2 | 11 = CA P65 REPRO | 16 = MN RTK |
| 2 = ACGIH A1 | 7 = TSCA 5e | 12 = CA RTK | 17 = NJ RTK |
| 3 = ACGIH A2 | 8 = TSCA 6 | 13 = IL RTK | 18 = PA RTK |
| 4 = OSHA Z | 9 = TSCA 12b | 14 = LA RTK | 19 = RI RTK |
| 5 = TSCA 4 | 10 = CA P65 CARC | 15 = MI 293 | |

Code key: CARC=Carcinogen; REPRO=Reproductive

## SECTION 16 OTHER INFORMATION

N/D = Not determined, N/A = Not applicable

**THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:**
Revision Changes:
Section 06: Notification Procedures - Header was modified.
Section 13: Disposal Considerations - Disposal Recommendations was modified.
Section 01: Product Code was modified.

Section 10 Stability and Reactivity - Header was modified.
Section 13: Disposal Recommendations - Note was modified.
Section 13: Empty Container Warning was modified.
Section 09: Phys/Chem Properties Note was modified.
Section 09: Boiling Point C(F) was modified.
Section 09: Pour Point C(F) was modified.
Section 09: Flash Point C(F) was modified.
Section 09: n-Octanol/Water Partition Coefficient was modified.
Section 08: Comply with applicable regulations phrase was modified.
Section 08: Personal Protection was modified.
Section 08: Hand Protection was modified.
Section 09: Vapor Pressure was modified.
Section 07: Handling and Storage - Handling was modified.
Section 07: Handling and Storage - Storage Phrases was modified.
Hazard Identification: Health Hazards was modified.
Section 11: Dermal Lethality Test Data was modified.
Section 11: Dermal Lethality Test Comment was modified.
Section 11: Oral Lethality Test Data was modified.
Section 11: Inhalation Lethality Test Data was modified.
Section 11: Dermal Irritation Test Data was modified.
Section 11: Eye Irritation Test Data was modified.
Section 11: Oral Lethality Test Comment was modified.
Section 11: Inhalation Irritation Test Data was modified.
Section 05: Hazardous Combustion Products was modified.
Section 06: Accidental Release - Spill Management - Water was modified.
Section 09: Relative Density - Header was modified.
Section 09: Flash Point C(F) was modified.
Section 09: Viscosity was modified.
Section 09: Viscosity was modified.
Section 14: Sea (IMDG) - Header was modified.
Section 14: Air (IATA) - Header was modified.
Section 14: LAND (TDG) - Header was modified.
Section 14: LAND (DOT) - Header was modified.
Composition: Component table was modified.
Section 15: List Citations Table was modified.
Section 15: List Citation Table - Header was modified.
Section 14: LAND (DOT) - Default was modified.
Section 14: LAND (TDG) Default was modified.
Section 14: Sea (IMDG) - Default was modified.
Section 14: Air (IATA) - Default was modified.
Section 15: National Chemical Inventory Listing - Header was modified.
Section 15: SARA (313) TOXIC RELEASE INVENTORY - Table was modified.
Section 15: National Chemical Inventory Listing was modified.
Section 16: Code to MHCs was modified.
Section 15: Community RTK - Header was modified.
Section 11: Additional Health Information was modified.
Section 08: Exposure limits/standards was modified.
Hazard Identification: OSHA - May be Hazardous Statement was modified.
Section 06: Notification Procedures was modified.
Section 09: Oxidizing Properties was modified.
Section 01: Company Contact Methods Sorted by Priority was modified.
Section 06: Protective Measures was added.

Section 06: Accidental Release - Protective Measures - Header was added.
Section 08: Exposure Limit Values - Header was added.
Section 09: Vapor Pressure was added.
Section 15: TSCA Class 2 Statement was deleted.

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Internal Use Only

MHC: 0B, 0B, 0, 0, 0, 0 PPEC: A

DGN: 2005922XUS (538859)

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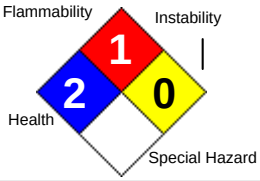
# MATERIAL SAFETY DATA SHEET
## Jasco Premium Paint & Epoxy Remover


| | |
|---|---|
| HEALTH | 2 |
| FLAMMABILITY | 1 |
| PHYSICAL | 0 |
| PPE | X |




Printed: 05/17/2011
Revision: 05/17/2011
Supercedes Revision: 10/13/2009

## 1. Product and Company Identification

**Product Code:** 4015.26E

**Product Name:** Jasco Premium Paint & Epoxy Remover

**Manufacturer Information**

**Company Name:** W. M. Barr
2105 Channel Avenue
Memphis, TN 38113

**Phone Number:** (901)775-0100

**Emergency Contact:** 3E 24 Hour Emergency Contact (800)451-8346

**Information:** W.M. Barr Customer Service (800)398-3892

**Web site address:** www.wmbarr.com

**Preparer Name:** W.M. Barr EHS Dept (901)775-0100

**Intended Use:** Removal of adhesives, mastics, & contact cement from wood, concrete, metal and masonry.

**Synonyms**

CJBP00204, GJBP00203, GJPR10003, QJBP00202, QJPR10002, PJBP02011

## 2. Composition/Information on Ingredients

| Hazardous Components (Chemical Name) | CAS # | Concentration | OSHA TWA | ACGIH TWA | Other Limits |
|---|---|---|---|---|---|
| 1. Dichloromethane {Methylene chloride; R-30; Freon 30} | 75-09-2 | 60.0 -100.0 % | 25 ppm | 50 ppm | No data. |
| 2. Methanol {Methyl alcohol; Carbinol; Wood alcohol} | 67-56-1 | 10.0 -30.0 % | 200 ppm | 200 ppm | No data. |
| 3. Stoddard solvent {Mineral spirits; Aliphatic Petroleum Distillates; White spirits} | 8052-41-3 | 1.0 -5.0 % | 500 ppm | 100 ppm | No data. |

| Hazardous Components (Chemical Name) | RTECS # | OSHA STEL | OSHA CEIL | ACGIH STEL | ACGIH CEIL |
|---|---|---|---|---|---|
| 1. Dichloromethane {Methylene chloride; R-30; Freon 30} | PA8050000 | 125 ppm (15 min) | No data. | No data. | No data. |
| 2. Methanol {Methyl alcohol; Carbinol; Wood alcohol} | PC1400000 | No data. | No data. | 250 ppm | No data. |
| 3. Stoddard solvent {Mineral spirits; Aliphatic Petroleum Distillates; White spirits} | WJ8925000 | No data. | No data. | No data. | No data. |

## 3. Hazards Identification

**Emergency Overview**

Danger! Poison. May be fatal or cause blindness if swallowed. Eye and skin irritant. Vapor Harmful.

Use only with adequate ventilation to prevent buildup of vapors. If the work area is not well ventilated, do not use this product.

Keep out of reach of children.

**Potential Health Effects (Acute and Chronic)**

INHALATION ACUTE EXPOSURE EFFECTS:
Vapor harmful. May cause upper respiratory tract irritation and central nervous system depression with symptoms such as confusion, lightheadedness, nausea, vomiting, headache, drowsiness, and fatigue. Mist or

vapor can irritate the throat and lungs. Causes formation of carbon monoxide in blood which may affect the cardiovascular system and central nervous system. Continued exposure may cause unconsciousness and even death. Intentional misuse of this product by deliberately concentrating and inhaling the vapors can be harmful or fatal. Concurrent exposure to carbon monoxide, smoking, and physical activity may increase the level of carboxyhemoglobin levels in the blood resulting in additive effects. This product is a simple asphyxiant.

SKIN CONTACT ACUTE EXPOSURE EFFECTS:
This product is a skin irritant. Product may be absorbed through the skin. Harmful if absorbed through the skin. Effects may range from mild irritation to severe pain, and possibly burns, depending on the intensity of contact. Prolonged or repeated contact may dry the skin and cause irritation. Symptoms include redness, itching, burning, drying and cracking of the skin, and skin burns.

EYE CONTACT ACUTE EXPOSURE EFFECTS:
This material is an eye irritant. Vapors may irritate the eyes. Contact may cause tearing, redness, a stinging or burning feeling, swelling, and blurred vision.

INGESTION ACUTE EXPOSURE EFFECTS:
Poison. May be fatal or cause blindness if swallowed. May cause nausea or vomiting. Aspiration hazard. This material may be aspirated into the lungs during vomiting. If vomiting results in aspiration, chemical pneumonia could occur. It can be readily absorbed by the stomach and intestinal tract. Absorption through the gastrointestinal tract may produce central nervous system depression and systemic effects. Swallowing this material may irritate the mucous membranes of the mouth, throat, and esophagus. May cause cyanosis (blue coloring of the skin and nails from lack of oxygen).

CHRONIC EXPOSURE EFFECTS:
Reports have associated repeated and prolonged overexposure to solvents with neurological and other physiological damage. Prolonged skin contact may cause irritation, redness, swelling and possible tissue destruction. Prolonged or repeated contact may cause dermatitis. Prolonged skin contact may result in absorption of a harmful amount of this material. May cause liver damage. May cause cancer based on animal data (see Section 11. Toxicological Information).

Target Organs:
Blood, central nervous system, liver, skin, cardiovascular system, eyes, respiratory system, lungs.

### Signs and Symptoms Of Exposure

See Potential Health Effects.

### Medical Conditions Generally Aggravated By Exposure

Heart of cardiovascular disorders, kidney disorders, liver disorders, central nervous system disorders, respiratory system (including asthma and other breathing disorders), skin disorders and allergies.

Alcohol may enhance the toxic effects of methylene chloride exposure. May cross the placenta. May be excreted in breast milk.

### OSHA Regulatory Status:

This material is classified as hazardous under OSHA regulations.

## 4. First Aid Measures

### Emergency and First Aid Procedures

INHALATION:
If user experiences breathing difficulty, move to air free of vapors. Administer oxygen or artificial respiration until medical assistance can be rendered.

SKIN CONTACT:

Wash with soap and large quantities of water and seek medical attention if irritation from contact persists.

EYE CONTACT:
Immediately flush with water, remove any contact lens, continue flushing with water for at least 15 minutes, then get medical attention immediately.

INGESTION:
Do not induce vomiting, unless directed to by medical personnel. Call your poison control center, hospital, emergency room, or physician immediately for instructions. Do not give anything by mouth to an unconscious person.

**Note to Physician**

This product contains methylene chloride and methanol.

This product contains methanol which can cause intoxication and central nervous system depression. Methanol is metabolized to formic acid and formaldehyde. These metabolites can cause metabolic acidosis, visual disturbances and blindness. Since metabolism is required for these toxic symptoms, their onset may be delayed from 6 to 30 hours following ingestion. Ethanol competes for the same metabolic pathway and has been used to prevent methanol metabolism. Ethanol administration is indicated in symptomatic patients or at blood methanol concentrations above 20 ug/dl. Methanol is effectively removed by hemodialysis.

Methylene Chloride is an aspiration hazard. Risk of aspiration must be weighed against possible toxicity of the material when determining whether to induce emesis or to perform gastric lavage. This material sensitizes the heart to the effects of sympathomimetic amines. Epinephrine and other sympathomimetic drugs may initiate cardiac arrhythmia in individuals exposed to this material. This material is metabolized to carbon monoxide. Consequently, elevations in carboxyhemoglobin as high as 50% have been reported, and levels may continue to rise for several hours after exposure has ceased. Data in experimental animals suggest there is a narrow margin between concentrations causing anesthesia and death. Adrenalin should never be given to a person overexposed to methylene chloride.

## 5. Fire Fighting Measures

| | | |
|---|---|---|
| **Flammability Classification:** | NFPA Class IIIB | |
| **Flash Pt:** | NP | |
| **Explosive Limits:** | LEL: No data. | UEL: No data. |
| **Autoignition Pt:** | No data available. | |

**Fire Fighting Instructions**

Self-contained respiratory protection should be provided for fire fighters fighting fires in buildings or confined areas. Storage containers exposed to fire should be kept cool with water spray to prevent pressure build-up. Stay away from heads of containers that have been exposed to intense heat or flame.

**Flammable Properties and Hazards**

No flash to boil.

Contact of liquid or vapor with flame or hot surfaces will produce toxic gases and a corrosive residue that will cause deterioration of metal.

Vapors are heavier than air and will tend to collect in low areas.

**Hazardous Combustion Products**

Thermal decomposition or combustion may produce hydrogen chloride, chlorine, phosgene, and oxides of carbon.

### Extinguishing Media

Use carbon dioxide, dry powder, water spray, or foam.

### Unsuitable Extinguishing Media

None known.

## 6. Accidental Release Measures

### Steps To Be Taken In Case Material Is Released Or Spilled

Isolate the immediate area. Prevent unauthorized entry. Eliminate all sources of ignition in area and downwind of the spill area. Stay upwind, out of low areas, and ventilate closed spaces before entering. All equipment used when handling this product must be grounded or non-sparking. Do not touch or walk through spilled material. Stop leak if you can do so without risk. Prevent entry into waterways, sewers, or confined areas. A vapor suppressing foam may be used to reduce vapors. Absorb or cover with dry earth, sand, or other non-combustible material and transfer to compatible containers.

## 7. Handling and Storage

### Precautions To Be Taken in Handling

Read carefully all cautions and directions on product label before use. Since empty container retains residue, follow all label warnings even after container is empty. Dispose of empty container according to all regulations. Do not reuse this container.

Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling. A source of clean water should be kept in the immediate work area for flushing of the eyes and skin.

Keep away from heat, sparks, flame, and any other source of ignition.

Do not smoke when anywhere near this material.

Ground and bond containers when transferring material.

Do not use in confined spaces, basements, bathrooms, etc, where vapors can build up and explode if ignited by an ignition source.

Vapors are heavier than air and will collect in low areas.

### Precautions To Be Taken in Storing

Store in a cool place in original container and protect from sunlight. Exposure to high temperatures or prolonged exposure to sun may cause can to leak or swell. Once opened, remover should be used within six months or properly disposed of to avoid can deterioration. Do not store near flames or at elevated temperatures.

Keep container tightly closed when not in use.

## 8. Exposure Controls/Personal Protection

### Respiratory Equipment (Specify Type)

For use in areas with inadequate ventilation or fresh air, wear a properly maintained and properly fitted NIOSH approved self-contained breathing apparatus or powered air supply respirator or loose fitting hood.

For OSHA controlled work places and other regular users - Use only with adequate ventilation under engineered air control systems designed to prevent exceeding the appropriate TLV.

A dust mask does not provide protection against vapors.

**Eye Protection**

Chemical goggles or face shields are recommended to safeguard against potential eye contact, irritation, or injury. Chemical goggles or face shields are recommended when splashing or spraying of chemical is possible. A faceshield provides more protection to help reduce chemical contact to the face and eyes.

**Protective Gloves**

Wear gloves with as much resistance to the chemical ingredients as possible. Laminate film gloves offer the best protection. Other glove materials, such as nitrile rubber, neoprene, and PVC will be degraded by methylene chloride, but may provide protection for some amount of time, based on the type of glove and the conditions of use. Consult your glove supplier for additional information. Gloves contaminated with product should be discarded and not reused.

**Other Protective Clothing**

Various application methods can dictate use of additional protective safety equipment, such as impermeable aprons, etc., to minimize exposure.

**Engineering Controls (Ventilation etc.)**

Use only with adequate ventilation to prevent buildup of vapors. If work area is not well ventilated, do not use this product. Do not use in areas where vapors can accumulate and concentrate, such as basements, bathrooms or small enclosed areas.

Whenever possible, use outdoors in an open air area. If using indoors open all windows and doors and maintain a cross ventilation of moving fresh air across the work area. If strong odor is noticed or you experience slight dizziness, headache, nausea or eye-watering -- STOP -- ventilation is inadequate. Leave area immediately and move to fresh air.

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

**Work/Hygienic/Maintenance Practices**

A source of clean water should be available in the work area for flushing of the eyes and skin.

Wash hands thoroughly after use.
Do not eat, drink, or smoke in the work area.

Before reuse, thoroughly clean any clothing or protective equipment that has been contaminated by prior use.

Discard any clothing or other protective equipment that cannot be decontaminated, such as gloves or shoes.

## 9. Physical and Chemical Properties

| | |
|---|---|
| **Physical States:** | [ ] Gas [ X ] Liquid [ ] Solid |
| **Melting Point:** | No data. |
| **Boiling Point:** | No data. |
| **Autoignition Pt:** | No data. |
| **Flash Pt:** | NP |
| **Specific Gravity (Water = 1):** | 1.138 |
| **Density:** | 9.462 |
| **Vapor Pressure (vs. Air or mm Hg):** | No data. |
| **Vapor Density (vs. Air = 1):** | > 1 |
| **Evaporation Rate (vs Butyl Acetate=1):** | < 1 |

**Solubility in Water:** Slight

**Percent Volatile:** 97 % by weight.

**VOC / Volume:** 23 % WT

**pH:** 10.0 - 10.5

**Appearance and Odor**

Clear to white color.

## 10. Stability and Reactivity

**Stability:** Unstable [ ] Stable [ X ]

**Conditions To Avoid - Instability**

No data available.

**Incompatibility - Materials To Avoid**

Incompatible with strong oxidizing agents; bases; strong caustics; strong acids; oxygen; nitrogen peroxide; reactive metals such as aluminum and magnesium; sodium; potassium; and nitric acid.

**Hazardous Decomposition Or Byproducts**

Decomposition may produce carbon monoxide and carbon dioxide, hydrogen chloride, chlorine gas, and small quantities of phosgene.

**Hazardous Polymerization:** Will occur [ ] Will not occur [ X ]

**Conditions To Avoid - Hazardous Polymerization**

No data available.

## 11. Toxicological Information

This product has not been tested as a whole. Information below will be for individual ingredients.

Methylene Chloride:
ACUTE TOXICITY:
LC50 Rat inhalation 52 mg/L 4 hrs
LD50 Rat oral 985-1600 mg/kg
SKIN CORROSION / IRRITATION:
810 mg/24 hr skin rabbit - severe
100 mg/24 hr skin rabbit - moderate
SERIOUS EYE DAMAGE / IRRITATION:
162 mg eyes rabbit - moderate
10 mg eyes rabbit - mild
500 mg/24 hr eyes rabbit - mild
RESPIRATORY OR SKIN SENSITIZATION: Not a respiratory or skin sensitizer.
ASPIRATION HAZARD: Methylene chloride does present an aspiration hazard.
MUTAGENIC DATA: Positive results have been observed in the Ames test. In mammalian systems, responses have generally been negative.
IMMUNOTOXICITY: A study found there was no evidence of harm to the immune system of laboratory animals or reduced ability to combat disease.
NEUROTOXICITY: Tests in rats indicate no significant neurotoxic effects after exposure to concentrations up to 2,000 ppm for 90 days. No neurotoxic effects have been observed in humans at typical occupational exposure levels.
DEVELOPMENTAL/REPRODUCTIVE: No significant developmental effects were observed in female rats and mice exposed to 1,250 ppm during gestation. A similar result was observed in rats exposed to 4,500 ppm before and during gestation. A two-generation inhalation study showed no adverse reproductive effects in rats exposed to as much as 1,500 ppm for 14 weeks.
CARCINOGEN STATUS: Methylene chloride is carcinogenic in experimental animals at a relatively high dose, by route(s) of administration, at site(s), of histologic type(s), or by mechanism(s) that are not considered relevant

to worker exposure. Available epidemiological studies do not confirm an increased risk of cancer in humans. Available evidence suggests that this material is not likely to cause cancer in humans except under uncommon or unlikely routes or levels of exposure.

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Methanol:
ACUTE TOXICITY:
LD50 Rat oral 5628 mg/kg
LC50 Rat inhalation 64000 ppm/4 hr
LC50 Rat inhalation 87.5 mg/L/6 hr
LD50 Mouse oral 7300 mg/kg
SKIN CORROSION / IRRITATION: LD50 Rabbit dermal 15,800 mg/kg bw
SERIOUS EYE DAMAGE / IRRITATION: Methanol is a mild to moderate eye irritant.
RESPIRATORY OR SKIN SENSITIZATION: Not a respiratory or skin sensitizer.
ASPIRATION HAZARD: Methanol presents an aspiration hazard.
MUTAGENIC DATA: No data.
IMMUNOTOXICITY: No data.
NEUROTOXICITY: Overexposure to methanol has been suggested as causing central nervous system damage in laboratory animals.
DEVELOPMENTAL/REPRODUCTIVE: The inhalation of methanol by pregnant rodents throughout the period of embryogenesis induces a wide range of concentration-dependent teratogenic and embryolethal effects. Methanol has caused birth defects in laboratory animals, but only when inhaled at extremely high vapor concentrations. The relevance of this finding to humans is uncertain.
CARCINOGEN STATUS: There is no evidence from animal studies to suggest methanol is a carcinogen.

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Stoddard Solvent:
ACUTE TOXICITY:
LD50 Rat oral >34,600 mg/kg
LC50 Rat Inhalation >21,400 mg/m3 / 4 hrs
LD50 Rabbit skin 15,400 mg/kg
SKIN CORROSION / IRRITATION: Primary dermal studies (4 hr exposure) in rabbits utilizing mineral spirits containing less than 2% aromatics resulted in slight to moderate skin irritation.
SERIOUS EYE DAMAGE / IRRITATION: In a 15 minute inhalation period, eye irritation, characterized as a slight dryness, was reported in one of six volunteers (ages 22-61 years) at 150 ppm (860 mg/cu m). At 470 ppm (2700 mg/cu m), ocular irritation was reported by all six volunteers.
RESPIRATORY OR SKIN SENSITIZATION: Skin sensitization was not evident in animal studies.
ASPIRATION HAZARD: This material presents an aspiration hazard.
MUTAGENIC DATA: No data.
IMMUNOTOXICITY: No data.
NEUROTOXICITY: Repeated exposure to elevated concentrations of hydrocarbon solvents can produce a variety of transient CNS effects (e.g., dizziness, headache, narcosis, etc.)
DEVELOPMENTAL/REPRODUCTIVE: 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. In vivo and in vitro studies on mineral spirits containing up to 22% aromatics indicate that these products are not genotoxic.
CARCINOGEN STATUS: There is inadequate evidence for the carcinogenicity of petroleum solvents in humans. Animal studies have indicated that there may be some evidence of carcinogenic activity in male rats but no evidence in female rats. A low carcinogenic potential is suggested by a lack of genotoxic potential

identified in in vivo and in vitro genetic toxicity tests.
OTHER ADVERSE EFFECTS: Chronic effects of ingestion and subsequent aspiration of mineral spirits into the lungs may cause pneumatocele (lung cavity) formation and chronic lung dysfunction.

### Chronic Toxicological Effects

Reports have associated repeated and prolonged occupational overexposure to solvents with irreversible brain and nervous system damage.

### Carcinogenicity/Other Information

IARC 2B - Possibly Carcinogenic to Humans
ACGIH A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans

| Hazardous Components (Chemical Name) | CAS # | NTP | IARC | ACGIH | OSHA |
|---|---|---|---|---|---|
| 1. Dichloromethane {Methylene chloride; R-30; Freon 30} | 75-09-2 | Possible | 2B | A3 | Yes |
| 2. Methanol {Methyl alcohol; Carbinol; Wood alcohol} | 67-56-1 | n.a. | n.a. | n.a. | n.a. |
| 3. Stoddard solvent {Mineral spirits; Aliphatic Petroleum Distillates; White spirits} | 8052-41-3 | n.a. | n.a. | n.a. | n.a. |

## 12. Ecological Information

No information available for this product as a whole.

Methylene Chloride:
TOXICITY: LC50 310 mg/L 96 hrs (static) Fathead Minnow; LC50 220 mg/L 96 hrs (static) Bluegill Sunfish; LC50 256 mg/L 96 hrs Mysid Shrimp
PERSISTENCE AND DEGRADABILITY: If released to air, a vapor pressure of 435 mm Hg at 25 deg C indicates dichloromethane will exist solely as a vapor in the ambient atmosphere. This material released to the atmosphere will degrade by reaction with hydroxyl radicals with a half-life of several months. It is not subject to direct photooxidation. On land is expected to evaporate rapidly into the atmosphere due to its high vapor pressure. it is poorly adsorbed to soil and can leach into the groundwater. Calculated Adsorption Coefficient (log KOC) is 1. This material is subject to rapid evaporation, with estimated evaporative half-lives ranging from 3 to 5.6 hours under moderate mixing conditions. This material has a negligible rate of hydrolysis. Biodegradation may occur in groundwater, but will be very slow compared with evaporation.
BIOACCUMULATIVE POTENTIAL: Bioconcentration potential in aquatic organisms is low with BCF of 2.
MOBILITY IN SOIL: If released to soil, dichloromethane is expected to have very high mobility based upon an estimated Koc of 24.
OTHER ADVERSE EFFECTS: No data.

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Methanol:
TOXICITY: Methanol is of low toxicity to aquatic organisms. LC50 Pimephales promelas (fathead minnows) 29.4 g/L/96 hr, (28-29 days old), confidence limit= 28.5-30.4; Test conditions: Water temp= 25 deg C, dissolved oxygen= 7.3 mg/L, water hardness= 43.5 mg/l calcium carbonate, alkalinity= 46.6 calcium carbonate, tank volume= 6.3 L, additions= 5.71 V/D, pH= 7.66 (0.03).
PERSISTENCE AND DEGRADABILITY: If released to the atmosphere, a vapor pressure of 127 mm Hg at 25 deg C indicates that methanol will exist solely in the vapor phase. Vapor phase methanol is degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals; the half-life for this reaction in air is estimated to be 17 days. Volatilization from moist soil surfaces is expected to be an important fate process based upon a Henry's Law constant of 4.55X10-6 atm-cu m/mole. Methanol may also volatilize from dry soils based upon it vapor pressure. Biodegradation of methanol in soils is expected to occur rapidly based on half-lives in a sandy silt loam from Texas and a sandy loam from Mississippi of 1 and 3.2 days, respectively. If released into

water, methanol is not expected to adsorb to suspended solids and sediment based upon the estimated Koc. Volatilization from water surfaces is expected to be an important fate process based upon this compound's Henry's Law constant. Estimated volatilization half-lives for a model river and model lake are 3 and 35 days, respectively. Biodegradation is expected to occur in natural waters since methanol is degraded quickly in soils and was biodegraded rapidly in various aqueous screening tests using sewage seed or activated sludge. Hydrolysis of methanol and photolysis in sunlit surface waters are not expected since methanol lacks functional groups that are susceptible to hydrolysis or photolysis under environmental conditions.
BIOACCUMULATIVE POTENTIAL: BCF values of less than 10, measured in fish suggests bioconcentration in aquatic organisms is low.
MOBILITY IN SOIL: If released to soil, methanol is expected to have very high mobility based upon an estimated Koc of 1.

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Stoddard Solvent:
TOXICITY: This mixture contains components that are potentially toxic to freshwater and saltwater ecosystems. This material may be harmful to aquatic organisms and may cause long term adverse effects in the aquatic environment.
PERSISTENCE AND DEGRADABILITY: This material will normally float on water. Components will evaporate rapidly.
BIOACCUMULATIVE POTENTIAL: The octanol-water partition coefficient for this material is expected to be in the range of 2.1 to 5.
MOBILITY IN SOIL: No data.
OTHER ADVERSE EFFECTS: No data.

## 13. Disposal Considerations

**Waste Disposal Method**

Dispose in accordance with applicable local, state, and federal regulations.

Keep out of bodies of water.

## 14. Transport Information

**LAND TRANSPORT (US DOT)**

| | |
|---|---|
| **DOT Proper Shipping Name** | Paint Related Material |
| **DOT Hazard Class:** | 8 |
| **DOT Hazard Label:** | CORROSIVE |
| **UN/NA Number:** | UN3066 |
| **Packing Group:** | II |

**Additional Transport Information**

For D.O.T. information, contact W.M. Barr Technical Services at 1-800-398-3892.

The supplier may apply one of the following exceptions: Combustible Liquid, Consumer Commodity, Limited Quantity, Viscous Liquid, Does Not Sustain Combustion, or others, as allowed under 49CFR Hazmat Regulations. Please consult 49CFR Subchapter C to ensure that subsequent shipments comply with these exceptions.

Limited quantities of 1 liter or less may be allowed depending on the mode of transportation. Refer to 49 CFR, IMDG Code or IATA Dangerous Goods Regulations for this information.

## 15. Regulatory Information

### US EPA SARA Title III

| Hazardous Components (Chemical Name) | CAS # | Sec.302 (EHS) | Sec.304 RQ | Sec.313 (TRI) | Sec.110 |
|---|---|---|---|---|---|
| 1. Dichloromethane {Methylene chloride; R-30; Freon 30} | 75-09-2 | No | Yes 1000 LB | Yes | Yes |
| 2. Methanol {Methyl alcohol; Carbinol; Wood alcohol} | 67-56-1 | No | Yes 5000 LB | Yes | No |
| 3. Stoddard solvent {Mineral spirits; Aliphatic Petroleum Distillates; White spirits} | 8052-41-3 | No | No | No | No |

### US EPA CAA, CWA, TSCA

| Hazardous Components (Chemical Name) | CAS # | EPA CAA | EPA CWA NPDES | EPA TSCA | CA PROP 65 |
|---|---|---|---|---|---|
| 1. Dichloromethane {Methylene chloride; R-30; Freon 30} | 75-09-2 | HAP, ODC () | Yes | Inventory, 4 Test, 8A CAIR | Yes |
| 2. Methanol {Methyl alcohol; Carbinol; Wood alcohol} | 67-56-1 | HAP, ODC () | No | Inventory | No |
| 3. Stoddard solvent {Mineral spirits; Aliphatic Petroleum Distillates; White spirits} | 8052-41-3 | HAP, ODC () | No | Inventory | No |

### SARA (Superfund Amendments and Reauthorization Act of 1986) Lists:

**Sec.302:** EPA SARA Title III Section 302 Extremely Hazardous Chemical with TPQ. * indicates 10000 LB TPQ if not volatile.

**Sec.304:** EPA SARA Title III Section 304: CERCLA Reportable + Sec.302 with Reportable Quantity. ** indicates statutory RQ.

**Sec.313:** EPA SARA Title III Section 313 Toxic Release Inventory. Note: -Cat indicates a member of a chemical category.

**Sec.110:** EPA SARA 110 Superfund Site Priority Contaminant List

### TSCA (Toxic Substances Control Act) Lists:

**Inventory:** Chemical Listed in the TSCA Inventory.

**5A(2):** Chemical Subject to Significant New Rules (SNURS)

**6A:** Commercial Chemical Control Rules

**8A:** Toxic Substances Subject To Information Rules on Production

**8A CAIR:** Comprehensive Assessment Information Rules - (CAIR)

**8A PAIR:** Preliminary Assessment Information Rules - (PAIR)

**8C:** Records of Allegations of Significant Adverse Reactions

**8D:** Health and Safety Data Reporting Rules

**8D TERM:** Health and Safety Data Reporting Rule Terminations

**12(b):** Notice of Export

### Other Important Lists:

**CWA NPDES:** EPA Clean Water Act NPDES Permit Chemical

**CAA HAP:** EPA Clean Air Act Hazardous Air Pollutant

**CAA ODC:** EPA Clean Air Act Ozone Depleting Chemical (1=CFC, 2=HCFC)

**CA PROP 65:** California Proposition 65

### International Regulatory Lists:

### EPA Hazard Categories:

This material meets the EPA 'Hazard Categories' defined for SARA Title III Sections 311/312 as indicated:

[X] Yes [ ] No Acute (immediate) Health Hazard

[X] Yes [ ] No Chronic (delayed) Health Hazard

[ ] Yes [X] No Fire Hazard

[ ] Yes [X] No Sudden Release of Pressure Hazard

[ ] Yes [X] No Reactive Hazard

### Regulatory Information

Methylene Chloride WHMIS Classification: D1B, D2A, D2B
Methylene Chloride WHMIS Health Effects Criteria Met by this Chemical:
D2B - Eye irritation - toxic - other
D2B - Skin irritation - toxic - other
D2A - Carcinogenicity - very toxic - other
D2B - Mutagenicity - toxic - other
D1B - TDG class 6.1 packing group III - toxic - immediate
Methylene Chloride WHMIS Ingredient Disclosure List: Included for disclosure at 0.1% or greater.

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Methanol CAS Registry Number: 67-56-1
Methanol WHMIS Classification: B2, D1B, D2A, D2B
Methanol WHMIS Health Effects Criteria Met by this Chemical:
D1B - TDG class 6.1 packing group unknown - toxic - immediate
D2A - Teratogenicity and embryotoxicity - very toxic - other
D2B - Eye irritation - toxic - other
Methanol WHMIS Ingredient Disclosure List: Included for disclosure at 1% or greater. Meets criteria for disclosure at 0.1%.

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Stoddard Solvent CAS# 8052-41-3
WHMIS Classification:
B3 - Flammable and combustible material - Combustible liquid
D2B - Poisonous and infectious material - Other effects - Toxic
WHMIS Health Effects Criteria Met by this Chemical: D2B - Skin irritation - toxic - other
WHMIS Ingredient Disclosure List: Included for disclosure at 1% or greater.

This product has been classified according to the hazard criteria of the Controlled Products Regulations.

Concentrations reported in section 2 are weight/weight.

Ingredients disclosed in section 2 are on Canadian DSL.

## 16. Other Information

### Company Policy or Disclaimer

The information contained herein is presented in good faith and believed to be accurate as of the effective date shown above. This information is furnished without warranty of any kind. Employers should use this information only as a supplement to other information gathered by them and must make independent determination of suitability and completeness of information from all sources to assure proper use of these materials and the safety and health of employees. Any use of this data and information must be determined by the user to be in accordance with applicable federal, state and local laws and regulations.

## 6. Accidental Release Measures

**STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:**

**WARNING! High-pressure gas.**

**Personal Precautions.** Asphyxiant. Lack of oxygen can kill. Evacuate all personnel from danger area. Use self-contained breathing apparatus where needed. Shut off flow if you can do so without risk. Ventilate area or move cylinder to a well-ventilated area. Test for sufficient oxygen, especially in confined spaces, before allowing reentry.

**Environmental Precautions.** Prevent waste from contaminating the surrounding environment. Discard any product, residue, disposable container, or liner in an environmentally acceptable manner, in full compliance with federal, state, and local regulations. If necessary, call your local supplier for assistance.

## 7. Handling and Storage

**PRECAUTIONS TO BE TAKEN IN HANDLING:** ***Protect cylinders from damage.*** Use a suitable hand truck to move cylinders; do not drag, roll, slide, or drop. Never attempt to lift a cylinder by its cap; the cap is intended solely to protect the valve. Never insert an object (e.g., wrench, screwdriver, pry bar) into cap openings; doing so may damage the valve and cause a leak. Use an adjustable strap wrench to remove over-tight or rusted caps. Open valve slowly. Close valve after each use; keep closed even when empty. If valve is hard to open, discontinue use and contact your supplier. For other precautions in using nitrogen, see section 16.

**PRECAUTIONS TO BE TAKEN IN STORAGE:** ***Store and use with adequate ventilation. Always secure cylinders upright to keep them from falling or being knocked over.*** Install valve protection cap, if provided, firmly in place by hand. Store only where temperature will not exceed 125°F (52°C). Store full and empty cylinders separately. Use a first-in, first-out inventory system to prevent storing full cylinders for long periods.

**RECOMMENDED PUBLICATIONS:** For further information on storage, handling, and use, see Praxair publication P-14-153, *Guidelines for Handling Gas Cylinders and Containers*. Obtain from your local supplier.

## 8. Exposure Controls/Personal Protection

| COMPONENT | OSHA PEL | ACGIH TLV-TWA (2013) |
|---|---|---|
| Nitrogen | N.E.* | Simple asphyxiant |

*N.E.–Not Established.

IDLH = Not available.

**ENGINEERING CONTROLS:**

**Local Exhaust.** Use a local exhaust system, if necessary, to prevent oxygen deficiency.

**Mechanical (General).** General exhaust ventilation may be acceptable if it can maintain an adequate supply of air.

**Special.** None

**Other.** None

**Medical Conditions Aggravated by Overexposure.** The toxicology and the physical and chemical properties of nitrogen suggest that overexposure is unlikely to aggravate existing medical conditions.

**CARCINOGENICITY:** Nitrogen is not listed by NTP, OSHA, or IARC.

**POTENTIAL ENVIRONMENTAL EFFECTS:** None known. For further information, see section 12, Ecological Information.

## 3. Composition/Information on Ingredients

**See section 16 for important information about mixtures.**

| COMPONENT | CAS NUMBER | CONCENTRATION |
|---|---|---|
| Nitrogen | 7727-37-9 | >99%* |

**The symbol > means "greater than."*

## 4. First Aid Measures

**INHALATION:** Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, qualified personnel may give oxygen. Call a physician.

**SKIN CONTACT:** An unlikely route of exposure. This product is a gas at normal temperature and pressure.

**SWALLOWING:** An unlikely route of exposure. This product is a gas at normal temperature and pressure.

**EYE CONTACT:** An unlikely route of exposure. This product is a gas at normal temperature and pressure.

***NOTES TO PHYSICIAN:*** *There is no specific antidote. Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient.*

## 5. Fire Fighting Measures

**FLAMMABLE PROPERTIES:** Nitrogen cannot catch fire.

**SUITABLE EXTINGUISHING MEDIA:** Nitrogen cannot catch fire. Use media appropriate for surrounding fire.

**PRODUCTS OF COMBUSTION:** Not applicable.

**PROTECTION OF FIREFIGHTERS: WARNING! High-pressure gas.** Asphyxiant. Lack of oxygen can kill. Evacuate all personnel from danger area. Immediately deluge cylinders with water from maximum distance until cool; then move them away from fire area if without risk. Shut off flow if you can do so without risk. Self-contained breathing apparatus may be required by rescue workers. On-site fire brigades must comply with OSHA 29 CFR 1910.156 and applicable standards under 29 CFR1910 Subpart L—Fire Protection.

**Specific Physical and Chemical Hazards.** Heat of fire can build pressure in cylinder and cause it to rupture. No part of cylinder should be subjected to a temperature higher than 125°F (52°C). Nitrogen cylinders are equipped with a pressure relief device. (Exceptions may exist where authorized by DOT.)

**Protective Equipment and Precautions for Firefighters.** Firefighters should wear self-contained breathing apparatus and full fire-fighting turnout gear.

# Praxair Material Safety Data Sheet

## 1. Chemical Product and Company Identification

| | |
|---|---|
| **Product Name:** Nitrogen, compressed | **Trade Names:** Nitrogen, Medipure® Nitrogen, Extendapak® Nitrogen |
| **Chemical Name:** Nitrogen | **Synonyms:** Dinitrogen, Refrigerant R728 |
| **Chemical Family:** Permanent gas | **Product Grades:** 4.8; 5.0, 5.5, 6.0 SPG; 4.8 VEZ; 5.0 UHP; Bev; Extendapak®; NF 4.8, 5.0 MD; 4.8 OF; 4.8 Z; 5.0 VOCF; 5.0 UZAM; 5.5 ECD; 6.0 Research; Industrial, 5.0, 5.5 LaserStar; 5.5 TA; 4.8 OF; 5.5 CE; 5.5 EC; 5.5 TG |

**Telephone:** **Emergencies:** 1-800-645-4633* **CHEMTREC:** 1-800-424-9300* **Routine:** 1-800-PRAXAIR

**Company Name:** Praxair, Inc.
39 Old Ridgebury Road
Danbury, CT 06810-5113

**Call emergency numbers 24 hours a day only for spills, leaks, fire, exposure, or accidents involving this product. For routine information, contact your supplier, Praxair sales representative, or call 1-800-PRAXAIR (1-800-772-9247).*

## 2. Hazards Identification

**EMERGENCY OVERVIEW**

**WARNING! High-pressure gas.**
**Can cause rapid suffocation.**
**May cause dizziness and drowsiness.**
**Self-contained breathing apparatus may be required by rescue workers.**
**Under ambient conditions, this a colorless, odorless, inert gas.**

**OSHA REGULATORY STATUS:** This material is considered hazardous by the OSHA Hazard Communications Standard (29 CFR 1910.1200).

**POTENTIAL HEALTH EFFECTS:**

**Effects of a Single (Acute) Overexposure**

**Inhalation.** Asphyxiant. Effects are due to lack of oxygen. Moderate concentrations may cause headache, drowsiness, dizziness, excitation, excess salivation, vomiting, and unconsciousness. Lack of oxygen can kill.

**Skin Contact.** No harm expected.

**Swallowing.** An unlikely route of exposure. This product is a gas at normal temperature and pressure.

**Eye Contact.** No harm expected.

**Effects of Repeated (Chronic) Overexposure.** No harm expected.

**Other Effects of Overexposure.** Asphyxiant. Lack of oxygen can kill.




*A vertical line in the left margin indicates revised or new material.*

**PERSONAL PROTECTIVE EQUIPMENT:**

**Skin Protection.** Wear work gloves when handling cylinders and metatarsal shoes for cylinder handling. Select in accordance with OSHA 29 CFR 1910.132, 1910.136, and 1910.138.

**Eye/Face Protection.** Wear safety glasses when handling cylinders. Select in accordance with OSHA 29 CFR 1910.133.

**Respiratory Protection.** None required under normal use. Air-supplied respirators must be used in confined spaces or in an oxygen-deficient atmosphere. Respiratory protection must conform to OSHA rules as specified in 29 CFR 1910.134. Select in accordance with 29 CFR 1910.134 and ANSI Z88.2.

## 9. Physical and Chemical Properties

| | |
|---|---|
| **APPEARANCE:** | Colorless gas |
| **ODOR:** | Odorless |
| **ODOR THRESHOLD:** | Not available. |
| **PHYSICAL STATE:** | Gas at normal temperature and pressure |
| **pH:** | Not applicable. |
| **MELTING POINT** at 1 atm: | -346°F (-210°C) |
| **BOILING POINT** at 1 atm: | -320.44°F (-195.80°C) |
| **FLASH POINT** (test method): | Not applicable. |
| **EVAPORATION RATE** (Butyl Acetate = 1): | Not applicable. |
| **FLAMMABILITY:** | Nonflammable |
| **FLAMMABLE LIMITS IN AIR**, % by volume: | **LOWER:** Not applicable. **UPPER:** Not applicable. |
| **LIQUID DENSITY** at boiling point and 1 atm: | 50.7 lb/ft$^3$ (808.5 kg/m$^3$) |
| **VAPOR PRESSURE** at 68°F (20°C): | Not applicable. |
| **VAPOR DENSITY** at 70°F (21.1°C) and 1 atm: | 0.0724 lb/ft$^3$ (1.160 kg/m$^3$) |
| **SPECIFIC GRAVITY** ($H_2O$ = 1) at 19.4°F (-7°C): | Not available. |
| **SPECIFIC GRAVITY** (Air = 1) at 70°F (21.1°C) and 1 atm: | 0.967 |
| **SOLUBILITY IN WATER**, vol/vol at 32°F (0°C) | 0.023 |
| **PARTITION COEFFICIENT: n-octanol/water:** | Not available. |
| **AUTOIGNITION TEMPERATURE:** | Not applicable. |
| **DECOMPOSITION TEMPERATURE:** | Not available. |
| **PERCENT VOLATILES BY VOLUME:** | 100 |
| **MOLECULAR WEIGHT:** | 28.01 |
| **MOLECULAR FORMULA:** | $N_2$ |

## 10. Stability and Reactivity

**CHEMICAL STABILITY:** ☐ Unstable ☒ Stable

**CONDITIONS TO AVOID:** High temperatures, exposure to lithium, neodymium, titanium and magnesium

**INCOMPATIBLE MATERIALS:** None known.

**HAZARDOUS DECOMPOSITION PRODUCTS:** None known.

**POSSIBILITY OF HAZARDOUS REACTIONS:** ☒ May Occur ☐ Will Not Occur

Under certain conditions, nitrogen can react violently with lithium, neodymium, titanium [above 1472°F (800°C)], and magnesium to form nitrides. At high temperature it can also combine with oxygen and hydrogen.

## 11. Toxicological Information

**ACUTE DOSE EFFECTS:** Nitrogen is a simple asphyxiant.

**STUDY RESULTS:** None known.

## 12. Ecological Information

**ECOTOXICITY:** No adverse ecological effects expected.

**OTHER ADVERSE EFFECTS:** Nitrogen does not contain any Class I or Class II ozone-depleting chemicals.

## 13. Disposal Considerations

**WASTE DISPOSAL METHOD:** Do not attempt to dispose of residual or unused quantities. Return cylinder to supplier.

## 14. Transport Information

**DOT/IMO SHIPPING NAME:** Nitrogen, compressed

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **HAZARD CLASS:** | 2.2 | **PACKING GROUP/Zone:** | NA* | **IDENTIFICATION NUMBER:** | UN1066 | **PRODUCT RQ:** | None |

| | |
|---|---|
| **SHIPPING LABEL(s):** | NONFLAMMABLE GAS |
| **PLACARD (when required):** | NONFLAMMABLE GAS |

* Not applicable.

**SPECIAL SHIPPING INFORMATION:** Cylinders should be transported in a secure position, in a well-ventilated vehicle. Cylinders transported in an enclosed, nonventilated compartment of a vehicle can present serious safety hazards.

Shipment of compressed gas cylinders that have been filled without the owner's consent is a violation of federal law [49 CFR 173.301(e)].

**MARINE POLLUTANTS:** Nitrogen is not listed as a marine pollutant by DOT.

## 15. Regulatory Information

The following selected regulatory requirements may apply to this product. Not all such requirements are identified. Users of this product are solely responsible for compliance with all applicable federal, state, and local regulations.

**U.S. FEDERAL REGULATIONS:**

EPA (ENVIRONMENTAL PROTECTION AGENCY)

CERCLA: COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT OF 1980 (40 CFR Parts 117 and 302):

**Reportable Quantity (RQ):** None

SARA: SUPERFUND AMENDMENT AND REAUTHORIZATION ACT:

**SECTIONS 302/304:** Require emergency planning based on Threshold Planning Quantity (TPQ) and release reporting based on Reportable Quantities (RQ) of Extremely Hazardous Substances (EHS) (40 CFR Part 355):

**TPQ:** None
**EHS RQ (40 CFR 355):** None

**SECTIONS 311/312:** Require submission of MSDSs and reporting of chemical inventories with identification of EPA hazard categories. The hazard categories for this product are as follows:

| | |
|---|---|
| **IMMEDIATE:** No | **PRESSURE:** Yes |
| **DELAYED:** No | **REACTIVITY:** No |
| | **FIRE:** No |

**SECTION 313:** Requires submission of annual reports of release of toxic chemicals that appear in 40 CFR Part 372.

Nitrogen is not subject to reporting under Section 313.

**40 CFR 68:** RISK MANAGEMENT PROGRAM FOR CHEMICAL ACCIDENTAL RELEASE PREVENTION: Requires development and implementation of risk management programs at facilities that manufacture, use, store, or otherwise handle regulated substances in quantities that exceed specified thresholds.

Nitrogen is not listed as a regulated substance.

**TSCA:** TOXIC SUBSTANCES CONTROL ACT: Nitrogen is listed on the TSCA inventory.

**OSHA:** OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION:

29 CFR 1910.119: PROCESS SAFETY MANAGEMENT OF HIGHLY HAZARDOUS CHEMICALS: Requires facilities to develop a process safety management program based on Threshold Quantities (TQ) of highly hazardous chemicals.

Nitrogen is not listed in Appendix A as a highly hazardous chemical.

**STATE REGULATIONS:**

**CALIFORNIA:** Nitrogen is not listed by California under the SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986 (Proposition 65).

**PENNSYLVANIA:** Nitrogen is subject to the PENNSYLVANIA WORKER AND COMMUNITY RIGHT-TO-KNOW ACT (35 P.S. Sections 7301-7320).

## 16. Other Information

Be sure to read and understand all labels and instructions supplied with all containers of this product.

***NOTE:*** *The suitability of nitrogen as a component in underwater breathing gas mixtures is to be determined by or under the supervision of personnel experienced in the use of underwater breathing gas mixtures and familiar with the physiological effects, methods employed, frequency and duration of use, hazards, side effects, and precautions to be taken.*

**OTHER HAZARDOUS CONDITIONS OF HANDLING, STORAGE, AND USE:** ***High-pressure gas. Use piping and equipment adequately designed to withstand pressures to be encountered.*** Use a blackflow prevention device in any piping. ***Gas can cause rapid suffocation because of oxygen deficiency.*** Store and use with adequate ventilation. ***Never work on a pressurized system.*** If there is a leak, close the cylinder valve. Blow the system down in a safe and environmentally sound manner in compliance with all federal, state, and local laws; then repair the leak. ***Never place a compressed gas cylinder where it may become part of an electrical circuit.***

**Mixtures.** When you mix two or more gases or liquefied gases, you can create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an industrial hygienist or other trained person when you evaluate the end product. Remember, gases and liquids have properties that can cause serious injury or death.

**HAZARD RATING SYSTEMS:**

| **NFPA RATINGS:** | | **HMIS RATINGS:** | |
|---|---|---|---|
| HEALTH | = 0 | HEALTH | = 0 |
| FLAMMABILITY | = 0 | FLAMMABILITY | = 0 |
| INSTABILITY | = 0 | PHYSICAL HAZARD | = 3 |
| SPECIAL | = SA (CGA recommends this to designate Simple Asphyxiant.) | | |

**STANDARD VALVE CONNECTIONS FOR U.S. AND CANADA:**

| | | |
|---|---|---|
| **THREADED:** | 0-3000 psig | CGA-580 |
| | 3001-5500 psig | CGA-680 |
| | 5001-7500 psig. | CGA-677 |
| **PIN-INDEXED YOKE:** | 0-3000 psig | CGA-960 (medical use) |
| **ULTRA-HIGH-INTEGRITY CONNECTION:** | 0-3000 psig | CGA-718 |

Use the proper CGA connections. **DO NOT USE ADAPTERS.** Additional limited-standard connections may apply. See CGA pamphlet V-1 listed below.

Ask your supplier about free Praxair safety literature as referred to in this MSDS and on the label for this product. Further information can be found in the following materials published by the Compressed Gas Association, Inc. (CGA), www.cganet.com.

| | |
|---|---|
| AV-1 | *Safe Handling and Storage of Compressed Gases* |
| G-10.1 | *Commodity Specification for Nitrogen* |
| P-1 | *Safe Handling of Compressed Gases in Containers* |
| P-9 | *Inert Gases – Argon, Nitrogen, and Helium* |
| SB-2 | *Oxygen-Deficient Atmospheres* |
| V-1 | *Compressed Gas Cylinder Valve Inlet and Outlet Connections* |
| — | *Handbook of Compressed Gases* |

Praxair asks users of this product to study this MSDS and become aware of product hazards and safety information. To promote safe use of this product, a user should (1) notify employees, agents, and contractors of the information in this MSDS and of any other known product hazards and safety information, (2) furnish this information to each purchaser of the product, and (3) ask each purchaser to notify its employees and customers of the product hazards and safety information.

The opinions expressed herein are those of qualified experts within Praxair, Inc. We believe that the information contained herein is current as of the date of this Material Safety Data Sheet. Since the use of this information and the conditions of use of the product are not within the control of Praxair, Inc., it is the user's obligation to determine the conditions of safe use of the product.

Praxair MSDSs are furnished on sale or delivery by Praxair or the independent distributors and suppliers who package and sell our products. To obtain current MSDSs for these products, contact your Praxair sales representative or local distributor or supplier, or download from www.praxair.com. If you have questions regarding Praxair MSDSs, would like the form number and date of the latest MSDS, or would like the names of the Praxair suppliers in your area, phone or write the Praxair Call Center (**Phone:** 1-800-PRAXAIR; **Address:** Praxair Call Center, Praxair, Inc., PO Box 44, Tonawanda, NY 14151-0044).



PRAXAIR®

Praxair, Inc.
39 Old Ridgebury Road
Danbury, CT 06810-5113

Printed in USA

# Praxair Material Safety Data Sheet

## 1. Chemical Product and Company Identification

| | |
|---|---|
| **Product Name:** Oxygen, compressed (MSDS No. P-4638-H) | **Trade Names:** Oxygen, MediPure® Oxygen |
| **Chemical Name:** Oxygen | **Synonyms:** Dioxygen |
| **Chemical Family:** Permanent gas | **Product Grades:** Industrial, Oxygen Aviator's Breathing, USP, 2.6, 2.6-Zero, 4.0–Hydrocarbon Free, 4.3-UHP, 5.0-Research, 6.0 |

**Telephone:** **Emergencies:** 1-800-645-4633*
**CHEMTREC:** 1-800-424-9300*
**Routine:** 1-800-PRAXAIR

**Company Name:** Praxair, Inc.
39 Old Ridgebury Road
Danbury, CT 06810-5113

**Call emergency numbers 24 hours a day only for spills, leaks, fire, exposure, or accidents involving this product. For routine information, contact your supplier, Praxair sales representative, or call 1-800-PRAXAIR (1-800-772-9247).*

## 2. Hazards Identification

### EMERGENCY OVERVIEW

**WARNING! High-pressure, oxidizing gas.**
**Vigorously accelerates combustion.**
**Self-contained breathing apparatus may be required by rescue workers.**
**Under ambient conditions, this is a colorless, odorless, and tasteless gas.**

**OSHA REGULATORY STATUS:** This material is considered hazardous by the OSHA Hazard Communications Standard (29 CFR 1910.1200).

**POTENTIAL HEALTH EFFECTS:**

**Effects of a Single (Acute) Overexposure**

**Inhalation.** Breathing 80 percent or more oxygen at atmospheric pressure for more than a few hours may cause nasal stuffiness, cough, sore throat, chest pain, and breathing difficulty. Breathing oxygen at higher pressure increases the likelihood of adverse effects within a shorter time period. Breathing pure oxygen under pressure may cause lung damage and also Central Nervous System (CNS) effects resulting in dizziness, poor coordination, tingling sensation, visual and hearing disturbances, muscular twitching, unconsciousness, and convulsions. Breathing oxygen under pressure may cause prolongation of adaptation to darkness and reduced peripheral vision.

**Skin Contact.** No harm expected.

**Swallowing.** This product is a gas at normal temperature and pressure.

**Eye Contact.** No harm expected.

**Effects of Repeated (Chronic) Overexposure.** No harm expected.




*A vertical line in the left margin indicates revised or new material.*

**Other Effects of Overexposure.** See section 11, Toxicological Information.

**Medical Conditions Aggravated by Overexposure.** See section 11, Toxicological Information.

**CARCINOGENICITY:** Oxygen is not listed by NTP, OSHA, or IARC.

**POTENTIAL ENVIRONMENTAL EFFECTS:** For further information, see section 12, Ecological Information.

## 3. Composition/Information on Ingredients

**See section 16 for important information about mixtures.**

| COMPONENT | CAS NUMBER | CONCENTRATION |
|---|---|---|
| Oxygen | 7782-44-7 | >99%* |

**The symbol > means "greater than."*

## 4. First Aid Measures

**INHALATION:** Immediately remove to fresh air. If not breathing, give artificial respiration. Keep victim warm and at rest. Call a physician. Advise the physician that the victim has been exposed to a high concentration of oxygen.

**SKIN CONTACT:** Wash with soap and water; seek medical attention if discomfort persists.

**SWALLOWING:** This product is a gas at normal temperature and pressure.

**EYE CONTACT:** Flush eyes thoroughly with water. Hold the eyelids open and away from the eyeballs to ensure that all surfaces are flushed thoroughly. Get medical attention if discomfort persists.

***NOTES TO PHYSICIAN:*** *Supportive treatment should include immediate sedation, anti-convulsive therapy if needed, and rest. See section 11, Toxicological Information.*

## 5. Fire Fighting Measures

**FLAMMABLE PROPERTIES:** Oxidizing agent; vigorously accelerates combustion. Contact with flammable materials may cause fire or explosion.

**SUITABLE EXTINGUISHING MEDIA:** Vigorously accelerates combustion. Use media appropriate for surrounding fire. Water (e.g., safety shower) is the preferred extinguishing method for clothing fires.

**PRODUCTS OF COMBUSTION:** Not applicable.

**PROTECTION OF FIREFIGHTERS: WARNING! High-pressure, oxidizing gas.** Evacuate all personnel from danger area. Immediately deluge cylinders with water from maximum distance until cool; then move them away from fire area if without risk. Self-contained breathing apparatus may be required by rescue workers. On-site fire brigades must comply with OSHA 29 CFR 1910.156.

**Specific Physical and Chemical Hazards.** Heat of fire can build pressure in cylinder and cause it to rupture. Oxygen cylinders are equipped with a pressure relief device. (Exceptions may exist where authorized by DOT.) No part of cylinder should be subjected to a temperature higher than 125°F (52°C). Smoking, flames, and electric sparks in the presence of enriched oxygen atmospheres are potential explosion hazards.

**Protective Equipment and Precautions for Firefighters.** Firefighters should wear self-contained breathing apparatus and full fire-fighting turnout gear.

## 6. Accidental Release Measures

**STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:**

**WARNING! High-pressure, oxidizing gas.**

**Personal Precautions.** Shut off flow if without risk. Ventilate area or move cylinder to a well-ventilated area. Remove all flammable materials from vicinity. Oxygen must never be permitted to strike an oily surface, greasy clothes, or other combustible material.

**Environmental Precautions.** Prevent waste from contaminating the surrounding environment. Keep personnel away. Discard any product, residue, disposable container, or liner in an environmentally acceptable manner, in full compliance with federal, state, and local regulations. If necessary, call your local supplier for assistance.

## 7. Handling and Storage

**PRECAUTIONS TO BE TAKEN IN HANDLING:** ***Protect cylinders from damage.*** Use a suitable hand truck to move cylinders; do not drag, roll, slide, or drop. Never attempt to lift a cylinder by its cap; the cap is intended solely to protect the valve. Never insert an object (e.g., wrench, screwdriver, pry bar) into cap openings; doing so may damage the valve and cause a leak. Use an adjustable strap wrench to remove over-tight or rusted caps. Slowly open valve. If valve is hard to open, discontinue use and contact your supplier. Close cylinder valve after each use; keep closed even when empty. Never apply flame or localized heat directly to any part of the cylinder. High temperatures may damage the cylinder and could cause the pressure relief device to fail prematurely, venting the cylinder contents. For other precautions in using this mixture, see section 16.

**PRECAUTIONS TO BE TAKEN IN STORAGE:** Store and use with adequate ventilation, away from oil, grease, and other hydrocarbons. Separate oxygen cylinders from flammables by at least 20 ft (6.1 m) or use a barricade of noncombustible material. This barricade should be at least 5 ft (1.53 m) high and have a fire resistance rating of at least ½ hour. Firmly secure cylinders upright to keep them from falling or being knocked over. Screw valve protection cap firmly in place by hand. Store only where temperature will not exceed 125°F (52°C). Store full and empty cylinders separately. Use a first-in, first-out inventory system to prevent storing full cylinders for long periods.

**RECOMMENDED PUBLICATIONS:** For further information on storage, handling, and use, see Praxair publications P-14-153, *Guidelines for Handling Gas Cylinders and Containers;* P-15-276, *Storage and Safe Handling of Oxygen;* and P-3499, *Safety Precautions and Emergency Response Planning.* Obtain from your local supplier.

## 8. Exposure Controls/Personal Protection

**See section 16 for important information on by-products generated during use in welding and cutting.**

| COMPONENT | OSHA PEL | ACGIH TLV-TWA (2009) |
|---|---|---|
| Oxygen | Not Established. | Not Established. |

IDLH = Not available.

**ENGINEERING CONTROLS:**

**Local Exhaust.** Use a local exhaust system, if necessary, to prevent increased oxygen concentration and, in welding, to keep hazardous fumes and gases below the applicable exposure limits in the worker's breathing zone.

**Mechanical (General).** General exhaust ventilation may be acceptable if it can maintain a supply of air that is not too rich in oxygen and, during welding, can keep hazardous fumes and gases below applicable TLVs in the worker's breathing zone.

**Special.** None

**Other.** None

**PERSONAL PROTECTIVE EQUIPMENT:**

**Skin Protection.** Wear work gloves when handling cylinders; welding gloves for welding. Gloves must be free of oil and grease. Metatarsal shoes for cylinder handling. Select in accordance with OSHA 29 CFR 1910.132 and 1910.133. As needed for welding, wear hand, head, and body protection to help prevent injury from radiation and sparks. (See ANSI Z49.1.) At a minimum, this includes welder's gloves and protective goggles, and may include arm protectors, aprons, hats, shoulder protection, as well as substantial clothing. Regardless of protective equipment, never touch live electrical parts.

**Eye/Face Protection.** Wear safety glasses when handling cylinders. For welding, wear goggles with filter lens selected as per ANSI Z49.1. Provide protective screens and goggles, if necessary, to protect others. Select as per OSHA 29 CFR 1910.33

**Respiratory Protection.** None required. However, air supplied respirators are required while working in oxygen deficient atmospheres such as confined spaces.

## 9. Physical and Chemical Properties

| | |
|---|---|
| **APPEARANCE:** | Colorless, odorless, tasteless gas at normal temperature and pressure. |
| **ODOR:** | None |
| **ODOR THRESHOLD:** | Not available. |
| **PHYSICAL STATE:** | Gas at normal temperature and pressure |
| **pH:** | Not applicable. |
| **MELTING POINT** at 1 atm: | -361.82°F (-218.79°C) |
| **BOILING POINT** at 1 atm: | -297.36°F (-182.98°C) |
| **FLASH POINT** (test method): | -62°F (-52.2°C) TCC ASTM D56 |
| **EVAPORATION RATE** (Butyl Acetate = 1): | Not applicable. |
| **FLAMMABILITY:** | Not applicable. |
| **FLAMMABLE LIMITS IN AIR**, % by volume: | **LOWER:** Not applicable. **UPPER:** Not applicable. |
| **VAPOR PRESSURE** at 68°F (20°C): | Not applicable. |
| **VAPOR DENSITY** at 70°F (21.1°C) and 1 atm: | 0.0827 lb/ft$^3$ (1.325 kg/m$^3$) |
| **SPECIFIC GRAVITY** ($H_2O$ = 1) at boiling point | 1.141 |
| **SPECIFIC GRAVITY** (Air = 1) at 70°F (21.1°C) and 1 atm: | 1.105 |
| **SOLUBILITY IN WATER**, vol/vol at 32°F (0°C): | 0.0489 |
| **PARTITION COEFFICIENT: n-octanol/water:** | Not available. |

| | |
|---|---|
| **AUTOIGNITION TEMPERATURE:** | Not applicable. |
| **DECOMPOSITION TEMPERATURE:** | Not available. |
| **PERCENT VOLATILES BY VOLUME:** | 100 |
| **MOLECULAR WEIGHT:** | 31.9988 |
| **MOLECULAR FORMULA:** | $O_2$ |

## 10. Stability and Reactivity

**CHEMICAL STABILITY:** ☐ Unstable ☒ Stable

**CONDITIONS TO AVOID:** None known.

**INCOMPATIBLE MATERIALS:** Combustible materials, asphalt, flammable materials, especially oils and greases. Oxygen reacts with many materials.

**HAZARDOUS DECOMPOSITION PRODUCTS:** None known.

**POSSIBILITY OF HAZARDOUS REACTIONS:** ☐ May Occur ☒ Will Not Occur

## 11. Toxicological Information

**ACUTE DOSE EFFECTS:** The welding process may generate hazardous fumes and gases. (See sections 2, 10, 15, and 16.)

At atmospheric concentration and pressure, oxygen poses no toxicity hazards. At high concentrations, newborn premature infants may suffer delayed retinal damage (retrolental fibroplasia) that can progress to retinal detachment and blindness. Retinal damage may also occur in adults exposed to 100% oxygen for extended periods (24 to 48 hours) or at pressures exceeding atmospheric pressure, particularly in individuals whose retinal circulation has been previously compromised. All individuals exposed for long periods to oxygen at high pressure and all who exhibit overt oxygen toxicity should have ophthalmologic examinations.

At two or more atmospheres, CNS toxicity occurs. Symptoms include nausea, vomiting, dizziness or vertigo, muscle twitching, vision changes, and loss of consciousness and generalized seizures. At three atmospheres, CNS toxicity occurs in less than two hours; at six atmospheres, in only a few minutes.
Patients with chronic obstructive pulmonary disease retain carbon dioxide abnormally. If oxygen is administered, raising their blood-oxygen concentration, their breathing becomes depressed, and retained carbon dioxide rises to a dangerous level.

Airway obstruction during high oxygen tension may cause alveolar collapse following absorption of the oxygen. Similarly, occlusion of the eustachian tubes may cause retraction of the eardrum, and obstruction of the paranasal sinuses may produce vacuum-type headache.

**STUDY RESULTS:** Animal studies suggest that the administration of certain drugs, including phenothiazine drugs and chloroquine, increases the susceptibility to toxicity from oxygen at high concentrations or pressures. Animal studies also indicate that vitamin E deficiency may increase susceptibility to oxygen toxicity.

## 12. Ecological Information

**ECOTOXICITY:** No known effects.

**OTHER ADVERSE EFFECTS:** The atmosphere contains approximately 21 percent oxygen. No adverse ecological effects expected. Oxygen does not contain any Class I or Class II ozone-depleting chemicals.

## 13. Disposal Considerations

**WASTE DISPOSAL METHOD:** Do not attempt to dispose of residual or unused quantities. Return cylinder to supplier. For emergency disposal, secure cylinder in a well-ventilated area or outdoors; then slowly discharge gas to the atmosphere.

## 14. Transport Information

**DOT/IMO SHIPPING NAME:** Oxygen, compressed

| | | | |
|---|---|---|---|
| **HAZARD CLASS:** 2.2 | **PACKING GROUP/Zone:** NA* | **IDENTIFICATION NUMBER:** UN1072 | **PRODUCT RQ:** None |

| | |
|---|---|
| **SHIPPING LABEL(s):** | OXYGEN. An oxygen label may be used for domestic shipment in the United States and Canada in place of the NONFLAMMABLE GAS and OXIDIZER labels (49 CFR Part 172). |
| **PLACARD (when required):** | NONFLAMMABLE GAS or OXYGEN |

*Not available.

**SPECIAL SHIPPING INFORMATION:** Cylinders should be transported in a secure position, in a well-ventilated vehicle. Cylinders transported in an enclosed, nonventilated compartment of a vehicle can present serious safety hazards.

Shipment of compressed gas cylinders that have been filled without the owner's consent is a violation of federal law [49 CFR 173.301(b)].

**MARINE POLLUTANTS:** Oxygen is not listed as a marine pollutant by DOT.

## 15. Regulatory Information

The following selected regulatory requirements may apply to this product. Not all such requirements are identified. Users of this product are solely responsible for compliance with all applicable federal, state, and local regulations.

**U.S. FEDERAL REGULATIONS:**

EPA (ENVIRONMENTAL PROTECTION AGENCY)

CERCLA: COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT OF 1980 (40 CFR Parts 117 and 302):

**Reportable Quantity (RQ):** None

SARA: SUPERFUND AMENDMENT AND REAUTHORIZATION ACT:

**SECTIONS 302/304:** Require emergency planning based on Threshold Planning Quantity (TPQ) and release reporting based on Reportable Quantities (RQ) of Extremely Hazardous Substances (EHS) (40 CFR Part 355):

**TPQ:** None
**EHS RQ (40 CFR 355):** None

**SECTIONS 311/312:** Require submission of MSDSs and reporting of chemical inventories with identification of EPA hazard categories. The hazard categories for this product are as follows:

| | |
|---|---|
| **IMMEDIATE:** No | **PRESSURE:** Yes |
| **DELAYED:** No | **REACTIVITY:** No |
| | **FIRE:** Yes |

**SECTION 313:** Requires submission of annual reports of release of toxic chemicals that appear in 40 CFR Part 372.

Oxygen is not subject to reporting under Section 313.

**40 CFR 68:** RISK MANAGEMENT PROGRAM FOR CHEMICAL ACCIDENTAL RELEASE PREVENTION: Requires development and implementation of risk management programs at facilities that manufacture, use, store, or otherwise handle regulated substances in quantities that exceed specified thresholds.

Oxygen is not listed as a regulated substance.

**TSCA:** TOXIC SUBSTANCES CONTROL ACT: Oxygen is listed on the TSCA inventory.

**OSHA:** OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION:

29 CFR 1910.119: PROCESS SAFETY MANAGEMENT OF HIGHLY HAZARDOUS CHEMICALS: Requires facilities to develop a process safety management program based on Threshold Quantities (TQ) of highly hazardous chemicals.

Oxygen is not listed in Appendix A as a highly hazardous chemical.

**STATE REGULATIONS:**

**CALIFORNIA:** Oxygen is not listed by California under the SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986 (Proposition 65).

**PENNSYLVANIA:** Oxygen is subject to the PENNSYLVANIA WORKER AND COMMUNITY RIGHT-TO-KNOW ACT (35 P.S. Sections 7301-7320).

## 16. Other Information

Read and understand all labels and instructions supplied with all containers of this product.

**WARNING:** Medical grades of oxygen are subject to strict federal regulations and are for use only under the control of a licensed physician or clinician familiar with the product and its hazards.

**OTHER HAZARDOUS CONDITIONS OF HANDLING, STORAGE, AND USE:** ***High-pressure, oxidizing gas***. Clean all gauges, valves, regulators, piping, and equipment to be used in oxygen service in accordance with CGA pamphlet G-4.1. Keep cylinders and their valves free of oil and grease. Use piping and equipment adequately designed to withstand pressures to be encountered. Use a backflow prevention device in any piping. Never use oxygen as a substitute for compressed air. Never use an oxygen jet for cleaning purposes of any sort, especially for clothing. Oxygen increases the likelihood of an engulfing fire. Never work on a pressurized system. If a leak occurs, close the cylinder valve. Blow down the system in a safe and environmentally sound manner in compliance with all federal, state, and local laws; then repair the leak. Never place a compressed gas cylinder where it may become part of an electrical circuit.

Personnel who have been exposed to high concentrations of oxygen should stay in a well-ventilated or open area before going into a confined space or near an ignition source.

**SPECIAL PRECAUTIONS:** Use in welding and cutting. Read and understand the manufacturer's instructions and the precautionary label on the product. Ask your welding products supplier for a copy of Praxair's free safety booklet, P-2035, *Precautions and Safe Practices for Gas Welding, Cutting, and Heating,* and for other manufacturers' safety publications. For a detailed treatment, get ANSI Z49.1, *Safety in Welding, Cutting, and Allied Processes*, published by the American Welding Society (AWS), 550 N.W. Le Jeune Rd., Miami, FL 33126, http://www.aws.org/, or see OSHA's Web site at http://www.osha-slc.gov/SLTC/weldingcuttingbrazing/. Order AWS documents from Global Engineering Documents, 15 Inverness Way East, Englewood, CO 80112-5710, http://global.ihs.com/.

Arcs and sparks can ignite combustible materials. Prevent fires. Refer to NFPA 51B, Standard for Fire Prevention During Welding, Cutting, and Other Hotwork. Do not strike an arc on the cylinder. The defect produced by an arc burn could lead to cylinder rupture.

**Mixtures.** When you mix two or more chemicals, you can create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an industrial hygienist or other trained person when you evaluate the end product. Remember, chemicals have properties that can cause serious injury or death.

**HAZARD RATING SYSTEMS:**

| **NFPA RATINGS:** | | **HMIS RATINGS:** | |
|---|---|---|---|
| HEALTH | = 0 | HEALTH | = 0 |
| FLAMMABILITY | = 0 | FLAMMABILITY | = 0 |
| INSTABILITY | = 0 | PHYSICAL HAZARD | = 3 |
| SPECIAL | = OX | | |

**STANDARD VALVE CONNECTIONS FOR U.S. AND CANADA:**

| | | |
|---|---|---|
| **THREADED:** | 0-3000 psig | CGA-540 |
| | 3001-4000 psig | CGA-577 |
| | 4001-5500 psig | CGA-701 |
| **PIN-INDEXED YOKE:** | 0-3000 psig | CGA-870 (Medical Use) |
| **ULTRA-HIGH-INTEGRITY CONNECTION:** | 0-3000 psig | CGA-714 |

Use the proper CGA connections. **DO NOT USE ADAPTERS.** Additional limited-standard connections may apply. See CGA pamphlet V-1 listed below.

Ask your supplier about free Praxair safety literature as referred to in this MSDS and on the label for this product. Further information can be found in the following pamphlets published by the Compressed Gas Association, Inc. (CGA), 4221 Walney Road, 5th Floor, Chantilly, VA 20151-2923, Telephone (703) 788-2700, http://www.cganet.com/Publication.asp

| | |
|---|---|
| AV-1 | *Safe Handling and Storage of Compressed Gases* |
| AV-8 | *Characteristics and Safe Handling of Cryogenic Liquid and Gaseous Oxygen* |
| G-4 | *Oxygen* |
| G-4.1 | *Cleaning Equipment for Oxygen Service* |
| P-1 | *Safe Handling of Compressed Gases in Containers* |
| P-2 | *Characteristics and Safe Handling of Medical Gases* |
| P-39 | *Oxygen-Rich Atmospheres* |
| SB-2 | *Oxygen-Deficient Atmospheres* |
| SB-8 | *Use of Oxy-Fuel Gas Welding and Cutting Apparatus* |
| V-1 | *Compressed Gas Cylinder Valve Inlet and Outlet Connections* |
| — | *Handbook of Compressed Gases, Fourth Edition* |

Praxair asks users of this product to study this MSDS and become aware of product hazards and safety information. To promote safe use of this product, a user should (1) notify employees, agents, and contractors of the information in this MSDS and of any other known product hazards and safety information, (2) furnish this information to each purchaser of the product, and (3) ask each purchaser to notify its employees and customers of the product hazards and safety information.

The opinions expressed herein are those of qualified experts within Praxair, Inc. We believe that the information contained herein is current as of the date of this Material Safety Data Sheet. Since the use of this information and the conditions of use of the product are not within the control of Praxair, Inc., it is the user's obligation to determine the conditions of safe use of the product.

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Praxair, Inc.
39 Old Ridgebury Road
Danbury, CT 06810-5113

Printed in USA

# BIG RED CONCENTRATED CLEANER, 3097

## MSDS Number

BSDWH

## National Stock Number

7930-00N040203

## Product Name

BIG RED CONCENTRATED CLEANER, 3097

## Manufacturer

TEXAS REFINERY CORP

## Product Identification

Product ID:BIG RED CONCENTRATED CLEANER, 3097
MSDS Date:02/01/1992
FSC:7930
NIIN:00N040203
MSDS Number: BSDWH

## Responsible Party

TEXAS REFINERY CORP

ONE REFINERY PLACE

FORT WORTH , TX 76101

US

Emergency Phone: 800-424-9300(CHEMTREC)

Info Phone: 817-332-1161

Cage: 26016

## Contractor

TEXAS REFINERY CORP

FORT WORTH, TX 76101-5000

US

817-332-1161

Cage: 26016

## Ingredients

2,4-PENTANEDIOL, 2-METHYL-; (HEXYLENE GLYCOL)

CAS: 107-41-5

RTECS: SA0810000

Fraction By Weight: 1-4%

OSHA PEL25 PPM, C

ACGIH TLV: 25 PPM, C

ETHANOL, 2,2'-IMINODI-; (DIETHANOLAMINE) (SARA III)

CAS: 111-42-2

RTECS: KL2975000

Fraction By Weight: 1-4%

OSHA PEL3 PPM

ACGIH TLV: 3 PPM

EPA Report Quantity: 1 LB

DOT Report Quantity: 1 LB

## Hazards

LD50 LC50 Mixture:NONE SPECIFIED BY MANUFACTURER.
Routes of Entry: Inhalation:NO Skin:NO Ingestion:NO
Reports of Carcinogenicity:NTP:NO IARC:NO OSHA:NO
Health Hazards Acute and Chronic:MAY CAUSE MILD TRANSIENT IRRITATION TO EYES. PROLONGED OR REPEATED SKIN CONTACT MAY CAUSE MILD IRRITATION. INGESTION COULD CAUSE UPSET OF THE DIGESTIVE SYSTEM INCLUDING DIARRHEA.
Explanation of Carcinogenicity:NOT RELEVANT
Effects of Overexposure:SEE HEALTH HAZARDS.
Medical Cond Aggravated by Exposure:NONE KNOWN

## First Aid

First Aid:INHAL:REMOVE TO FRESH AIR. SUPPORT BREATHING (GIVE O*2/ARTF RESP) . EYES:FLUSH W/WATER UNTIL IRRITATION SUBSIDES (AT LEAST 15 MINUTES). SKIN:FLUSH AFFECTED AREAS W/WATER. INGEST:GET MEDICAL ADVI CE.

## Fire Fighting

Flash Point:NONE
Extinguishing Media:MEDIA SUITABLE FOR SURROUNDING FIRE .
Fire Fighting Procedures:WEAR NIOSH/MSHA APPROVED SCBA & FULL PROTECTIVE EQUIPMENT .
Unusual Fire/Explosion Hazard:NONE

## Accidental Release

Spill Release Procedures:RECOVER FREE LIQUID, THEN FLUSH DOWN W/WATER.
Neutralizing Agent:NONE SPECIFIED BY MANUFACTURER.

## Handling

Handling and Storage Precautions:PRODUCT WILL FREEZE, BUT THIS ISN'T DETRIMENTAL. DO NOT STORE AT TEMPERATURES >120F.
Other Precautions:NONE KNOWN

## Exposure Controls

Respiratory Protection:USE NIOSH/MSHA APPROVED RESPIRATOR APPROPRIATE FOR EXPOSURE OF CONCERN . NOT REQUIRED.
Ventilation:NOT REQUIRED.
Protective Gloves:IMPERVIOUS GLOVES .
Eye Protection:ANSI APRV CHEM WORK GOGG .
Other Protective Equipment:NOT REQUIRED.
Work Hygienic Practices:NO SPECIAL REQUIREMENTS.
Supplemental Safety and Health
NONE SPECIFIED BY MANUFACTURER.

## Chemical Properties

Boiling Pt:B.P. Text:>212F,>100C
Vapor Pres:23.8 @ 77F
Vapor Density:Spec Gravity:1.0878 (H*2O=1)
pH:8.9
Solubility in Water:SOLUBLE
Appearance and Odor:RED, VISCOUS LIQUID - SLIGHTLY MILD CHEMICAL ODOR.
Percent Volatiles by Volume:77

## Stability

Stability Indicator/Materials to Avoid:YES
NONE KNOWN
Stability Condition to Avoid:NONE KNOWN
Hazardous Decomposition Products:NONE KNOWN

## Disposal

Waste Disposal Methods:FEDERAL, STATE &/OR LOCAL APPROVED DISPOSAL.

# MATERIAL SAFETY DATA SHEET FOR ODORIZED PROPANE

## 1. Chemical Product and Company Identification

**Product Name:** Odorized Commercial Propane
**Chemical Name:** Propane
**Chemical Family:** Paraffinic Hydrocarbon
**Formula:** $C_3H_8$
**Synonyms**: Dimethylmethane, LP-Gas, Liquefied Petroleum Gas (LPG), Propane, Propyl Hydride

**Name & Address:**
**AmeriGas Propane, L.P.**
**P. O. Box 965**
**Valley Forge, PA. 19482**

**Transportation Emergency Number:**
**CHEMTREC 1-800-424-9300**

**For General Information, Call:**
**1-610-337-1000, Safety Dept.**

## 2. Composition / Information on Ingredients

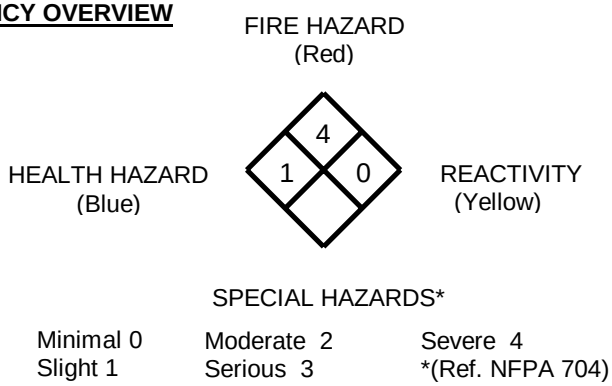
| INGREDIENT NAME /CAS NUMBER | PERCENTAGE | OSHA PEL | ACGIH TLV |
|---|---|---|---|
| Propane / 74-98-6 | 87.5 -100 | | Simple asphyxiant |
| Ethane / 74-84-0 | 0 - 7.0 | 1,000 ppm | Simple asphyxiant |
| Propylene / 115-07-1 | 0 - 5.0 | | Simple asphyxiant |
| Butanes / 106-97-8 | 0 - 2.5 | | Simple asphyxiant |
| Ethyl Mercaptan / 75-08-1 | 0 - 50 ppm | 0.5 ppm | 0.5 ppm |

**WARNING:** The intensity of the chemical odorant (e.g., ethyl mercaptan) may "fade" or diminish due to chemical oxidation, adsorption or absorption. Individuals with nasal perception problems may not be able to smell the odorant. Leaking propane from underground gas lines may lose its odor as it passes through certain soils. No odorant is effective 100% of the time. Therefore, circumstances can exist when individuals are in the presence of leaking propane and not be alerted by the smell. Contact AmeriGas for more information about odor, propane gas detectors and other safety considerations associated with the handling, storage and use of propane.

## 3. Hazards Identification

**EMERGENCY OVERVIEW**

**DANGER!** Flammable liquefied gas under pressure. Keep away from heat, sparks, flame, and all other ignition sources. Vapor replaces oxygen available for breathing and may cause suffocation in confined spaces. Use only with adequate ventilation. Reliance upon detection of odor may not provide adequate warning of potentially hazardous concentrations. Vapor is heavier than air; may collect at low levels. Liquid can cause freeze burn similar to frostbite. Do not get liquid in eyes, on skin, or on clothing. Avoid breathing vapor. Keep service valve closed when not in use.




**POTENTIAL HEALTH EFFECTS INFORMATION**

**ROUTES OF EXPOSURE:**

**Inhalation:** Asphyxiation. Before suffocation could occur, the lower flammability limit of propane in air would be exceeded, possibly causing both an oxygen-deficient and explosive atmosphere. Exposure to concentrations >10% may cause dizziness. Exposure to atmospheres containing 19% or less oxygen will bring about unconsciousness without warning. Lack of sufficient oxygen may cause serious injury or death.
**Eye Contact:** Contact with liquid can cause freezing of tissue.
**Skin Contact:** Contact with liquid can cause frostbite.
**Skin Absorption:** None.
**Ingestion:** Ingestion is not expected to occur in normal use. However, liquid can cause freeze burn similar to frostbite.

**CHRONIC EFFECTS:** None.

**CARCINOGENICITY:** Propane is not listed by NTP, OSHA or IARC.

## 4. First Aid Measures

**INHALATION:** Individuals suffering from lack of oxygen should be removed to fresh air. If victim is not breathing, administer artificial respiration. If breathing is difficult, administer oxygen. Obtain immediate medical assistance.

**EYE CONTACT:** Gently flush eyes with lukewarm water. Obtain immediate medical assistance.

**SKIN CONTACT:** Remove saturated clothes, shoes and jewelry. Immerse affected area in lukewarm water not exceeding 105° F. Keep immersed. Obtain immediate medical assistance.

**INGESTION:** If swallowed, obtain immediate medical assistance.

## 5. Fire-Fighting Measures

**FLASH POINT:** -156°F (-104°C) **AUTOIGNITION**: 842°F (432°C)

**IGNITION TEMPERATURE IN AIR:** 920°F to 1120°F (493°C to 549°C)

**FLAMMABLE LIMITS IN AIR (% by volume):** Lower: 2.15% Upper: 9.6%

**EXTINGUISHING MEDIA:** Dry chemical, $CO_2$, water spray or fog for surrounding area. Do not attempt to extinguish fire until propane source is isolated.

**SPECIAL FIRE-FIGHTING INSTRUCTIONS:** Evacuate all unnecessary personnel from the area. Allow only properly trained and protected emergency response personnel in area. A NIOSH approved self-contained breathing apparatus may be required. If gas flow cannot be shut off, do not attempt to extinguish fire. Allow fire to burn itself out. Use high volume water supply to cool exposed pressure containers and nearby equipment. Approach a flame-enveloped container from the sides, never from the ends. Use extreme caution when applying water to a container that has been exposed to heat or flame for more than a short time. For uncontrollable fires and/or when flame is impinging on container, withdraw all personnel and evacuate vicinity immediately.

**UNUSUAL FIRE AND EXPLOSION HAZARDS:** Propane is heavier than air and can collect in low areas. Flash back along a vapor trail is possible. Pressure in a container can build up due to heat; and, container may rupture suddenly and violently without warning if pressure relief devices fail to function properly. If flames are against the container, withdraw immediately on hearing a rising sound, if venting increases in volume or intensity or if there is discoloration of the container due to fire. Propane released from a properly functioning relief valve on an overheated container can also become ignited.

**HAZARDOUS COMBUSTION PRODUCTS:** None.

## 6. Accidental Release Measures

**IF MATERIAL IS RELEASED OR SPILLED:** Evacuate the immediate area. Eliminate any possible sources of ignition and provide maximum ventilation. Shut off source of propane, if possible. If leaking from container or valve, contact your supplier or AmeriGas immediately.

## 7. Handling and Storage

**HANDLING PRECAUTIONS:** Propane vapor is heavier than air and can collect in low areas that are without sufficient ventilation. Conduct system checks for leaks with a leak detector or solution, never with flame. Make certain the container service valve is shut off prior to connecting or disconnecting. If container valve does not operate properly, discontinue use and contact AmeriGas. Never insert an object (e.g., wrench, screwdriver, pry bar, etc.) into pressure relief valve or cylinder valve cap openings. Do not drop or abuse cylinders. Never strike an arc on a gas container or make a container part of an electrical circuit. See Section 16, "OTHER INFORMATION", for additional precautions.

**STORAGE PRECAUTIONS:** Store in a safe, authorized location (outside, detached storage is preferred) with adequate ventilation. Specific requirements are listed in NFPA 58, LP-GAS CODE. Isolate from heat and ignition sources. Containers should never be allowed to reach temperature exceeding 125°F (52°C). Isolate from combustible materials. Provide separate storage locations for other compressed and flammable gases. Propane containers should be separated from oxygen cylinders or other oxidizers by a minimum distance of 20 feet, or by a barrier of non-combustible material at least 5 feet high having a fire rating of at least 1/2 hour. Full and empty cylinders should be segregated. Keep cylinders in an upright position at all times so that each pressure relief valve communicates with the vapor space. Keep container valve closed and plugged or capped when not in use. Install protective caps when cylinders are not connected for use. Empty containers retain some residue and should be treated as if they were full.

## 8. Exposure Control / Personal Protection

**ENGINEERING CONTROLS**

Ventilation: Provide ventilation adequate to ensure propane does not reach a flammable mixture.

**RESPIRATORY PROTECTION**

**General Use**: None.

**Emergency Use:** If concentrations are high enough to warrant supplied-air or NIOSH self-contained breathing apparatus, then the atmosphere may be flammable (See Section 5). Appropriate precautions must be taken regarding flammability.

**PROTECTIVE CLOTHING:** Avoid skin contact with liquid propane because of possibility of freeze burn. Wear gloves and protective clothing that are impervious to the product for the duration of the anticipated exposure.

**EYE PROTECTION:** Safety glasses, goggles or face shields are recommended when handling cylinders.

**OTHER PROTECTIVE EQUIPMENT:** Safety shoes are recommended when handling cylinders.

## 9. Physical and Chemical Properties

**BOILING POINT:** @ 14.7 psia = -44° F (@1.00 atm.pressure = -42°C)
**SPECIFIC GRAVITY OF VAPOR** (Air = 1) at 60° F (15.56°C): 1.50
**SPECIFIC GRAVITY OF LIQUID** (Water = 1) at 60° F: 0.504
**VAPOR PRESSURE**: @ 70° F (20°C) = 127 psig; @ 105° F (45°C ) = 210 psig; @ 130°F (55°C) = 287 psig
**EXPANSION RATIO** (From liquid to gas @ 14.7 psia): 1 to 270
**SOLUBILITY IN WATER:** Slight, 0.1 to 1.0%
**APPEARANCE AND ODOR:** A colorless and tasteless gas at normal temperature and pressure. An odorant (ethyl mercaptan) is added to provide a strong unpleasant odor. Should a propane-air mixture reach the lower limits of flammability, the ethyl mercaptan concentration will be approximately 0.5 ppm in air.

**ODORANT WARNING:** Odorant is added to aid in the detection of leaks. One common odorant is ethyl mercaptan, CAS No. 75-08-1. Odorant has a foul smell. The ability of people to detect odors varies widely. Also, the odor level can be reduced by certain chemical reactions with material in the propane system or when fugitive propane gas from underground leaks passes through certain soils. No odorant will be 100% effective in all circumstances. If the presence of the odorant is not obvious, notify AmeriGas immediately.

## 10. Stability and Reactivity

**STABILITY:** Stable.

**Conditions to Avoid:** Keep away from high heat, strong oxidizing agents and sources of ignition.

**REACTIVITY:**

**Hazardous Decomposition Products**: Under fire conditions, fumes, smoke, carbon monoxide, aldehydes and other decomposition products. In most applications where there is inadequate venting to the outside air, incomplete combustion will produce carbon monoxide (a toxic gas) and potentially develop concentrations that can create a serious health hazard.

**Hazardous Polymerization:** Will not occur.

## 11. Toxicological Information

Propane is non-toxic and is a simple asphyxiant. It has slight anesthetic properties. Higher concentrations may cause dizziness.

**IRRITANCY OF MATERIAL:** None.
**SENSITIZATION TO MATERIAL:** None
**REPRODUCTIVE EFFECTS:** None
**MUTAGENICITY:** None
**TERATOGENICITY:** None
**SYNERGISTIC MATERIALS:** None

## 12. Ecological Information

No adverse ecological effects are expected. Propane does not contain any Class I or Class II ozone-depleting chemicals (40 CFR Part 82). Propane is not listed as a marine pollutant by DOT (49 CFR Part 171).

## 13. Disposal Considerations

**WASTE DISPOSAL METHOD:** Do not attempt to dispose of residual or unused product in the container; return it to your supplier or contact AmeriGas for safe disposal. Residual product within a process system may be burned at a controlled rate if a suitable burning unit is available on site, and is done in accordance with federal, state and local regulations.

## 14. Transport Information

**DOT SHIPPING NAME:** Liquefied Petroleum Gas
**IDENTIFICATION NUMBER:** UN 1075
**IMO SHIPPING NAME:** Propane
**IMO IDENTIFICATION NUMBER:** UN 1978
**HAZARD CLASS**: 2.1 (Flammable Gas)
**PRODUCT RQ:** None

**SHIPPING LABEL (S):** Flammable Gas
**PLACARD (WHEN REQUIRED):** Flammable Gas
**SPECIAL SHIPPING INFORMATION:** Container must be transported in a well-ventilated vehicle, secured, and in a position such that the pressure relief device is in communication with the vapor space.

## 15. Regulatory Information

The following information concerns U.S. Federal regulatory requirements potentially applicable to this product. Not all such requirements are identified. Users of this product are responsible for their own regulatory compliance on a federal, state [provincial] and local level.

### U.S. FEDERAL REGULATIONS

**Environmental Protection Agency (EPA)**

*Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA)* - 40 CFR Parts 117 and 302

**Reportable Quantity (RQ):** None

*Superfund Amendment and Reauthorization Act (SARA)*

- Sections 302/304: Relates to emergency planning on threshold planning quantities (TPQ) and release reporting based on reportable quantities (RQ) of EPA's extremely hazardous substances (40 CFR Part 355).

  **Extremely Hazardous Substances:** None **Threshold Planning Quantity (TPQ):** None

- Sections 311/312: Relates to submission of material safety data sheets (MSDSs) and chemical inventory reporting with identification of EPA-defined hazard classes (40 CFR Part 370). The hazard classes for this product are:
  **IMMEDIATE:** No **PRESSURE:** Yes **DELAYED:** No **REACTIVITY:** No **FLAMMABLE:** Yes

- Section 313: Relates to submission of annual reports of release of toxic chemicals that appear in 40 CFR Part 372. Propane does not require reporting under Section 313.

**Toxic Substance Control Act (TSCA)**

Propane is listed on the TSCA inventory.

**Occupational Safety and Health Administration (OSHA)**

**The following 29 CFR Parts may apply to propane:**

**29 CFR 1910.110:** *Storage and Handling of Liquefied Petroleum Gases*
**29 CFR 1910.119:** *Process Safety Management of Highly Hazardous Chemicals*
**29 CFR 1910.1200:** *Hazardous Communications*

**Food and Drug Administration (FDA)**

**21 CFR 184.1655:** Generally recognized as safe (GRAS) as a direct human food ingredient when used as a propellant, aerating agent and gas.

## 16. Other Information

**SPECIAL PRECAUTIONS**: Use piping and equipment adequately designed to withstand pressure to be encountered. NFPA 58, LP-GAS CODE and OSHA 29 CFR 1910.10 require that all persons employed in handling LP-gases be trained in proper handling and operating procedures, which the employer shall document. Contact your propane supplier or AmeriGas to arrange for the required training. Allow only trained and qualified persons to install and service propane containers and systems.

### ISSUE INFORMATION

**Issue Date: December 2002** **Supersedes Date: April 2002**
**Issued By: Director of Safety** **Phone Number: 1-610-337-7000**

This material safety data sheet and the information it contains is offered to you in good faith as accurate. This Supplier does not manufacture this product, but is a supplier of the product that is independently produced by others. Much of the information contained in this data sheet was received from sources outside our Company. To the best of our knowledge this information is accurate, but this Supplier does not guarantee its accuracy or completeness. Health and safety precautions in this data sheet may not be adequate for all individuals and/or situations. It is the user's obligation to evaluate and use this product safely, comply with all applicable laws and regulations and to assume the risks involved in the use of this product.

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# SAFETY DATA SHEET

EFFECTIVE May 2013

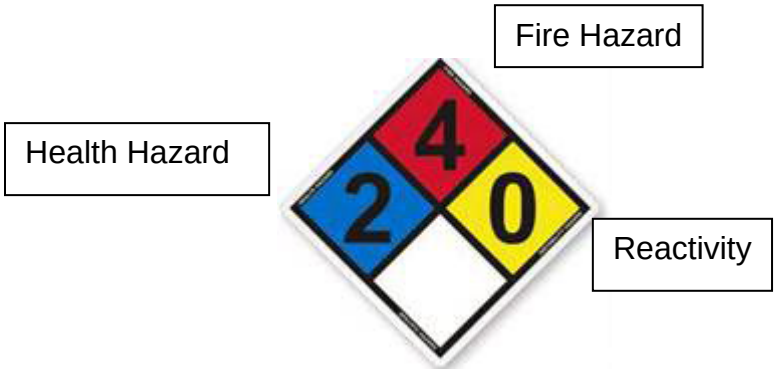
Llame 1-800-776-7263 para la informacion de la seguridad en el espanol

**Suburban Propane®**

## SECTION 1 – PRODUCT & COMPANY IDENTIFICATION

| | |
|---|---|
| Product Name: | Commercial Odorized Propane |
| Chemical Name: | **Propane** ($C_3H_8$) |
| Chemical Family: | Petroleum Hydrocarbon |
| Common Names: | Liquefied Petroleum Gas, LP-Gas, LPG, Bottle Gas |
| Intended Use: | Propane is a liquid fuel |
| Distributor: | Suburban Propane, L.P. PO Box 206 Whippany, NJ 07981 |
| Emergency Response: | CHEMTREC (800) 424-9300 |
| Additional Safety Information: | Safety Engineering & Environmental (315) 385-4442 |
| Customer Service (24-Hr Phone): | 1-800-PROPANE or 1-800-776-7263 |

## SECTION 2 – CHEMICAL HAZARD CLASSIFICATION & WARNING INFORMATION




NFPA CLASSES:
4 - Severe
3 - Serious
2 - Moderate
1 - Slight
0 - Minimal
*Ref. NFPA 704

**WHAT IS PROPANE**?

Propane (also called LPG-Liquefied Petroleum Gas or LP-Gas) is a liquid fuel stored under pressure. In most systems, propane is vaporized to a gas before it leaves the tank. Propane is highly flammable when mixed with air (oxygen) and can be ignited by many sources, including open flames, smoking materials, electrical sparks, and static electricity. Severe “freeze burn” or frostbite can result if propane liquid comes in contact with your skin.

**PROPANE IS A SIMPLE ASPHYXIANT.**

**PROPANE IS FLAMMABLE.**
Flammable Gas under pressure – Keep away from sources of ignition such as heat, sparks or flame. Vapor is heavier than air and may collect in low-lying areas.

## SECTION 3 – COMPOSITION/INGREDIENT INFORMATION

| ***COMPONENTS*** | ***CAS NO.*** | |
|---|---|---|
| PROPANE | 74-98-6 | ***** |
| PROPYLENE | 115-07-1 | ***** |
| BUTANES | 106-97-8 | 2.5% |
| SULPHUR | 7704-34-9 | 185 ppm with no discoloration of Lead Acetate paper****** |
| RESIDUAL MATTER | | 0.05 ml after boil off of 100 ml liquid sample ** |
| ODORANT(S) | Various | Odor concentration detectable in air of not less than one-fifth of the lower limit of flammability per NFPA 58. |
| CORROSIVES | | Not to exceed #1 grade copper strip test****** |

****** Combined constituents comprise a minimum 97.45 % of the total weight under Gas Processors Association (GPA) Standard 2140-97.*
*** Based on American Society of Testing and Materials (ASTM) Standard D1835-91.*

## SECTION 4 – FIRST AID MEASURES

Eye: Although propane vapor is generally non-irritating, pressurized gas may inflict mechanical injury to the eye. Direct contact with liquid propane can cause freeze burns and resultant swelling of the eye. In case of contact with eyes, remove contact lenses if present and easy to do so, immediately flush with clean, low-pressure water, for a minimum of (15) minutes.

Skin: Contact with liquid propane can cause freeze burns similar to frostbite. Remove saturated clothing, shoes and jewelry immediately. Do not remove clothing that adheres due to freezing. Affected body parts should be gently flushed with or immersed in lukewarm water for 15 minutes. Seek medical attention.

Ingestion: Deemed unlikely.

Inhalation: Simple asphyxiant. Extreme over exposure may cause dizziness, headache, disorientation, excitability, fatigue, coughing, vomiting, anesthesia, unconsciousness and death. Move victim away from source and into fresh air. Seek medical attention - call 911 or Emergency Medical Services. If breathing difficulties develop, qualified personnel may administer oxygen. If breathing or heartbeat cease, artificial respiration or cardiopulmonary resuscitation should be started immediately.

## SECTION 5 – FIRE FIGHTING MEASURES

**PROPANE IS EXTREMELY FLAMMABLE.** Propane will be easily ignited by heat, sparks, or flame. Propane will form explosive mixtures with air. Propane will form explosive mixtures with air. Vapors from liquefied gas are heavier than air and will spread at low levels (along the ground). Vapors may travel to source of ignition and flash back. Containers may explode when heated. Ruptured cylinders may propel/rocket.

Clear and evacuate the area - only properly trained and protected emergency response personnel shall be permitted in the area. Do not extinguish a leaking gas fire unless the leak can be stopped.

Extinguishing Media: Class B fire-extinguishing media such as HALON, C02, or dry chemical can be used. Water spray or fog is appropriate for surrounding areas. Do not extinguish flame until source of gas is shut off. Only those with specialized training should attempt firefighting. For further information, refer to NPGA “Propane Emergencies” Text #7220.

For fires involving tanks:

- Fight fire from maximum distance or use unattended hose
- Cool containers with flooding quantities until well after fire is out
- Do not direct water source at source of leak or safety devices; icing may occur
- Withdraw immediately in case of rising sound from venting safety devices or tank discoloration
- ALWAYS stay away from tanks engulfed in fire
- For massive fire, use unattended hose holders or monitor nozzles; if this is possible withdraw from area and allow fire to burn

## SECTION 6 – ACCIDENTAL RELEASE MEASURES

In the event of an accidental release or spill out of doors, these actions should be taken: Evacuate immediate area. Eliminate all possible sources of ignition including heat, sparks and open flame. Provide maximum ventilation and shut off source(s) of leak if possible to do so safely. If cylinder or container is leaking, contact the local fire department or the nearest Suburban Propane supplier. Never enter a vapor (white) cloud.

In the event of an accidental release of propane:

- Eliminate all sources of ignition (no smoking, flares, sparks or flames in immediate area)
- Ground all equipment used for handling product
- Do not touch or walk through the spilled material
- Stop leak source if this can be done without risk
- If possible, position leaking containers so that gas escapes rather than liquid
- Use water spray to reduce vapors or divert vapor cloud and avoid allowing water runoff to contact spilled material
- Do not direct water at spill or source of leak
- Prevent spreading of vapors through sewers, ventilation systems and confined areas
- Isolate area until gas has dispersed

## SECTION 7 – HANDLING & STORAGE

Propane systems must be tested and proven leak free prior to use. Refer to National Fire Protection Association (NFPA) 54 National Fuel Gas Code for further instructions.

Keep away from all sources of ignition, including heat, sparks and open flames. Never check for leaks with a lit match or flame. Use an approved leak detector solution or electronic leak detector.

All piping and equipment used for the handling, storage and use of propane must be specifically designed for that purpose. Refer to NFPA 54 National Fuel Gas Code and NFPA 58 Liquefied Petroleum Gas Code.

OSHA 29 CFR 1910.110, DOT 49 CFR 172.700 and NFPA 58 all require that persons handling LP gases be specially trained in proper handling and operating procedures, which must be documented by the employer. Only qualified persons should transport, operate, service and/or install propane systems and containers.

Propane vapor is heavier than air and can collect in low-lying areas, especially in the absence of wind or ventilation. Propane is a simple asphyxiant.

Liquid propane can cause freeze burns, and appropriate personal protective equipment should be used whenever handling this product.

Propane cylinders should always be stored in an approved location with relief valves in direct communication with the vapor space, and with service valves closed and plugged when not in use. Refer to NFPA 58 for details of specific storage requirements.

**DO NOT STORE PROPANE CYLINDERS OR CONTAINERS INSIDE BUILDINGS**. Make sure regulator remains protected so operation will not be affected by the elements (rain, sleet, snow, ice, mud, debris). Regulator vent should be pointed down and be checked regularly. Customer to make sure building openings are not created and sources of ignition are not installed within the area of propane tanks, regulators, meters or propane equipment.

Empty propane containers retain residue and should be treated as if full. Never drop or damage containers. Damaged or corroded and leaking containers should not be utilized. Contact your local Suburban Propane supplier immediately to report any problems. If container service valve fails to operate properly, discontinue use. Never insert any object into the pressure relief valve. Return unused propane to supplier for proper disposal.

## SECTION 8 – EXPOSURE CONTROLS/PERSONAL PROTECTIVE EQUIPMENT

| COMPONENT | THRESHOLD LIMIT VALUE (TLV) | PERMISSABLE EXPOSURE LIMIT (PEL) |
|---|---|---|
| PROPANE | NE | 1000 ppm |
| PROPYLENE | NE | NE |
| BUTANES | NE | 800 ppm |

**Engineering Controls**: Provide ventilation in enclosed areas where accumulation of vapors may provide a flammable mixture. Where flammable mixtures may be present, specially designed electrical systems must be used in accordance with NFPA 70 National Electric Code.

**Respiratory Protection**: For general use no protection is required. Under emergency conditions, concentrations may be high enough to warrant supplied-air or self-contained breathing apparatus. Under these conditions, a flammable atmosphere is likely and precautions should be taken to avoid ignition.

**Eye Protection**: Approved safety glasses, goggles, or face shields should be used whenever filling and handling propane containers.

**Protective Clothing**: To avoid skin contact with liquid propane, approved gloves that are impervious to propane should be worn along with clothing that will provide protection from liquid propane for the expected duration- of exposure.

**Other Protective Equipment**: Safety shoes are recommended when handling cylinders.

## SECTION 9 – CHEMICAL & PHYSICAL PROPERTIES

| | | |
|---|---|---|
| BOILING POINT: - 44° F | FLASH POINT: -156° F | BULK DENSITY: 4.20 lbs. /gal. |
| SPECIFIC GRAVITY: | LIQUID: 0.504 | VAPOR: 1.50 |
| GAS VOLUME @ ATM. PRESSURE & 60° F (Cu. Ft. gas/gal. Liquid): 36.38 | | |
| VAPOR PRESSURE: 208 psig @ 100° F (ASTM) SPECIFIC HEAT of LIQUID: .630 BTU/LB. & 60° F<br>FLAMMABILITY LIMITS (% BY VOLUME IN AIR): L.E.L.: 2.1 U.E.L.: 9.5 | | |
| EXPANSION RATIO OF LIQUID TO GAS @ 14.7psia : 1 to 270 | | |
| LIQUID BOIL-OFF TO PROPANE VAPOR ABOVE – 44 F°: 100% | | |

Propane is colorless and odorless.
Propane is very stable.
Polymerization will not occur.
An added odorant gives propane a strong unpleasant smell. Information regarding the effectiveness or intensity of odorants is set forth below.

**Propane is Odorized**: Propane smells like rotten eggs, a skunk's spray, or a dead animal. Some people may have difficulty smelling propane due to their age (older people have a less sensitive sense of smell); a medical condition; or the effects of medication, alcohol, tobacco, or drugs. Consider purchasing a propane gas detector as an additional measure of security.

**Odor Fade**: Odor fade is an unintended reduction in the concentration of the odor of propane, making it more difficult to smell. Although rare, several situations can cause odor fade:

- The presence of air, water, or rust in a propane tank or cylinder
- The passage of leaking propane through soil
- The exposure to building materials, masonry or fabrics

Since there is a possibility of odor fade or problems with your sense of smell, you should respond immediately to even a faint odor of gas.

To learn what propane smells like, Customers unfamiliar with that smell should call Suburban's Safety Information Request Center at 1-888-223-0029 and order the pamphlets called "Important Propane Safety Information for You and Your Family" and/or an expansive "Propane Safety" booklet to obtain a Scratch and Sniff Test, free of charge. Pamphlets can also be purchased through Propane Education & Research Council (PERC) at 1-866-905-1075 or www.propanecatalog.com.

## SECTION 10 – STABILITY & REACTIVITY

**Chemical Stability** - Propane is very stable at normal temperature and storage conditions

**Possible Hazardous Reactions** - Polymerization reported not to occur

**Conditions to Avoid** - Keep away from heat, fire, flames, sparks, and other sources of ignition

**Incompatible Materials** - Strong oxidizing agents, acids, bases, ignition sources and heat

**Hazardous Decomposition Products** - Normal combustion products of propane are carbon dioxide, nitrogen and water vapor. Incomplete combustion of propane can produce carbon monoxide (CO), a toxic gas, and various aldehydes; an eye and nose irritant. These can be produced both by gas appliances and internal combustion engines. Propane fired equipment may emit carbon monoxide in its flue gasses.

## SECTION 11 – TOXICOLOGICAL INFORMATION

| COMPONENT | THRESHOLD LIMIT VALUE (TLV) | PERMISSABLE EXPOSURE LIMIT (PEL) |
|---|---|---|
| PROPANE | NE | 1000 ppm |
| PROPYLENE | NE | NE |
| BUTANES | NE | 800 ppm |

Potential Health Effects: Routes of exposure, through inhalation and contact with eyes and or skin. Exposure to skin and eyes can result in frostbite – a cold burn. Inhalation hazard related to the asphyxiant properties of propane that can reduce oxygen levels, and create suffocation hazard. Ingestion is an unlikely route of exposure.

Propane is not listed in the latest edition of the National Toxicology Program Annual Report on Carcinogens, has not been found to be a potential carcinogen in the latest edition of the International Agency for Research on Cancer Monographs, and has not been identified as a carcinogen by OSHA.

The Food and Drug Administration (FDA) has said propane is GRAS (generally recognized as safe) as a direct human food ingredient when used as a propellant, aerating agent and gas.

## SECTION 12 – ECOLOGICAL INFORMATION

Upon contact with the environment, propane is expected to volatilize or dissipate.

Upon review of USC Title 15 Chapter 23 Section 2601 commonly known as Toxic Substance Control Act (TSCA), Propane has not been found to be a chemical whose manufacture, processing, distribution in commerce, use, or disposal to present an unreasonable risk of injury to health or the environment.

Propane does not contain any Class 1 or Class 2 ozone-depleting chemicals. Propane is not a listed marine pollutant.

## SECTION 13 – DISPOSAL CONSIDERATIONS

Empty propane containers retain residue and should be treated as if full. Never drop or damage containers. Damaged or corroded and leaking containers should not be utilized. Contact your local Suburban Propane supplier immediately to report any problems. If container service valve fails to operate properly, discontinue use. Never insert any object into the pressure relief valve. Return unused propane to supplier for proper disposal.

## SECTION 14 – TRANSPORT INFORMATION

| | |
|---|---|
| UN Number: | UN 1075 |
| Proper Shipping Name: | Liquid Petroleum Gas |
| Transport Hazard Class: | 2.1 Flammable Gases |
| Emergency Contact for Shipping: | CHEMTREC (800) 424-9300 |

## SECTION 15– REGULATORY INFORMATION

**US Federal Regulations:**

**Occupational Safety & Health Administration (OSHA)**
29 CFR 1910.1200 Hazard Communication Standard
29 CFR 1910.110 Storage and Handling of Liquefied Petroleum Gas
29 CFR 1910.119 Process Safety Management of Highly Hazardous Chemicals

**Environmental Protection Agency (EPA)**
CERCLA Reportable Quantity (RQ): None

**Toxic Substance Control Act (TSCA**)
Propane is listed on the TSCA inventory

**California Proposition 65**
This material does not contain any chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm at concentrations that trigger the warning requirements of California Proposition 65.

Warning: Chemicals known to the state of California to cause cancer, birth defects or other reproductive harm are created by the combustion of propane.

## SECTION 16 – OTHER INFORMATION

This Safety Data Sheet, issued May 2013, was prepared by Safety Engineering & Environmental Services of Suburban Propane and supersedes all earlier versions.

For further information write to:
SUBURBAN PROPANE, L.P.
Safety Engineering & Environmental Services
PO Box 4833
Syracuse, NY 13221
(315) 385-4442

**FURTHER DISCLAIMER:** The information contained in this document is believed to be correct at the time of writing. NO WARRANTY OF MERCHANTABILITY, SUITABILITY FOR ANY SPECIFIC PURPOSE, OR ANY ASPECT REGARDING ITS INTENDED USE OR THE EXPECTED RESULTS TO BE OBTAINED IS EXPRESSED OR IMPLIED. This information and the propane furnished is done so on condition that the person(s) receiving them shall make their own determination as to the suitability of the propane for any specific purpose, and that they assume any and all risks associated with its storage and use.

**CONSUMER SAFETY INFORMATION**
We urge you to visit www.suburbanpropane.com for Consumer Safety Information prepared by the Propane Education & Research Council (PERC). Pamphlets called "Important Propane Safety information for You and Your Family," "Important Propane Safety Information for Users of Small Cylinders" (including cylinder transportation, storage and inspection procedures), an expansive "Propane Safety" booklet, weather/natural disaster information, and Suburban's Safety Data Sheet (SDS) may be read and downloaded online. These documents are also available free of charge by calling Suburban at 1-888-223-0029 and PERC pamphlets containing a Scratch and Sniff Test of propane odor can be purchased at 1-866-905-1075 or www.propanecatalog.com.

# MATERIAL SAFETY DATA SHEET

**This MSDS complies with OSHA'S Hazard Communication Standard 29 CFR 1910.1200 and OSHA Form 174**

## SECTION 1- PRODUCT AND MANUFACTURER'S INFORMATION

| | |
|---|---|
| **NFPA Rating: Health-2; Flammability-0; Reactivity-0; Special-0** | **HMIS Rating: Health-2; Flammability-0; Reactivity-0; Personal Protection- 0** |
| **MANUFACTURED BY: MISSION LABORATORIES**<br>**Address: 2433 BIRKDALE STREET**<br>**LOS ANGELES, CA. 90031** | **DOT Hazard Classification: NON-HAZARDOUS**<br>**Identity** (trade name as used on label)**:**<br>**RED HEAVY-DUTY KLEENSWEEP** |
| **Date Prepared: 07/11/11 Prepared By:DS** | **MSDS Number:** F1300 Revision- |
| **Information Calls: (323) 223-1405**<br>**EMERGENCY RESPONSE NUMBER: (800) 535-5053** | **NOTICE: JUDGMENT BASED ON INDIRECT TEST DATA** |

## SECTION 2 – HAZARDOUS MATERIAL IDENTIFICATION AND INFORMATION

| COMPONENTS-CHEMICAL NAMES AND COMMON NAMES (Hazardous Components 1% or greater; Carcinogens 0.1% or greater) | CAS Number | SARA III LIST | OSHA PEL (ppm) | ACGIH TWA (ppm) | Carcinogen Ref. Source ** |
|---|---|---|---|---|---|
| SAND ( SILICA ) Kleensweep is a moist product. Silica sand is a respiratory hazard when dry/airborne. 35% - 45% | 14808-60-7 | N/E | 0.1 mg/m3 (dry) | N/E | N/E |
| SAWDUST 25% – 35% | N/E | N/E | 15 mg/m3 (dry) | N/E | N/E |

## SECTION 3 - PHYSICAL/CHEMICAL CHARACTERISTICS

| | |
|---|---|
| **Boiling Point: n/a** | **Bulk Density : 40 lbs/cubic foot** |
| **Vapor Pressure: N/E Max.** | **pH of Product : N/A** |
| **Vapor Density N/E** | **Evaporation Rate: N/E** |
| **Solubility in Water: partial** | **Volatile Organic Content ( VOC's) : < 10 g/L** |
| **Appearance and Odor: RED GRANULAR SOLID WITH SLIGHT ODOR** | |

## SECTION 4 - FIRE AND EXPLOSION HAZARD DATA

| FLAMMABILITY as per USA FLAME PROJECTION TEST | Auto Ignition Temperature | Flammability Limits in Air by % in Volume: |
|---|---|---|
| NON FLAMMABLE | N/E | NA |

| | |
|---|---|
| **FLASH POINT AND METHOD USED > 300 F (TCC)**<br>**SPECIAL FIRE FIGHTING PROCEDURES: Self-contained breathing apparatus.** | **EXTINGUISHER MEDIA: Foam, dry chemical, carbon dioxide, water.** |
| **Unusual Fire & Explosion Hazards: TOXIC FUMES MAY BE EMITTED IF MATERIAL IS EXPOSED TO EXTREME TEMPERATURES.** | |

## SECTION 5 - REACTIVITY HAZARD DATA

| | |
|---|---|
| **STABILITY [ X ] STABLE [ ] UNSTABLE** | **HAZARDOUS POLYMERIZATION [ ] WILL [ X ] WILL NOT OCCUR** |
| **Incompatibility (Mat. to avoid): VERY STRONG OXIDIZING AGENTS** | **Conditions to Avoid: KEEP AWAY FROM HEAT OR OPEN FLAME.** |
| **Hazardous Decomposition Products: Smoke, Carbon Monoxide, Carbon Dioxide and other Toxic Fumes.** | |

## SECTION 6 - HEALTH HAZARD DATA

**PRIMARY ROUTES OF ENTRY: [ X ] INHALATION [ ] INGESTION [ X ] SKIN ABSORPTION [ X ] EYE [ ] NOT HAZARDOUS**

| | |
|---|---|
| **ACUTE EFFECTS : None Known.** | |
| **Inhalation: Not Applicable.** | |
| **Eye Contact: Contact with eyes may result in severe eye irritation and possible damage of the Corneal. Redness and Tearing.** | **Skin Contact: Prolonged or Repeated skin contact may result in skin irritation leading to Dermatitis. Defatting of skin may also occur.** |
| **Ingestion: Not Applicable.** | |
| **CHRONIC EFFECTS: None Known.** | |
| **Medical Conditions Generally Aggravated by Exposure: None Known.** | |

## SECTION 7- EMERGENCY FIRST AID PROCEDURES

| |
|---|
| **Eye Contact: Remove contact lenses immediately. Flush eyes with plenty of water for at least 15 minutes. Get immediately medical attention.** |
| **Skin Contact: Wash skin with plenty of water. Remove contaminated clothing and wash before reuse. Get medical attention if needed.** |
| **Inhalation: Remove to fresh air if breathing becomes difficult.** |
| **Ingestion: Not Applicable.** |

## SECTION 8 – PERSONAL PROTECTION

| | |
|---|---|
| **Respiratory Protection (specify type): None needed if used in a properly ventilated area.** | |
| **Protective Gloves: Neoprene or Rubber Gloves.** | **Eye Protection: SAFETY GLASSES OR MONOGOGGLES.** |
| **Ventilation Requirements: GOOD VENTILATION SHOULD BE MAINTAINED.** | |
| **Other Protective Clothing & Equipment: NONE** | |
| **Hygienic Work Practices: Do not mix this product with other chemicals. Toxic Fumes may be emitted.** | |

## SECTION 9 – ACCIDENTAL RELEASE PROCEDURES

| |
|---|
| **Steps To Be Taken If Material Is Spilled Or Released: KEEP UNNECESSARY PEOPLE AWAY. CONTAIN WITH INERT MATERIAL. COLLECT FOR DISPOSAL.** |
| **Waste Disposal Methods: CONSULT LOCAL AUTHORITY FOR ALTERNATE METHODS. OBSERVE ALL LOCAL, STATE & FEDERAL REGULATIONS.** |
| **Precautions To Be Taken In Handling & Storage: STORE IN A COOL WELL VENTILATED AREA AWAY FROM SPARK, HEAT AND OPEN FLAME.** |
| **Other Precautions &/or Special Hazards: KEEP OUT OF REACH OF CHILDREN.** |

*We believe the statements, technical information and recommendations contained herein are reliable, but they are given without warranty or guarantee of any kind.*

** Chemical Listed as Carcinogen or Potential Carcinogen. [a] NTP [b] IARC Monograph [c] OSHA [d] Not Listed [e] Animal Data Only

# Safety Data Sheet (SDS)

Date Prepared/Revised: 5/2/2016 Version no.: 04 Supersedes: (7/27/2015)

## 1.) Identification of the Mixture and of the Company

Product identifier**: Aervoe Survey Marking Paint - Aerosol**

Product name: **Survey Marking Paint**

| Non-Fluorescent Colors | Fluorescent Colors | High Delivery | Metallic |
|---|---|---|---|
| 201 Red<br>202 Yellow<br>203 Blue<br>204 Green<br>205 Orange<br>206 Black<br>207 White<br>208 Hi Visibility Yellow<br>209 Light Blue<br>212 Purple<br>280 Concrete Gray | 220 Red<br>222 Orange<br>224 Green<br>226 Yellow<br>227 Blue<br>229 Pink<br>230 Red/Orange | 281 Red<br>288 Fluorescent Orange | 210 Silver |

Relevant identified uses of the substance: Designed to adhere to most surfaces, includ¬ing pavement, gravel, and soil.
Uses advised against: This aerosol product is designed to spray at an angle not greater than 30° from vertical. Do not use on turf surfaces.

| | |
|---|---|
| CAS No: | **Not Applicable (mixture)** |
| EC No: | **Not Applicable (mixture)** |
| Index No: | **Not Applicable (mixture)** |
| Manufacturer/Supplier: | **Aervoe Industries Incorporated** |
| Street address/P.O. Box: | **1100 Mark Circle** |
| Country ID/Postcode/Place | **Gardnerville, Nevada 89410** |
| Telephone number: | **001 (0) 1-775-782-0100** |
| e-mail: | **mailbox@aervoe.com** |
| National contact: | **Aervoe industries Incorporated** |
| For Product Information: | 00**1 (0) 1-800-227-0196** |
| Emergency telephone number: | **001 (0) 1-800-424-9300 (CHEMTREC – 24 hrs)**<br>**English Language Service** |

## 2. Hazards identification

**Classifications**

| | |
|---|---|
| Physical Hazards: | Aerosol - Category 1<br>Flam. Gas. 1<br>Press. Gas<br>Flam. Liq. 2<br>Flam. Liq. 3 * 210 Silver |

Date Prepared/Revised: 5/2/2016 Version no.: 04 Supersedes: (7/27/2015)

| | |
|---|---|
| Health Hazards: | Car 1B<br>Muta 1B<br>Asp Tox. 1<br>Eye Irrit. - 2<br>Rep. 2<br>Skin Irr. 2<br>STOT SE3<br>STOT RE 2<br>Acute Tox. 4 * 280 Concrete Gray |
| Environmental Hazards: | Aquatic Chronic 2 |

**Labeling**

| | |
|---|---|
| Signal Word: | Danger |
| Hazard Statements: | H220 – Extremely flammable gas<br>H222 – Extremely flammable aerosol<br>H225 – Highly flammable liquid and vapour.<br>H226 – Flammable liquid and vapour.<br>H229 - Pressurized container: may burst if heated<br>H304 – May be fatal if swallowed and enters airways.<br>H312 – Harmful in contact with skin. *280 Concrete Gray<br>H315 – Causes skin irritation.<br>H319 – Causes serious eye irritation.<br>H332 – Harmful if inhaled. * 280 Concrete Gray<br>H336 – May cause drowsiness or dizziness.<br>H340 – May cause genetic defects<br>H350 – May cause cancer<br>H361 – Suspected of damaging fertility or the unborn child .<br>H373 – May cause damage to nervous system through prolonged or repeated exposure(Inhalation)<br>H411 – Toxic to aquatic life with long lasting effects. |
| Precautionary Statements: | P101 - If medical advice is needed, have product container or label at hand<br>P102 - Keep out of reach of children<br>P103 - Read label before use<br>P210 - Keep away from heat/sparks/open flames/hot surfaces - no smoking<br>P211 - Do not spray on an open flame or other ignition source<br>P251 - Pressurized container: Do not pierce or burn, even after use<br>P261 - Avoid breathing dust/fume/gas/mist/vapours/spray<br>P262 - Do not get in eyes, on skin, or on clothing<br>P264 - Wash … thoroughly after handling<br>P280 - Wear protective gloves/eye protection/face protection |

P303+P361+P353 - If on skin or hair, remove/takeoff immediately all contaminated clothing. Rinse skin with water/shower.
P410+P412 - Protect from sunlight. Do not expose to temperatures exceeding 50ºC/122ºF
P501 - Dispose of contents/container in accordance with local/regional/national/international regulation

Symbols/Pictograms:

## 3. Composition / Information on Ingredients

### Composition

| Chemical | Synonyms | CAS Number | EINECS Number | Weight Percent | Hazard Category | H-Code |
|---|---|---|---|---|---|---|
| Hydrocarbon Propellant | LPG | 68476-86-8 | 270-705-8 | 10-30% | Press. Gas<br>Flam. Gas 1<br>Carc. 1B<br>Muta. 1B | H220<br>H350<br>H340 |
| Hexane | n-Hexane | 110-54-3 | 203-777-6 | 5-10% | Flam. Liq. 2<br>Repr. 2<br>Asp. Tox. 1<br>STOT RE 2 *<br>Skin Irrit. 2<br>STOT SE 3<br>Aquatic Chronic 2 | H225<br>H361f ***<br>H304<br>H373 **<br>H315<br>H336<br>H411 |
| Aliphatic Petroleum Distillates | Solvent Naphtha | 64742-89-8 | 265-192-2 | 5-10% | Carc. 1B<br>Muta. 1B<br>Asp. Tox. 1 | H350<br>H340<br>H304 |
| Aliphatic Petroleum Distillates | Solvent Naphtha | 64742-88-7 | 265-191-7 | 1-5% | Asp. Tox. 1 | H304 |
| Aliphatic Petroleum Distillates | Solvent Naphtha | 8032-32-4 | 232-453-7 | 1-5% | Carc. 1B<br>Muta. 1B<br>Asp. Tox. 1 | H350<br>H340<br>H304 |
| **Non-fluorescent colors also contain:** | | | | | | |
| Acetone | Propanone | 67-64-1 | 200-662-2 | 1-5% | Flam. Liq. 2<br>Eye Irrit. 2 | H225,<br>H319, |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | STOT SE 3 | H336 |
| Aliphatic Petroleum Distillates | Solvent Naphtha | 8052-41-3 | 232-489-3 | 1-5% | Carc. 1B<br>Muta. 1B<br>Asp. Tox. 1 | H350<br>H340<br>H304 |
| **210 silver contains:** | | | | | | |
| Hydrocarbon Propellant | LPG | 68476-86-8 | 270-705-8 | 10-30% | Press. Gas<br>Flam. Gas 1<br>Carc. 1B<br>Muta. 1B | H220<br>H350<br>H340 |
| Acetone | Propanone | 67-64-1 | 200-662-2 | 30-60% | Flam. Liq. 2<br>Eye Irrit. 2<br>STOT SE 3 | H225,<br>H319,<br>H336 |
| Aliphatic Petroleum Distillates | Solvent Naphtha | 8052-41-3 | 232-489-3 | 1-5% | Carc. 1B<br>Muta. 1B<br>Asp. Tox. 1 | H350<br>H340<br>H304 |
| n-Butyl Acetate | n-Butyl Ester | 123-86-4 | 204-658-1 | 1-5% | Flam. Liq. 3<br>STOT SE 3 | H226<br>H336 |
| Aliphatic Petroleum Distillates | Solvent Naphtha | 64742-89-8 | 265-192-2 | 10-30% | Carc. 1B<br>Muta. 1B<br>Asp. Tox. 1 | H350<br>H340<br>H304 |
| Aliphatic Petroleum Distillates | Solvent Naphtha | 64742-88-7 | 265-191-7 | 7-13% | Asp. Tox. 1 | H304 |
| **280 Concrete Gray contains:** | | | | | | |
| Hydrocarbon Propellant | LPG | 68476-86-8 | 270-705-8 | 10-30% | Press. Gas<br>Flam. Gas 1<br>Carc. 1B<br>Muta. 1B | H220<br>H350<br>H340 |
| Hexane | n-Hexane | 110-54-3 | 203-777-6 | 5-10% | Flam. Liq. 2<br>Repr. 2<br>Asp. Tox. 1<br>STOT RE 2 *<br>Skin Irrit. 2<br>STOT SE 3<br>Aquatic Chronic 2 | H225<br>H361f ***<br>H304<br>H373 **<br>H315<br>H336<br>H411 |
| Aliphatic Petroleum Distillates | Solvent Naphtha | 64742-89-8 | 265-192-2 | 5-10% | Carc. 1B<br>Muta. 1B<br>Asp. Tox. 1 | H350<br>H340<br>H304 |
| n-Butyl Acetate | n-Butyl Ester | 123-86-4 | 204-658-1 | 1-5% | Flam. Liq. 3<br>STOT SE 3 | H226<br>H336 |
| Acetone | Propanone | 67-64-1 | 200-662-2 | 1-5% | Flam. Liq. 2<br>Eye Irrit. 2<br>STOT SE 3 | H225,<br>H319,<br>H336 |
| Ethyl Acetate | Ethanoate | 141-78-6 | 205-500-4 | 1-5% | Flam. Liq. 2<br>Eye Irrit. 2<br>STOT SE 3 | H225<br>H319<br>H336 |
| 2-Butoxyethyl Acetate | Butyl Glycol Acetate | 112-07-2 | 203-933-3 | 1-5% | Acute Tox. 4 *<br>Acute Tox. 4 * | H332<br>H312 |

**Other Product Information**

Chemical Identity: Mixture

## 4.) First Aid Measures

| | |
|---|---|
| **General Advice:** | If symptoms persist, always call a doctor. |
| **Inhalation First Aid:** | Remove victim to fresh air and provide oxygen if breathing is difficult. If not breathing, give artificial respiration, preferably mouth to mouth. Get medical attention immediately. |
| **Skin Contact First Aid:** | Wash with soap and water. Remove contaminated clothing and shoes. Get medical attention immediately. Wash clothing before reuse. |
| **Eye Contact First Aid:** | If contact with eyes, immediately flush eyes with plenty of water for at least 15 minutes, while holding eyelids open. Get medical attention immediately. |
| **Ingestion First Aid:** | If swallowed, wash out mouth with water provided the person is conscious. Do not induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention immediately. |
| **Most Important Symptoms/Effects:** | Exposure may cause slight irritation to the skin, eyes, and respiratory tract. Excessive exposure may cause central nervous system effects. |

## 5. Fire Fighting Measures

| | |
|---|---|
| Flammable Properties: | Aerosol |
| Auto Ignition Temperature: | Not Available |
| Suitable extinguishing media: | Carbon dioxide, dry chemical, water spray. |
| Unsuitable extinguishing media: | None known |
| Special hazards arising from the substance or mixture: | None known |
| Hazardous combustion products: | Carbon dioxide, Carbon monoxide |
| Fire & Explosion Hazards: | Closed Containers may rupture due to the buildup of pressure from extreme temperatures. |
| Precautions for fire-fighters: | Use water spray to cool containers exposed to heat or fire to prevent pressure build up. In the event of a fire, wear full protective clothing and NIOSH- approved self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode. |

## 6. Accidental Release Measures

**PERSONAL PRECAUTIONARY MEASURES:**

1) Follow personal protective equipment recommendations found in section 8.
2) Maintain adequate ventilation.

**SPILL CLEAN-UP PROCEDURES:**

1.) Evacuate unprotected personnel from the area.

2.) Remove sources of ignition if safe to do so.
3.) Pickup spilled materials using non-sparking tools and place in an appropriate container for disposal.
4.) Contain spill to prevent material from entering sewage or ground water systems.
5.) Always dispose of waste materials in accordance with all EU, National and Local Regulations.

## 7. Handling and Storage

**Handling**:

Flammable Aerosol, use in a well ventilated area.
Do not use near sources of ignition.
Do not to eat, drink and smoke while working with this material.
Wash hands after use.

**Conditions for safe storage, including any incompatibilities:**

Store out of direct sunlight.
Storage Temperature: 32° to 120°F (0° to 49°C).
No known incompatibilities.

## 8. Exposure Controls / Personal Protection

**Appropriate engineering controls:**
Ensure adequate ventilation. A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits.
Keep away from sources of ignition.
Take precautionary measures against static discharge.

**Personal Protection:**
Eye & face protection devices such as safety glasses, safety goggles or face shield are recommended.

**Skin protection**
Wear the appropriate protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

**Respiratory protection:**
Use only in an adequately ventilated area. For unknown vapor concentrations use a positive-pressure, pressure-demand, self-contained breathing apparatus (SCBA).

| Hazardous Ingredient | CAS Number | ACGIH TLV (TWA) | ACGIH TLV (STEL) | OSHA PEL (TWA) | OSHA PEL (STEL) |
|---|---|---|---|---|---|
| Aliphatic Petroleum Distillates | 64742-88-7 | N/AV | N/AV | N/AV | N/AV |
| Aliphatic Petroleum Distillates | 64742-89-8 | N/AV | N/AV | N/AV | N/AV |
| Hydrocarbon Propellant | 68476-86-8 | N/AV | N/AV | N/AV | N/AV |
| Aliphatic Petroleum Distillates | 8032-32-4 | 200ppm | 300ppm | 200ppm | N/AV |
| Hexane | 110-54-3 | 50ppm | N/AV | 500ppm | N/AV |
| Acetone | 67-64-1 | 500ppm | 750ppm | 1000ppm | N/AV |
| Aliphatic Hydrocarbon | 8052-41-3 | 100ppm | N/AV | 500ppm | N/AV |

| | | | | | |
|---|---|---|---|---|---|
| n-Butyl Acetate | 123-86-4 | 150ppm | 200ppm | 150ppm | N/AV |
| Aliphatic Petroleum Distillates | 64742-47-8 | N/AV | N/AV | N/AV | N/AV |
| Ethyl Acetate | 141-78-6 | 400ppm | N/AV | 400ppm | N/AV |
| 2-Butoxyethyl Acetate | 112-07-2 | 20ppm | N/AV | N/AV | N/AV |

***Values are based on the 2014 Guide to Occupational Exposure Values by ACGIH**

## 9. Information on Basic Physical and Chemical Properties

| | |
|---|---|
| Appearance: Color varies by product. | Odor: Hydrocarbon Odor |
| Odor Threshold: N/AV | pH: Not Applicable (solvent Base) |
| Melting Point: N/AV | Freezing Point: N/AV |
| Initial Boiling Point: N/AV | Boiling Point Range: N/AV |
| Flash Point: <0° F (-18° C) | Evaporation Rate: Faster than n-Butyl Acetate |
| Flammability Solid/Gas: Flammable gas | Upper LEL: 1% Lower LEL: 13% |
| Vapor Pressure: N/AV | Vapor Density: Heavier Than Air |
| Relative Density: N/AV | Solubility: Negligible |
| Partition Coefficient: n-octanol/ water: N/AV | Auto-ignition Temperature: N/AV |
| Decomposition Temperature: N/AV | Viscosity: N/AV |
| Explosive Properties: N/AV | Oxidizing Properties: N/AV |

## 10. Stability & Reactivity

Possibility of hazardous reactions: Hazardous polymerization will not occur under normal conditions
Chemical stability: Stable under normal conditions
Conditions to avoid: Heat and ignition sources
Incompatible materials: Strong Oxidizing Agents
Hazardous decomposition products: Will not occur

## 11. Toxicological Information

Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage. Repeated overexposure can also damage kidneys, lungs, liver, heart and blood

Routes of exposure: Eyes, skin, ingestion, and/or inhalation

Acute toxicological data: (Acetone) Acute oral LD50: 5800mg/kg(rat)
(Acetone) LC50: 21000 ppm / 8 hr (rat)
(Hexane) LD50: 2870 mg/kg (Rat-Oral)

Eye irritation data: N/AV

Skin irritation/sensitization/absorption data: N/AV

| | |
|---|---|
| Reproductive toxicity data: | N/AV |
| Mutagenicity data: | Muta 1B |
| Symptoms associated with physical contact: | N/AV |
| Acute/chronic effects from short/long term exposure: | Irritating to skin. Prolonged/repeated contact may cause defatting of the skin which can lead to dermatitis. Not expected to be a skin sensitizer. |
| Known reportable carcinogens via the following agencies: | |
| NTP: | N/AV |
| IARC: | IARC3:Classification not possible from current data |
| OSHA: | TLV-A4 |

* Petroleum distillates may contain chemical carcinogens in limited quantities (< 0.01%). These quantities are determined by the supplier/fraction/purity of the distillate during the manufacturing process. Chemicals that may be present within distillates are listed on California's prop 65 list such as ETHYLBENZENE, BENZENE, and TOLUENE.

## 12. Ecological Information

Ecotoxicity: **No Data Available**
Persistence and degradability: **No Data Available**
Bioaccumulative potential: **No Data Available**
Mobility in soil: **No Data Available**
Results of PBT and vPvB assessment: **No Data Available**
Other adverse effects: **No Data Available**

## 13. Disposal Considerations

**Waste Disposal:** Dispose of material in accordance with EU, national and local requirements. For proper disposal of used material, an assessment must be completed to determine the proper and permissible waste management options permitted under applicable rules, regulations and/or laws governing your location.
**Product / Packaging disposal:** Dispose of packaging in accordance with federal, state and local requirements, regulations and/or laws governing your location.

## 14. Transportation Information

**US DOT**

| UN Number | Proper Shipping Name | Hazard Class | Packing Group | Marine Pollutant | Special Provisions |
|---|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| UN1950 | Aerosols | 2.1 | Not Applicable | Not Applicable | Reference 49 CFR 172.101 |

**IMDG**

| UN Number | Proper Shipping Name | Hazard Class | Packing Group | Marine Pollutant | Special Provisions |
|---|---|---|---|---|---|
| UN1950 | Aerosols | 2.1 | Not Applicable | Not Applicable | Reference IMDG code part 3 |

**IATA:**

| UN Number | Proper Shipping Name | Hazard Class | Packing Group | Marine Pollutant | Special Provisions |
|---|---|---|---|---|---|
| UN1950 | Aerosols, Flammable | 2.1 | Not Applicable | Not Applicable | Reference IATA Dangerous Goods Regulation |

## 15. Regulatory Information

**Workplace classification:**
This product is considered hazardous under the OSHA Hazard Communication Standard (29 CFR 1910.1200). The Occupational Safety and Health Administration's interpretation of the product's hazard to workers.
**SARA Title 3:**
Section 311/312 Categorizations (40 CFR 372): This product is a hazardous chemical under 29 CFR 1910.1200, and is categorized as an immediate and delayed health, and flammability physical hazard. Superfund Amendment and Reauthorization Act (SARA) category. SARA requires reporting any spill of any hazardous substance.
**TSCA status:** All chemicals in this product are listed, or are exempt from listing, on the TSCA Inventory.
**WHMIS:** This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the (M)SDS contains all of the information required by the CPR.
**PROP 65 (CA):** WARNING: This product may contain chemicals know to the state of California to cause cancer, birth defects or other reproductive harm.

## 16. Other Information

This SDS has been completed in accordance with GHS Rev04 (2011): U.S OSHA, CMA, ANSI, Canadian WHMIS standards, and European Directives.

Date of Preparation/Revision: 5/2/2016
Supersedes: (7/27/2015)

To the best of our knowledge, the information contained herein is believed to be accurate. However, the above data does not imply any guarantee or warranty of any kind, expressed or implied. The final

determination of the suitability of any material is the sole responsibility of the user. All materials made present un-known hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee these are the only hazards existing.

# Material Safety Data Sheet

## SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

## CHEVRON and TEXACO REGULAR UNLEADED GASOLINES

**Product Use:** Fuel
**Product Number(s):** CPS201000 [See Section 16 for Additional Product Numbers]
**Synonyms:** Calco Regular Unleaded Gasoline, Chevron Regular Unleaded Gasoline, Chevron UL/CQ Gasoline, Gasolines, Automotive, Texaco Unleaded Gasoline
**Company Identification**
Chevron Products Company
Marketing, MSDS Coordinator
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**
MSDS Requests: http://www.chevron.com/contact
Technical Information: (510) 242-5357

SPECIAL NOTES: This MSDS applies to: all motor gasoline.

## SECTION 2 HAZARDS IDENTIFICATION

**********

### *EMERGENCY OVERVIEW*

- EXTREMELY FLAMMABLE LIQUID AND VAPOR. VAPOR MAY CAUSE FLASH FIRE
- CAUSES SKIN IRRITATION
- HARMFUL OR FATAL IF SWALLOWED - MAY CAUSE LUNG DAMAGE IF SWALLOWED
- MAY CAUSE DIZZINESS, DROWSINESS AND REDUCED ALERTNESS
- MAY CAUSE RESPIRATORY TRACT IRRITATION IF INHALED
- MAY CAUSE CANCER BASED ON ANIMAL DATA
- KEEP OUT OF REACH OF CHILDREN
- TOXIC TO AQUATIC ORGANISMS. MAY CAUSE LONG-TERM ADVERSE EFFECTS IN THE AQUATIC ENVIRONMENT

**********

**IMMEDIATE HEALTH EFFECTS**
**Eye:** Not expected to cause prolonged or significant eye irritation.

**Skin:** Contact with the skin causes irritation. Skin contact may cause drying or defatting of the skin. Contact with the skin is not expected to cause an allergic skin response. Symptoms may include pain, itching, discoloration, swelling, and blistering. Not expected to be harmful to internal organs if absorbed through the skin.
**Ingestion:** Because of its low viscosity, this material can directly enter the lungs, if swallowed, or if subsequently vomited. Once in the lungs it is very difficult to remove and can cause severe injury or death.
**Inhalation:** The vapor or fumes from this material may cause respiratory irritation. Symptoms of respiratory irritation may include coughing and difficulty breathing. Excessive or prolonged breathing of this material 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:** This material is not expected to cause birth defects or other harm to the developing fetus based on animal data.
**Cancer:** Prolonged or repeated exposure to this material may cause cancer. Contains naphthalene, which has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC). Gasoline has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC).

Contains benzene, which has been classified as a carcinogen by the National Toxicology Program (NTP) and a Group 1 carcinogen (carcinogenic to humans) by the International Agency for Research on Cancer (IARC).
Contains ethylbenzene which has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC).
Whole gasoline exhaust has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC).

Contains benzene, which has been classified as an A1 Group Confirmed Human Carcinogen by the American Conference of Governmental Industrial Hygienists (ACGIH).
See Section 11 for additional information. Risk depends on duration and level of exposure.

## SECTION 3 COMPOSITION/ INFORMATION ON INGREDIENTS

| COMPONENTS | CAS NUMBER | AMOUNT |
|---|---|---|
| Gasoline | 86290-81-5 | 100 %vol/vol |
| Benzene | 71-43-2 | 0.1 - 4.9 %vol/vol |
| Toluene (methylbenzene) | 108-88-3 | 1 - 35 %vol/vol |
| Ethyl benzene | 100-41-4 | 0.1 - 3 %vol/vol |
| Xylene (contains o-, m-, & p- xylene isomers in varying amounts) | 1330-20-7 | 1 - 15 %vol/vol |
| Butane | 106-97-8 | 1 - 12 %vol/vol |
| Heptane | 142-82-5 | 1 - 4 %vol/vol |
| Hexane | 110-54-3 | 1 - 5 %vol/vol |
| Cyclohexane | 110-82-7 | 1 - 3 %vol/vol |
| Methylcyclohexane | 108-87-2 | 1 - 2 %vol/vol |
| Pentane, 2,2,4-trimethyl- (Isooctane) | 540-84-1 | 1 - 13 %vol/vol |
| Naphthalene | 91-20-3 | 0.1 - 2 %vol/vol |
| Ethanol | 64-17-5 | 0 - 10 %vol/vol |
| Methyl tert-butyl ether (MTBE) | 1634-04-4 | <= 0.1 %vol/vol |

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

**Eye:** No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.
**Skin:** Wash skin with water immediately and remove contaminated clothing and shoes. Get medical attention if any symptoms develop. 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 or if any other symptoms develop.
**Note to Physicians:** Ingestion of this product or subsequent vomiting may result in aspiration of light hydrocarbon liquid, which may cause pneumonitis.

## SECTION 5 FIRE FIGHTING MEASURES

See Section 7 for proper handling and storage.

**FLAMMABLE PROPERTIES:**
**Flashpoint:** (Tagliabue Closed Cup ASTM D56) < -45 °C (< -49 °F)
**Autoignition:** > 280 °C (> 536 °F)
**Flammability (Explosive) Limits (% by volume in air):** Lower: 1.4 Upper: 7.6 (Typical)

**EXTINGUISHING MEDIA:** Dry Chemical, CO2, AFFF Foam or alcohol resistant foam if >15% volume polar solvents (oxygenates).

**PROTECTION OF FIRE FIGHTERS:**
**Fire Fighting Instructions:** Use water spray to cool fire-exposed containers and to protect personnel. 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 the vicinity of the spill or released vapor. If this material is released into the work area, evacuate the area immediately. Monitor area with combustible gas indicator.
**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. All equipment used when handling the product must be grounded. A vapor suppressing foam may be used to reduce vapors. Use clean non-sparking tools to collect absorbed material. 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. This product presents an extreme fire hazard. Liquid very quickly evaporates, even at low temperatures, and forms vapor (fumes) which can catch fire and burn with explosive violence. Invisible vapor spreads easily and can be set on fire by many sources such as pilot lights, welding equipment, and electrical motors and switches. Do not taste or swallow. Do not breathe vapor or fumes. Never siphon gasoline by mouth.
Do not store in open or unlabeled containers. READ AND OBSERVE ALL PRECAUTIONS ON PRODUCT LABEL. 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'. Improper filling of portable gasoline containers creates danger of fire. Only dispense gasoline into approved and properly labeled gasoline containers. Always place portable containers on the ground. Be sure pump nozzle is in contact with the container while filling. Do not use a nozzle's lock-open device. Do not fill portable containers that are inside a vehicle or truck/trailer bed.

**General Storage Information:** DO NOT USE OR STORE near heat, sparks, flames, or hot surfaces . USE AND STORE ONLY IN WELL VENTILATED AREA. Keep container closed when not in use.
**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 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:** Wear protective clothing to prevent skin contact. Selection of protective clothing may include gloves, apron, boots, and complete facial protection depending on operations conducted. Suggested materials for protective gloves include: Chlorinated Polyethylene (or Chlorosulfonated Polyethylene), Nitrile Rubber, Polyurethane, Viton.

**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.

When used as a fuel, this material can produce carbon monoxide in the exhaust. Determine if airborne concentrations are below the occupational exposure limit for carbon monoxide. If not, wear an approved positive-pressure air-supplying respirator.

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 |
|---|---|---|---|---|---|
| Benzene | ACGIH | .5 ppm (weight) | 2.5 ppm (weight) | -- | Skin A1 Skin |
| Benzene | CVX | 1 ppm (weight) | 5 ppm (weight) | -- | -- |
| Butane | ACGIH | 1000 ppm (weight) | -- | -- | -- |
| Cyclohexane | ACGIH | 100 ppm (weight) | -- | -- | -- |
| Ethanol | ACGIH | 1000 ppm (weight) | -- | -- | A4 A3 |
| Ethyl benzene | ACGIH | 20 ppm (weight) | 125 ppm (weight) | -- | A3 |
| Gasoline | ACGIH | 300 ppm (weight) | 500 ppm (weight) | -- | A3 |
| Heptane | ACGIH | 400 ppm (weight) | 500 ppm (weight) | -- | -- |
| Hexane | ACGIH | 50 ppm (weight) | -- | -- | Skin |
| Methyl tert-butyl ether (MTBE) | ACGIH | 50 ppm (weight) | -- | -- | A3 |
| Methyl tert-butyl ether (MTBE) | CVX | -- | 50 ppm | -- | -- |
| Methylcyclohexane | ACGIH | 400 ppm (weight) | -- | -- | -- |
| Naphthalene | ACGIH | 10 ppm (weight) | 15 ppm (weight) | -- | Skin |
| Pentane, 2,2,4-trimethyl- (Isooctane) | ACGIH | 300 ppm (weight) | -- | -- | -- |
| Toluene (methylbenzene) | ACGIH | 50 ppm (weight) | -- | -- | Skin A4 |
| Xylene (contains o-, m-, & p- xylene isomers in varying amounts) | ACGIH | 100 ppm (weight) | 150 ppm (weight) | -- | A4 |

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:** Colorless to yellow
**Physical State:** Liquid
**Odor:** Petroleum odor
**pH:** Not Applicable
**Vapor Pressure:** 5 psi - 15 psi (Typical) @ 37.8 °C (100 °F)
**Vapor Density (Air = 1):** 3 - 4 (Typical)
**Boiling Point:** 37.8°C (100°F) - 204.4°C (400°F) (Typical)
**Solubility:** Insoluble in water; miscible with most organic solvents.
**Freezing Point:** Not Applicable
**Melting Point:** Not Applicable
**Specific Gravity:** 0.7 g/ml - 0.8 g/ml @ 15.6°C (60.1°F) (Typical)
**Viscosity:** <1 SUS @ 37.8°C (100°F)
**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:** None known (None expected)
**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:** For a 4-hour exposure, the Primary Irritation Index (PII) in rabbits is: 4.8/8.0.
**Skin Sensitization:** This material did not cause skin sensitization reactions in a Buehler guinea pig test.
**Acute Dermal Toxicity:** LD50: >3.75g/kg (rabbit).
**Acute Oral Toxicity:** LD50: >5 ml/kg (rat)
**Acute Inhalation Toxicity:** 4 hour(s) LD50: >20000mg/m3 (rat). For additional information on the acute toxicity of the components, call the technical information center.**Subchronic Effects:** Exposure of rats for 13 weeks (6 hr/day for 5 days/week) to the light ends of gasoline (up to 20,000 mg/m3) resulted in minimal responses of toxicity. There were no indications of neurotoxicity based morphological, functional and biochemical indices. There was also no evidence of immunotoxicity in the rats. However, when rats were exposed to gasoline vapor containing ethanol up to 20,000 mg/m3 there was evidence of both humoral immune suppression and mild astrogliosis. **Reproduction and Birth Defects:** Exposure of rats to the light ends of gasoline at up to 20,000 mg/m3 had generally no impact upon reproductive abilities and did not

cause birth defects. **Genetic Toxicity:** Gasoline was not mutagenic, with or without activation, in the Ames assay (Salmonella typhimurium), Saccharamyces cerevisesae, or mouse lymphoma assays. In addition, point mutations were not induced in human lymphocytes. Gasoline was not mutagenic when tested in the mouse dominant lethal assay. Administration of gasoline to rats did not cause chromosomal aberrations in their bone marrow cells. Inhalation exposure of rats to the light ends of gasoline caused increased sister chromatid exchange in their peripheral white blood cells but did not cause an increase in micronucleated red blood cells in their bone marrow.

**ADDITIONAL TOXICOLOGY INFORMATION:**

Gasolines are highly volatile and can produce significant concentrations of vapor at ambient temperatures. Gasoline vapor is heavier than air and at high concentrations may accumulate in confined spaces to present both safety and health hazards. When vapor exposures are low, or short duration and infrequent, such as during refueling and tanker loading/unloading, neither total hydrocarbon nor components such as benzene are likely to result in any adverse health effects. In situations such as accidents or spills where exposure to gasoline vapor is potentially high, attention should be paid to potential toxic effects of specific components. Information about specific components in gasoline can be found in Sections 2/3, 8 and 15 of this MSDS. More detailed information on the health hazard of specific gasoline components can be obtained calling the Chevron Emergency Information Center (see Section 1 for phone numbers).

Pathological misuse of solvents and gasoline, involving repeated and prolonged exposure to high concentrations of vapor is a significant exposure on which there are many reports in the medical literature. As with other solvents, persistent abuse involving repeated and prolonged exposures to high concentrations of vapor has been reported to result in central nervous system damage and eventually, death. In a study in which ten human volunteers were exposed for 30 minutes to approximately 200, 500 or 1000 ppm concentrations of gasoline vapor, irritation of the eyes was the only significant effect observed, based on both subjective and objective assessments.

Lifetime inhalation of wholly vaporized unleaded gasoline at 2056 ppm has caused increased liver tumors in female mice and kidney cancer in male rats. In their 1988 review of carcinogenic risk from gasoline, The International Agency for Research on Cancer (IARC) noted that, because published epidemiology studies did not include any exposure data, only occupations where gasoline exposure may have occurred were reviewed. These included gasoline service station attendants and automobile mechanics. IARC also noted that there was no opportunity to separate effects of combustion products from those of gasoline itself. Although IARC allocated gasoline a final overall classification of Group 2B, i.e. possibly carcinogenic to humans, this was based on limited evidence in experimental animals plus supporting evidence including the presence in gasoline of benzene. The actual evidence for carcinogenicity in humans was considered inadequate.

To explore the health effects of workers potentially exposed to gasoline vapors in the marketing and distribution sectors of the petroleum industry, the American Petroleum Institute sponsored a cohort mortality study (Publication 4555), a nested case-control study (Publication 4551), and an exposure assessment study (Publication 4552). Histories of exposure to gasoline were reconstructed for cohort of more than 18,000 employees from four companies for the time period between 1946 and 1985. The results of the cohort mortality study indicated that there was no increased mortality from either kidney cancer or leukemia among marketing and marine distribution employees who were exposed to gasoline in the petroleum industry, when compared to the general population. More importantly, based on internal comparisons, there was no association between mortality from kidney cancer or leukemia and various indices of gasoline exposure. In particular, neither duration of employment, duration of exposure, age at first exposure, year of first exposure, job category, cumulative exposure, frequency of peak exposure, nor average intensity of exposure had any effect on kidney cancer or leukemia mortality. The results of the nested case-control study confirmed the findings of the original cohort study. That is, exposure to gasoline at the levels experienced by this cohort of distribution workers is not a significant risk factor for leukemia (all cell types), acute myeloid leukemia, kidney cancer or multiple myeloma.

## SECTION 12 ECOLOGICAL INFORMATION

**ECOTOXICITY**

96 hour(s) LC50: 2.7 mg/l (Oncorhynchus mykiss)
48 hour(s) LC50: 3.0 mg/l (Daphnia magna)
96 hour(s) LC50: 8.3 mg/l (Cyprinodon variegatus)
96 hour(s) LC50: 1.8 mg/l (Mysidopsis bahia)
This material is expected to be toxic to aquatic organisms and may cause long-term adverse effects in the aquatic environment. Gasoline studies have been conducted in the laboratory under a variety of test conditions with a range of fish and invertebrate species. An even more extensive database is available on the aquatic toxicity of individual aromatic constituents. The majority of published studies do not identify the type of gasoline evaluated, or even provide distinguishing characteristics such as aromatic content or presence of lead alkyls. As a result, comparison of results among studies using open and closed vessels, different ages and species of test animals and different gasoline types, is difficult.

The bulk of the available literature on gasoline relates to the environmental impact of monoaromatic (BTEX) and diaromatic (naphthalene, methylnaphthalenes) constituents. In general, non-oxygenated gasoline exhibits some short-term toxicity to freshwater and marine organisms, especially under closed vessel or flow-through exposure conditions in the laboratory. The components which are the most prominent in the water soluble fraction and cause aquatic toxicity, are also highly volatile and can be readily biodegraded by microorganisms.

**ENVIRONMENTAL FATE**
**Ready Biodegradability:** This material is expected to be readily biodegradable. Following spillage, the more volatile components of gasoline will be rapidly lost, with concurrent dissolution of these and other constituents into the water. Factors such as local environmental conditions (temperature, wind, mixing or wave action, soil type, etc), photo-oxidation, biodegradation and adsorption onto suspended sediments, can contribute to the weathering of spilled gasoline.

The aqueous solubility of non-oxygenated unleaded gasoline, based on analysis of benzene, toluene, ethylbenzene+xylenes and naphthalene, is reported to be 112 mg/l. Solubility data on individual gasoline constituents also 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 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:** UN1203, GASOLINE, 3, II

**IMO/IMDG Shipping Description:** UN1203, GASOLINE, 3, II, FLASH POINT SEE SECTION 5

**ICAO/IATA Shipping Description:** UN1203, GASOLINE, 3, II

**DOT Shipping Description:** UN1203, GASOLINE, 3, II

## 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.

| | |
|---|---|
| Benzene | 01-1, 35 |
| Butane | 35 |
| Cyclohexane | 35 |
| Ethanol | 01-1, 35 |
| Ethyl benzene | 01-2B, 35 |
| Gasoline | 01-2B |
| Heptane | 35 |
| Hexane | 35 |
| Methylcyclohexane | 35 |
| Naphthalene | 01-2B, 35 |
| Pentane, 2,2,4-trimethyl- (Isooctane) | 35 |
| Toluene (methylbenzene) | 35 |
| Xylene (contains o-, m-, & p- xylene isomers in varying amounts) | 35 |

**WHMIS CLASSIFICATION:**
Class B, Division 2: Flammable Liquids
Class D, Division 2, Subdivision A: Very Toxic Material - Carcinogenicity
Class D, Division 2, Subdivision B: Toxic Material - Skin or Eye Irritation
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.

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:** MAY 10, 2011

## SECTION 16 OTHER INFORMATION

**HMIS RATINGS:** Health: 2* Flammability: 3 Reactivity: 0

**Additional Product Number(s):** CPS201023, CPS201054, CPS201055, CPS201075, CPS201090, CPS201105, CPS201106, CPS201120, CPS201121, CPS201122, CPS201126, CPS201128, CPS201131, CPS201136, CPS201141, CPS201142, CPS201148, CPS201153, CPS201158, CPS201161, CPS201162, CPS201168, CPS201175, CPS201181, CPS201185, CPS201186, CPS201188, CPS201216, CPS201217, CPS201218, CPS201236, CPS201237, CPS201238, CPS201266, CPS201267, CPS201268, CPS201277, CPS201278, CPS201279, CPS201286, CPS201287, CPS201289, CPS201296, CPS201297, CPS201298, CPS201849, CPS201850, CPS201855, CPS201856, CPS201857, CPS204000, CPS204001, CPS204002, CPS204003, CPS204010, CPS204011, CPS204022, CPS204023, CPS204046, CPS204047, CPS204070, CPS204071, CPS204088, CPS204089, CPS204104, CPS204105, CPS204116, CPS204117, CPS204140, CPS204141, CPS204164, CPS204165, CPS204188, CPS204189, CPS204200, CPS204201, CPS204207, CPS204212, CPS204213, CPS204224, CPS204225, CPS204248, CPS204249, CPS204272, CPS204273, CPS204290, CPS204291, CPS204322, CPS204323, CPS204324, CPS204350, CPS204352, CPS204354, CPS204356, CPS204358, CPS204359, CPS204364, CPS204365, CPS204370, CPS204371, CPS204376, CPS204377, CPS204382, CPS204383, CPS204388, CPS204389, CPS204394, CPS204395, CPS204400, CPS204401, CPS204406, CPS204407, CPS204412, CPS204413, CPS204418, CPS204419, CPS204424, CPS204425, CPS204430, CPS204431, CPS204436, CPS204437, CPS204442, CPS204446, CPS204450, CPS204454, CPS204458, CPS204462, CPS204466, CPS204467, CPS204484, CPS204485, CPS204502, CPS204503, CPS204520, CPS204521, CPS204538, CPS204539, CPS204556, CPS204557, CPS204574, CPS204575, CPS204592, CPS204593, CPS204610, CPS204611, CPS204628, CPS204629, CPS204646, CPS204647, CPS204664, CPS204665, CPS204682, CPS204690, CPS204691, CPS204696, CPS204697, CPS204702, CPS204703, CPS204708, CPS204709, CPS204721, CPS204722, CPS204727, CPS204728, CPS204739, CPS241765

**REVISION STATEMENT:** This revision updates the following sections of this Material Safety Data Sheet: 2, 3, 4, 8, 11, 15

**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 Governmental 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.**

| | | | |
|---|---|---|---|
| **Date:** | **2/15/2011** | **MSDS No.:** | **US-M210** |
| **Trade Name:** | **Fleetweld 5P+** | | |
| **Sizes:** | **All** | | |
| **Supersedes:** | **3/19/2008** | | |

# MATERIAL SAFETY DATA SHEET

## For Welding Consumables and Related Products

**Conforms to Hazard Communication Standard 29CFR 1910.1200 Rev. October 1988**

## SECTION I - IDENTIFICATION

**Manufacturer/ Supplier:** **The Lincoln Electric Company**
**22801 St. Clair Avenue**
**Cleveland, OH 44117-1199**
**(216) 481-8100**

**Product Type:** **Covered Electrode**

**Classification:** **AWS E6010**

## SECTION II - HAZARDOUS MATERIAL (1)

**I M P O R T A N T !**

**This section covers the materials from which this product is manufactured. The fumes and gases produced during welding with the normal use of this product are covered by Section V; see it for industrial hygiene information.**
**CAS Number shown is representative for the ingredients listed. All ingredients listed may not be present in all sizes.**
**(1) The term "hazardous" in "Hazardous Materials" should be interpreted as a term required and defined in the Hazards Communication Standard and does not necessarily imply the existence of any hazard. All materials are listed on the TSCA inventory.**

| Ingredients: | CAS No. | Wt.% | TLV $mg/m^3$ | PEL $mg/m^3$ |
|---|---|---|---|---|
| **Cellulose and other carbohydrates** | **65996-61-4** | **5** | **10*** | **15*** |
| **Silicates and other binders** | **1344-09-8** | **< 5** | **10*** | **15*** |
| **Titanium dioxides** | **13463-67-7** | **< 5** | **10** | **15** |
| **Iron** | **7439-89-6** | **< 5** | **10*** | **15*** |
| **Limestone and/or calcium carbonate** | **1317-65-3** | **< 5** | **10*** | **15** |
| **Manganese and/or manganese alloys and compounds (as Mn)*****| **7439-96-5** | **1** | **0.2** | **5 (c)** |
| **Iron oxides** | **65996-74-9** | **< 0.5** | **5** | **10** |
| **Silicon and/or silicon alloys and compounds (as Si)** | **7440-21-3** | **< 0.5** | **10*** | **15*** |
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| **Carbon steel core wire** | **7439-89-6** | **85** | **10*** | **10*** |
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**Supplemental Information:**

**(*)** **Not listed. The OSHA PEL for nuisance particles is 15 milligrams per cubic meter. The ACGIH guideline for total particulate is 10 milligrams per cubic meter. PEL value for iron oxide is 10 milligrams per cubic meter. TLV value for iron oxides is 5 milligrams per cubic meter.**

**(*****)** **Subject to the reporting requirements of Sections 311, 312, and 313 of the Emergency Planning and Community Right-to-Know Act of 1986 and of 40CFR 370 and 372.**

**(c)** **Value is for manganese fume. Present PEL is 5 milligrams per cubic meter (ceiling value). Values proposed by OSHA in 1989 were 1.0 milligrams per cubic meter TWA and 3.0 milligrams per cubic meter STEL (Short Term Exposure Limit).**

## SECTION III - HAZARD DATA

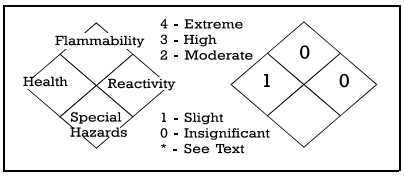
Non Flammable; Welding arc and sparks can ignite combustibles and flammable products. See Z49.1 referenced in Section VI.
Product is inert, no special handling or spill procedures required. Not regulated by DOT.



**(CONTINUED ON SIDE TWO)**

**Product:** **Fleetweld 5P+**

**Date:** **2/15/2011**




# SECTION IV - HEALTH HAZARD DATA

**Threshold Limit Value: The ACGIH recommended general limit for Welding Fume NOS - (Not Otherwise Specified) is 5 mg/m$^3$. ACGIH-1999 preface states that the TLV-TWA should be used as guides in the control of health hazards and should not be used as fine lines between safe and dangerous concentrations. See Section V for specific fume constituents which may modify this TLV. Threshold Limit Values are figures published by the American Conference of Government Industrial Hygienists. Units are milligrams per cubic meter of air.**

**Effects of Overexposure: Electric arc welding may create one or more of the following health hazards:**
**Fumes and Gases can be dangerous to your health. Common entry is by inhalation. Other possible routes are skin contact and ingestion.**

**Short-term (acute) overexposure to welding fumes may result in discomfort such as metal fume fever, dizziness, nausea, or dryness or irritation of nose, throat, or eyes. May aggravate pre-existing respiratory problems (e.g. asthma, emphysema).**

**Long-term (chronic) overexposure to welding fumes can lead to siderosis (iron deposits in lung) and may affect pulmonary function. Manganese overexposure can affect the central nervous system, resulting in impaired speech and movement. Bronchitis and some lung fibrosis have been reported. Titanium dioxide is listed on the IARC (International Agency for Research on Cancer) as a Group 2B carcinogen (possibly carcinogenic to humans based on animal studies). WARNING: This product, when used for welding or cutting, produces fumes or gases which contain chemicals known to the State of California to cause birth defects and, in some cases, cancer. (California Health & Safety Code Section 25249.5 et seq.)**

**Arc Rays can injure eyes and burn skin. *Skin cancer has been reported*.**
**Electric Shock can kill. If welding must be performed in damp locations or with wet clothing, on metal structures or when in cramped positions such as sitting, kneeling or lying, or if there is a high risk of unavoidable or accidental contact with workpiece, use the following equipment: Semiautomatic DC Welder, DC Manual (Stick) Welder, or AC Welder with Reduced Voltage Control.**

Emergency and First Aid Procedures: Call for medical aid. Employ first aid techniques recommended by the American Red Cross.
IF BREATHING IS DIFFICULT give oxygen. IF NOT BREATHING employ CPR (Cardiopulmonary Resuscitation) techniques.
IN CASE OF ELECTRICAL SHOCK, turn off power and follow recommended treatment. In all cases call a physician.

# SECTION V - REACTIVITY DATA

**Hazardous Decomposition Products: Welding fumes and gases cannot be classified simply. The composition and quantity of both are dependent upon the metal being welded, the process, procedure and electrodes used.**

**Other conditions which also influence the composition and quantity of the fumes and gases to which workers may be exposed include: coatings on the metal being welded (such as paint, plating, or galvanizing), the number of welders and the volume of the worker area, the quality and amount of ventilation, the position of the welder's head with respect to the fume plume, as well as the presence of contaminants in the atmosphere (such as chlorinated hydrocarbon vapors from cleaning and degreasing activities.)**

**When the electrode is consumed, the fume and gas decomposition products generated are different in percent and form from the ingredients listed in Section II. Decomposition products of normal operation include those originating from the volatilization, reaction, or oxidation of the materials shown in Section II, plus those from the base metal and coating, etc., as noted above.**

**Reasonably expected fume constituents of this product would include: Primarily iron oxide; secondarily complex oxides of manganese, silicon, sodium and titanium.**

**Maximum fume exposure guideline for this product is 5.0 milligrams per cubic meter.**

**Gaseous reaction products may include carbon monoxide and carbon dioxide. Ozone and nitrogen oxides may be formed by the radiation from the arc.**

**Determine the composition and quantity of fumes and gases to which workers are exposed by taking an air sample from inside the welder's helmet if worn or in the worker's breathing zone. Improve ventilation if exposures are not below limits. See ANSI/AWS F1.1, F1.2, F1.3 and F1.5, available from the American Welding Society, 550 N.W. LeJeune Road, Miami, FL 33126.**

# SECTION VI AND VII
# CONTROL MEASURES AND PRECAUTIONS FOR SAFE HANDLING AND USE

**Read and understand the manufacturer's instruction and the precautionary label on the product. Request Lincoln Safety Publication E205. See American National Standard Z49.1, "Safety In Welding, Cutting and Allied Processes" published by the American Welding Society, 550 N.W. LeJeune Road, Miami, FL, 33126 (both available for free download at http://www.lincolnelectric.com/community/safety/) and OSHA Publication 2206 (29CFR1910), U.S. Government Printing Office, Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954 for more details on many of the following:**

**Ventilation: Use enough ventilation, local exhaust at the arc, or both to keep the fumes and gases from the worker's breathing zone and the general area. Train the welder to keep his head out of the fumes. *Keep exposure as low as possible.***

**Respiratory Protection: Use respirable fume respirator or air supplied respirator when welding in confined space or general work area when local exhaust or ventilation does not keep exposure below TLV.**

**Eye Protection: Wear helmet or use face shield with filter lens shade number 12 or darker. Shield others by providing screens and flash goggles.**

**Protective Clothing: Wear hand, head, and body protection which help to prevent injury from radiation, sparks and electrical shock. See Z49.1. At a minimum this includes welder's gloves and a protective face shield, and may include arm protectors, aprons, hats, shoulder protection, as well as dark substantial clothing. Train the welder not to permit electrically live parts or electrodes to contact skin . . . or clothing or gloves if they are wet. Insulate from work and ground.**

**Disposal Information: Discard any product, residue, disposable container, or liner as ordinary waste in an environmentally acceptable manner according to Federal, State and Local Regulations unless otherwise noted. No applicable ecological information available.**

# Safety Data Sheet

Zep, Inc.
1310 Seaboard Industrial Blvd.
Atlanta, GA 30318
1-877-I-BUY-ZEP (428-9937)
www.zep.com

## Section 1. Chemical Product and Company Identification

**Product name** Zep 45 Dual Force

**Product use** Aerosol Lubricant and Penetrant

**Product code** 3743

**Date of issue** 10/21/13 **Supersedes** Not available.

### Emergency Telephone Numbers

**For MSDS Information:**
Compliance Services 1-877-I-BUY-ZEP (428-9937)

**For Medical Emergency**
(877) 541-2016 Toll Free - All Calls Recorded

**For Transportation Emergency**
CHEMTREC: (800) 424-9300 - All Calls Recorded
In the District of Columbia (202) 483-7616

**Prepared By**
Compliance Services
1259 Seaboard Industrial Blvd.
Atlanta, GA 30318

## Section 2. Hazards Identification

**Emergency overview**

*Hazard Determination System (HDS): Health, Flammability, Reactivity


DANGER!

FLAMMABLE AEROSOL. CAUSES EYE, SKIN AND RESPIRATORY TRACT IRRITATION. VAPOR HARMFUL. HARMFUL IF INHALED OR ABSORBED THROUGH SKIN. CONTENTS UNDER PRESSURE.

**NOTE: MSDS data pertains to the product as delivered in the original shipping container(s). Risk of adverse effects are lessened by following all prescribed safety precautions, including the use of proper personal protective equipment.**

**Acute Effects** **Routes of Entry** Dermal contact, Eye contact and Inhalation

**Eyes** Causes eye irritation. Inflammation of the eye is characterized by redness, watering and itching.

**Skin** Causes skin irritation. Skin inflammation is characterized by itching, scaling, reddening or, occasionally, blistering.

**Inhalation** Avoid direct inhalation of spray. Over-exposure by inhalation may cause respiratory irritation. Can cause central nervous system (CNS) depression. Symptoms and signs include headache, dizziness, fatigue, musculsr weakness, drowsiness and, in extreme cases, loss of consiousness.

**Ingestion** Aspiration hazard if swallowed. Can enter lungs and cause damage.

**Chronic effects** Repeated or prolonged exposure to the substance can produce lung damage. Prolonged skin contact may cause dermatitis with drying and cracking of skin.

**Carcinogenicity Classification** Not listed as a carcinogen by OSHA, NTP or IARC.

**Additional information: See toxicological information (Section 11)**

## Section 3. Composition/Information on Ingredients

| Name | CAS number | % |
|---|---|---|
| Distillates (petroleum), hydrotreated light | 64742-47-8 | 60-80 |
| Distillates (petroleum), hydrotreated heavy naphthenic | 64742-52-5 | 15-25 |
| Carbon dioxide | 124-38-9 | 1-5 |
| Calcium alkylnaphthalenesulfonate | - | 1-5 |

## 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 if irritation develops.

**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** Aspiration hazard if swallowed. Can enter lungs and cause damage. Do not induce vomiting unless directed to do so by medical personnel. 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. Get medical attention immediately.

## Section 5. Fire Fighting Measures

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


**Flash Point** Closed cup:>93.3°C (>199.9°F)

**Flammable Limits** Not available.

**Flammability** Flammable Aerosol (16 CFR 1500.45)

**Fire hazard** CONTENTS UNDER PRESSURE. Container explosion may occur under fire conditions or when heated. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back.

**Fire-Fighting Procedures** Use dry chemical or $CO_2$. Cool closed containers exposed to fire with water. Wear special protective clothing and posistive pressure, self-contained breathing apparatus.

## Section 6. Accidental Release Measures

**Spill Clean up** Large spills are unlikely due to packaging.

## Section 7. Handling and Storage

**Handling** Put on appropriate personal protective equipment (see Section 8). Keep away from heat, sparks and flame. Avoid contact with eyes, skin and clothing. DO NOT breathe vapors or spray mist. Do not ingest. Use only with adequate ventilation. Observe label precautions. Wash thoroughly after handling.

**Storage** CONTENTS UNDER PRESSURE. Eliminate all ignition sources. Do not puncture or incinerate container. Do not store above the following temperature: 49°C (120.2°F) or in direct sunlight. Keep out of the reach of children.

## Section 8. Exposure Controls/Personal Protection

| Ingredient | Exposure limits |
|---|---|
| Distillates (petroleum), hydrotreated light | **ACGIH TLV (United States, 3/2012). Absorbed through skin.**<br>TWA: 200 mg/m³, (as total hydrocarbon vapor) 8 hours. |
| Distillates (petroleum), hydrotreated heavy naphthenic | **ACGIH TLV (United States, 3/2012).**<br>TWA: 5 mg/m³ 8 hours. Form: Inhalable fraction<br>**NIOSH REL (United States, 1/2013).**<br>TWA: 5 mg/m³ 10 hours. Form: Mist<br>STEL: 10 mg/m³ 15 minutes. Form: Mist<br>**OSHA PEL (United States, 6/2010).**<br>TWA: 5 mg/m³ 8 hours. |
| Carbon dioxide | **ACGIH TLV (United States, 3/2012). Oxygen Depletion [Asphyxiant].**<br>TWA: 5000 ppm 8 hours.<br>TWA: 9000 mg/m³ 8 hours.<br>STEL: 30000 ppm 15 minutes.<br>STEL: 54000 mg/m³ 15 minutes.<br>**OSHA PEL 1989 (United States, 3/1989).**<br>TWA: 10000 ppm 8 hours.<br>TWA: 18000 mg/m³ 8 hours.<br>STEL: 30000 ppm 15 minutes.<br>STEL: 54000 mg/m³ 15 minutes.<br>**NIOSH REL (United States, 1/2013).**<br>TWA: 5000 ppm 10 hours.<br>TWA: 9000 mg/m³ 10 hours.<br>STEL: 30000 ppm 15 minutes.<br>STEL: 54000 mg/m³ 15 minutes.<br>**OSHA PEL (United States, 6/2010).**<br>TWA: 5000 ppm 8 hours.<br>TWA: 9000 mg/m³ 8 hours. |

### Personal Protective Equipment (PPE)

**Eyes** Recommended: Safety glasses.

**Body** Recommended: Chemical-resistant gloves. Viton®

**Respiratory** Use with adequate ventilation. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective occupational exposure limits. Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary.

## Section 9. Physical and Chemical Properties

**Physical State** Liquid.
**pH** Not applicable.
**Boiling Point** >204°C (>399.2°F)
**Specific Gravity** 0.8715
**Solubility** Insoluble in the following materials: cold water and hot water.
**Color** Straw.
**Odor** Slight Petroleum-like. and Banana-like.
**Vapor Pressure** Not available.
**Vapor Density** Not available.
**Evaporation Rate** Not available.
**VOC (Consumer)** 0.19 % (w/w) 0.0138 lbs/gal (1.6 g/l)

## Section 10. Stability and Reactivity

**Stability and Reactivity** The product is stable.
**Incompatibility** Extremely reactive or incompatible with the following materials: oxidizing materials.
**Hazardous Polymerization** Under normal conditions of storage and use, hazardous polymerization will not occur.
**Hazardous Decomposition Products** carbon oxides (CO, $CO_2$)

## Section 11. Toxicological Information

| Product/ingredient name | Result | Species | Dose | Exposure |
|---|---|---|---|---|
| Distillates (petroleum), hydrotreated light | LC50 Inhalation Vapor | Rat | >6.8 mg/l | 4 hours |
| | LD50 Dermal | Rabbit | 2000 to 4000 mg/kg | - |
| | LD50 Oral | Rat | >5000 mg/kg | - |
| Distillates (petroleum), hydrotreated heavy naphthenic | LD50 Dermal | Rabbit | >5 g/kg | - |
| | LD50 Oral | Rat | >5000 mg/kg | - |

## Section 12. Ecological Information

**Environmental Effects** Not available.
**Aquatic ecotoxicity**

| Product/ingredient name | Result | Species | Exposure |
|---|---|---|---|
| Distillates (petroleum), hydrotreated light | Acute LC50 2200 µg/l Fresh water | Fish - Lepomis macrochirus | 4 days |

## Section 13. Disposal Considerations

**Waste Information**

Waste must be disposed of in accordance with federal, state and local environmental control regulations. Consult your local or regional authorities for additional information.

**Waste Stream** Classification: Non-hazardous waste
Origin: RCRA waste.

## Section 14. Transport Information

| Regulatory information | UN number | Proper shipping name | Classes | PG* | Label |
|---|---|---|---|---|---|
| DOT Classification | None | Consumer commodity or Limited quantity | | | |
| IMDG Class | UN1950 | AEROSOLS, flammable or Limited quantity | 2.1 | - |  |

**NOTE: DOT classification applies to most package sizes. For specific container size classifications or for size exceptions, refer to the Bill of Lading with your shipment.**
PG* : Packing group

## *Section 15. Regulatory Information*

### U.S. Federal Regulations

SARA 313 toxic chemical notification and release reporting:

No products were found.

**Clean Water Act (CWA) 307**: naphthalene

**Clean Water Act (CWA) 311**: naphthalene

**Clean Air Act (CAA) 112 regulated toxic substances:** No products were found.

All Components of this product are listed or exempt from listing on TSCA Inventory.

### State Regulations

#### California Prop 65

**WARNING:** This product contains less than 0.1% of a chemical known to the State of California to cause cancer.

## *Section 16. Other Information*

*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.*

**NOTE: Hazard Determination System (HDS) ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although these ratings are not required on MSDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HDS ratings are to be used with a fully implemented program to relay the meanings of this scale.*

LMW