



APPENDIX J

Hazardous Material Handling Plan



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G3 Terminal Vancouver
Port Metro Vancouver Project Permit Application



G3 TERMINAL VANCOUVER: PORT METRO VANCOUVER HAZARDOUS MATERIAL HANDLING PROCEDURES

This procedure provides guidelines on the safe handling, storage, and use of workplace chemicals and other hazardous materials, and to transmit information concerning their hazards to our employees, contractors and visitors.

1 DEFINITIONS

1.1 Workplace Hazardous Materials Information System (WHMIS 2015)

Canadian Federal Hazardous Products Act, R.S.C., 1985, c. H-3 and the Canadian Federal Hazardous Products Regulations (SOR 2015-17). (Adopted into various provincial Occupational Health and Safety Acts/Regulations.)

1.2 Globally Harmonized System of Classification and Labelling of Chemicals (GHS)

An approach that contains criteria, provisions and explanatory text originally endorsed in 2003 by the United Nations Economic and Social Council. Countries are able to adapt GHS and select parts that fit their current regulations and requirements.

1.3 Safety Data Sheet (SDS)/Material Safety Data Sheet (MSDS)

A written or printed document that provides key product information concerning a hazardous chemical which includes:

- a. Identification;
- b. Hazard(s) identification;
- c. Composition/information on ingredients;
- d. First aid measures;
- e. Firefighting measures;
- f. Accidental release measures;
- g. Handling and storage;
- h. Exposure controls/Personal protection;
- i. Physical and chemical properties;
- j. Stability and reactivity;
- k. Toxicological information;
- l. Ecological information;
- m. Disposal considerations;
- n. Transport information;
- o. Regulatory information; and
- p. Other information, including date of preparation or last revision.

- 1.4 **Hazardous Product**
Any product, mixture, material or substance that is classified in accordance with the regulations made under subsection 15(1) in a category or subcategory of a hazard class listed in Schedule 2 (found in the Hazardous Products Act). In this procedure, “Hazardous Chemical” is to be read as “Hazardous Product”.
- 1.5 **Hazardous Chemical**
Any chemical which is classified as a physical hazard or a health hazard, a simple asphyxiant, pyrophoric gas, or hazard not otherwise classified.
- 1.6 **Hazard Statement**
A statement assigned to a hazard class and category that describes the nature of the hazard(s) of a chemical including, where appropriate, the degree of hazard. This may also be called a Hazard Warning.
- 1.7 **Health Hazard**
A chemical which is classified as posing one of the following hazardous effects:
- acute toxicity (any route of exposure);
 - skin corrosion or irritation;
 - serious eye damage or eye irritation;
 - respiratory or skin sensitization;
 - germ cell mutagenicity;
 - carcinogenicity;
 - reproductive toxicity;
 - specific target organ toxicity (single or repeated exposure); or
 - aspiration hazard.
- 1.8 **Label**
An appropriate group of written, printed or graphic information elements concerning a hazardous chemical that is affixed to, printed on, or attached to the immediate container of a hazardous chemical, or to the outside packaging.
- 1.9 **Label Elements**
The specified pictogram, hazard statement, signal word and precautionary statement for each hazard class and category.
- 1.10 **Physical Hazard**
A chemical that is classified as posing one of the following hazardous effects:
- explosive;
 - flammable (gases, aerosols, liquids, or solids);
 - oxidizer (liquid, solid or gas);
 - self-reactive;
 - pyrophoric (liquid or solid);
 - self-heating;
 - organic peroxide;
 - corrosive to metal;
 - gas under pressure; or
 - in contact with water emits flammable gas.
- 1.11 **Pictogram**
A composition that may include a symbol plus other graphic elements, such as a border, background pattern, or color, that is intended to convey specific information about the hazards of a chemical. Ten pictograms are designated under WHMIS.

1.12 Precautionary Statement

A phrase that describes recommended measures that should be taken to minimize or prevent adverse effects resulting from exposure to a hazardous chemical, or improper storage or handling.

1.13 Product Identifier

The name or number used for a hazardous chemical on a label or in the SDS/MSDS. It provides a unique means by which the user can identify the chemical. The product identifier used shall permit cross-references to be made among the list of hazardous chemicals required in the written hazard communication program, the label and the SDS/MSDS.

1.14 Signal Word

A word used to indicate the relative level of severity of hazard and alert the reader to a potential hazard on the label. The signal words used are "Danger" and "Warning." "Danger" is used for more severe hazards, while "Warning" is used for less severe hazards.

2 WRITTEN PROGRAM

This document along with an inventory of the facility's hazardous materials, copies of the SDS/MSDS for each material and a copy of the WHMIS 2015 regulation together constitute the written program.

3 HANDLING, LABELING, AND USE OF CHEMICALS

3.1 The facility shall conduct a visual inventory and maintain a current list of each chemical known to be present in the workplace, and ensure appropriate SDS/MSDS are available for each chemical.

3.2 Precautions found on SDS/MSDS and chemical Labels shall be followed regarding the handling, storage and use of chemicals. Personal protective equipment (PPE) shall be used as directed and/or required by SDS/MSDS and Label information.

3.3 SDS/MSDS shall be obtained from the supplier of each chemical before use. (NOTE: Manufacturers and/or suppliers are required to provide this information free of charge.) SDS/MSDS shall contain the following information:

- a. Product identifier;
- b. Signal word;
- c. Hazard statement(s);
- d. Pictogram(s);
- e. Precautionary statement(s); and
- f. Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party.

3.4 The facility shall ensure that labels on Hazardous Chemicals are not removed or defaced and that SDS/MSDS are maintained and available to all employees.

3.5 Each container of Hazardous Chemicals in the workplace shall be labeled, tagged, or marked with information giving the identity of the Hazardous Chemical, the appropriate hazard warnings, and the name and address of the chemical manufacturer, importer or other responsible party for that chemical.

- 3.5.1 Warning signs, placards, process sheets, batch tickets, operating procedures, or other such written materials may be used in lieu of affixed Labels on individual stationary process containers of Hazardous Chemicals, as long as the alternative method identifies the containers to which it is applicable and contains the required hazard warning.
- 3.5.2 Portable containers into which Hazardous Chemicals are transferred from labeled containers, and which are intended only for the immediate use of the employee who performs the transfer, are not required to be labeled, if maintained under the control of the transferring employee at all times. If the Hazardous Chemicals are transferred to a portable container and not maintained under the control of the transferring employee at all times, then an appropriate hazard warning Label must be affixed to the container.
- 3.5.3 Labels on incoming containers must not be altered, defaced or removed while any of the Hazardous Chemical remains in the container.
- 3.5.4 If the facility receives a Hazardous Chemical in a multi –container shipment in which the supplier has not labeled each individual container, the facility must affix an appropriate Label with hazard warning(s) to each container.

4 EMPLOYEE EDUCATION

- 4.1 Employees shall be provided with effective information and training on Hazardous Chemicals with which they work, or which are found in their work area, at the time of their initial assignment and whenever a new Physical Hazard or Health Hazard is introduced into their work area for handling, storage or use.
 - 4.1.1 Training of employees shall be limited to the hazards of the chemicals in their work area unless their job performance routinely involves potential exposure to chemicals in other areas of the facility.
 - 4.1.2 Outside contractor employees shall be informed of Hazardous Chemicals that their employees may be potentially exposed to while performing work in the facility, and the suggested protective measures for the potential hazards. Contractors shall be informed of the location and availability of SDS/MSDS. This information shall be included as a part of the safety orientation information given to outside contractors.
 - 4.1.3 Contractors shall provide SDS/MSDS to management for any Hazardous Chemicals that they may bring into the workplace.
- 4.2 Employee education, information and training shall, at a minimum, include the following:
 - 4.2.1 A review of the information in this procedure, the details of the written program, and an explanation of chemical labeling methods used by the facility.
 - 4.2.2 A review of Hazardous Chemicals in their work area, their intended use, and the labeling method used to convey hazard information.
 - 4.2.3 The location and availability of the SDS/MSDS covering Hazardous Chemicals and how to use the information.
 - 4.2.4 The methods which may be used to detect the presence or release of Hazardous Chemicals in the work area.

- 4.2.5 The Physical Hazard and Health Hazard of the chemicals in the work area, including the measures that employees can take to provide protection from potential hazards.
- 4.2.6 Procedures for the safe use, handling and disposal of Hazardous Chemicals in their work area.
- 4.3 All training sessions concerning WHMIS 2015 shall be documented by obtaining the participating employees' signatures on an appropriate training document.
 - 4.3.1 At a minimum, available training documentation shall include the initial training and the latest training conducted.
 - 4.3.2 Instructors are responsible for ensuring participating employees understand the content of any training.

5 HAZARD ASSESSMENT AND DETERMINATION

- 5.1 All chemicals must be evaluated to determine if they are hazardous.
- 5.2 Facilities may rely on the SDS/MSDS, provided by the manufacturer or supplier for each chemical in the workplace, as documentation for the hazard evaluation requirement.
- 5.3 If the facility chooses not to rely on the evaluation performed by the chemical manufacturer or importer for each chemical in the workplace, they may conduct and document their own independent evaluation.

Representative List of Hazardous Materials Longview, WA - Export Elevator	
Product Name	Manufacturer
Acetone	Richard-Allan Scientific
All Purpose Marking Paint	Aervoe Industries, Inc.
All Purpose Marking Paint	Aervoe Industries, Inc.
All Purpose Marking Paint	Aervoe Industries, Inc.
All Purpose Marking Paint	Aervoe Industries, Inc.
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Alligare Imazapyr 4 SL	Alligare, LLC
Duracell Procell Professional Alkaline Batteries	Gillette Environment Health and Safety
Braid Desoldering #3	Chemtronics
Non-Flammable Gas Mixture	CALGAZ
Carbon Dioxide (Compressed)	ISI North America, Inc.
Drakeol GD-LP	Calumet Specialty Products Partners, L.P.
Fast-Clad Urethane Fast Dry Urethane-Gloss	The Sherwin-Williams Company
Fogtech DX Instant Anti-Fog	MotoSolutions
Fluorescent Green Concentrate	Dwyer Instruments, Inc.
Glyphosate 4 Plus Herbicide	Alligare, LLC
HydroForce Glass Cleaner (Aerosol	CRC Industries, Inc.
New Rapid Tap	Relton Corporation
Nickel Cadmium Battery	Sanyo Electric Co., LTD.
Paint Thinner	W.M. Barr
Aluminum Phosphide	Detia Freyberg GmbH
Carbon Steel Wire	Radnor Welding Products
Acryl Enamel Fire Hydrant Red High	Rust-Oleum Corporation
Rosin Core Solder Dia 0.031" 1LB	Lenox
Electrical Insulating Paint	3M
SFM Extra Herbicide	Alligare, LLC
Gorilla Super Glue	The Gorilla Glue Company
Touch 'n Seal Gun Foam II Polyurethane Foam Sealant	Convenience Products
No. 39 Thinner (Paint Thinner)	Tnemec Company, Inc.
Ultragel II	Sonotech
ZEP De-Icer	Morgro, Inc.
Alligare Picloram 22K	Alligare, LLC
Duracell Procell Professional Alkaline Batteries AAA	Duracell, A P&G Business
Sight Savers Pre-Moistened Cleaning Tissue	Bausch & Lomb
Zinc-It Instant Cold Galvanize	CRC Industries, Inc.
True Tap HD	CRC Industries, Inc.
Aerokroil	Kana Laboratories, Inc.
Brakleen Brake Parts Cleaner	CRC Industries, Inc.
Sikaflex 1A (All Colors)	Sika Corporation
Air Tool Lubricant	Coilhose Pneumatics/Acme Automotive
MRO Light Gray Primer (Gallons)	Seymore of Sycamore
MRO Red Oxide Primer	Seymore of Sycamore
Ford Blue	Seymore of Sycamore
Spruce Light Gray Primer	Seymore of Sycamore
Spruce Flat Black	Seymore of Sycamore
Cable Lube	ConocoPhillips Lubricants
MOBIL 1 15W-50	Exxon Mobil Corporation
ATF D/M	Canada Imperial Oil Limited

Product_Name	Manufacturer
MOBIL DTE 10 EXCEL 32	Exxon Mobil Corporation
MOBIL DTE 24	Exxon Mobil Corporation
MOBIL DTE FM 32	Exxon Mobil Corporation
MOBIL GLYGOYLE 460	Exxon Mobil Corporation
MOBIL SHC 630	Exxon Mobil Corporation
MOBIL SHC 634	Exxon Mobil Corporation
MOBIL POLYREX EM	Exxon Mobil Corporation
MOBIL SHC 629	Exxon Mobil Corporation
MOBILGEAR SHC 460	Exxon Mobil Corporation
MOBILGREASE XHP 221	ExxonMobil Oil Corporation
Dust-Off - The Original Compressed-Gas Duster	Falcon Safety Products, Inc.
Weevil-Cide Tablets, Weevil-Cide Pellets	UPI
Penreco Drakeol LT Mineral Oil N.F.	Penreco
Ansi 61 Grey	Southern Aerosols, Inc.
Windex Powerized Glass Cleaner (RTU)	Diversey, Inc.
Lysol Brand Neutra Air Sanitizing Spray (Aerosol), All Scents	Reckitt Benckiser
UNVRSL +SSPR 6PK White Gloss	Rust-Oleum Corporation
PTOUCH 2X +SSPR 6PK Flat Gray Primer	Rust-Oleum Corporation
DUPLI-COLOR Engine Enamel W/ Ceramic, Chevrolet Orange	The Sherwin-Williams Company
Industrial Grade Rust Converter	CYCLO Industries, Inc.
STRUST +SSPR 6PK Gloss Regal Red	Rust-Oleum Corporation
KRYLON Line-Up Athletic Striping Paint (water based) Athletic White	The Sherwin-Williams Company
PRO LSPR 6PK Aluminum Primer	Rust-Oleum Corporation
Tap Magic EP-XTRA Formula (Rapid Tap)	The Steco Corporation
WD-40 Aerosol	WD-40 Company
Surtac 2000	The Whitmore Manufacturing Company
NAPA Mac's Open Gear Lube	The Sherwin-Williams Company
Dry Moly Lube	CRC Industries, Inc.
All Surface Enamel - Oil Base Satin, Ultradeep Base	The Sherwin-Williams Company
Misty Flying Insect Killer	Amrep, Inc.
Clorox Germicidal Bleach	The Clorox Company
Lysol Brand Disinfecting Wipes, All Scents	Reckitt Benckiser
Rust Converter	CRC Industries, Inc.
Brighton Professional Disinfecting Wipes (Fresh Air Scent)	Staples Contract & Commercial, Inc.
Pledge Multi-Surface Clean & Dust Wipes	S.C. Johnson & Son, Inc.
Clorox Commercial Solutions Clorox Disinfecting Wipes, Fresh Scent	Clorox Professional Products Company
Purell Advanced Instant Hand Sanitizer	GOJO Industries, Inc.
Dust Destroyer Compressed-Gas Duster - For General Use	Falcon Safety Products, Inc.
Airwick Freshmatic Automatic Spray (US)	Reckitt Benckiser
Dawn Dishwashing Liquid Dish Soap	The Procter & Gamble Company
Brighton Professional Non-Slip Urinal Screen, Country Berry	Staples Contract & Commercial, Inc.
Febreze Stick & Refresh (Air Freshener)	The Procter & Gamble Company
GOJO Luxury Foam Antibacterial Handwash	GOJO Industries, Inc.
GOJO SUPRO MAX Hand Cleaner	GOJO Industries, Inc.
Dust-Off Anti-Static Monitor Wipes	Falcon Safety Products, Inc.
GOJO Natural Orange Pumice Hand Cleaner	GOJO Industries, Inc.
Diesel Fuel	Hess
Gasoline Fuel	Hess

**MATERIAL SAFETY DATA SHEET: ALUMINUM PHOSPHIDE,
PHOSTOXIN® TABLETS, PELLETS, TABLET PREPAC, ROPES
DETIA® FUMEX BAGS, BELTS AND BLANKETS**

**PROPER DOT SHIPPING NAME: ALUMINUM PHOSPHIDE, 4.3 UN1397 PG I DANGEROUS WHEN WET,
POISON LABELS APPLY**

SECTION I - PRODUCT INFORMATION

Manufacturer/Registrant:

Detia Freyberg GmbH
Dr.-Werner-Freybert Str. 11
69514 Laudenbach, Germany

DEGESCH America, Inc.
153 Triangle Dr.
P. O. Box 116
Weyers Cave, VA 24486 USA

Telephone: (540) 234-9281 / (800) 330-2525
Telefax: (540) 234-8225
Internet Address: <http://www.degeschamerica.com>
E-mail: degesch@degeschamerica.com

EMERGENCY TELEPHONE NOS.:

Emergency - Chemtrec (800) 424-9300
Emergency and Information - DEGESCH America, Inc. (540) 234-9281 / (800) 330-2525

Phostoxin is available as 0.6g pellets and 3.0g tablets. Tabletized Phostoxin is also available in gas permeable packages called Prepacs and Ropes. Products are packed in gas-tight containers. Detia® Fumex is available as 34g bags. Fumex is also packed as bag belts, each equivalent to 4 bags and bag blankets, equivalent to 100 bags.

Date of Revision: July 2000

SECTION II - HAZARDOUS INGREDIENTS INFORMATION

Identity:

Phostoxin, Fumex, and Aluminum Phosphide, AIP - reacts with water to produce phosphine, hydrogen phosphide, PH₃ as shown in Equation 1. Phostoxin is formulated with 55% aluminum phosphide and also contains ammonium carbamate and inert ingredients. Ammonium carbamate releases ammonia and carbon dioxide as shown in Equation 2. Detia Fumex bags do not contain ammonium carbamate.



AIP	CAS No. 20859-73-8	NH ₂ COONH ₄	CAS No. 1111-78-0
PH ₃	CAS No. 7803-51-2	NH ₃	CAS No. 7664-41-7
Al(OH) ₃	CAS No. 21645-51-2	CO ₂	CAS No. 124-38-9

NFPA Chemical Hazard Ratings:

Flammability Hazard 4
Health Hazard 4
Reactivity Hazard 2
Special Hazard W

SARA Physical and Health Hazards:

Fire
Reactivity
Immediate (Acute)

Inhalation Exposure Limits:

<u>Component</u>	<u>OSHA PEL</u>	<u>ACGIH TLV</u>		<u>NIOSH</u>
	<u>TWA</u> (ppm)	<u>TWA</u> (ppm)	<u>STEL</u> (ppm)	<u>IDLH</u> (ppm)
Hydrogen Phosphide*	0.3	0.3	1.0	50
Ammonia	50	25	35	300
Carbon Dioxide	5,000	5,000	30,000	40,000

*EPA limits are 0.3 ppm TWA during fumigation and 0.3 ppm ceiling at all other times.

SECTION III - PHYSICAL CHARACTERISTICS

Boiling Point: Specific Gravity of Vapors (Air = 1):

AIP >1000°C	AIP	N/A
PH ₃ -87.7°C	PH ₃	1.17

Vapor Pressure:

AIP	0mm Hg
PH ₃	40mm Hg @ -129.4°C

Solubility in Water:

AIP	Insoluble, reacts
PH ₃	26cc in 100 ml water at 17°C

Appearance and Odor:

Phostoxin, Fumex, and aluminum phosphide have a greenish-gray color and the hydrogen phosphide (phosphine, PH₃) gas produced by these chemicals has an odor described as similar to garlic, carbide or decaying fish.

Specific Gravity:

AIP 2.85

Melting Point:

AIP	>1000°C
PH ₃	-133.5°C

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Flash Point:

Aluminum phosphide, Phostoxin, and Fumex are not themselves flammable. However, they react readily with water to produce hydrogen phosphide (phosphine, PH₃) gas which may ignite spontaneously in air at concentrations above its LEL of 1.8% v/v. UEL of hydrogen phosphide is not known.

Extinguishing Media:

Suffocate flames with sand, carbon dioxide or dry extinguishing chemicals.

Special Fire Fighting Procedures:

Do not use water on metal phosphide fires.

Respiratory Protection:

Wear NIOSH/MSHA approved SCBA or equivalent respiratory protection.

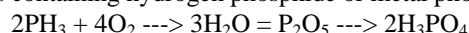
Protective Clothing:

Wear gloves when handling Phostoxin tablets, pellets or dust.

Unusual Fire and Explosion Hazards:

Hydrogen phosphide-air mixtures at concentrations above the lower flammable limit of 1.8% v/v, PH₃ may ignite spontaneously. Ignition of high concentrations of hydrogen phosphide can produce a very energetic reaction. Explosions can occur under these conditions and may cause severe personal injury. **Never allow the buildup of hydrogen phosphide to exceed explosive concentrations.** Open containers of metal phosphides in open air only and never in a flammable atmosphere. Do not confine spent or partially spent dust from metal phosphide fumigants as the slow release of hydrogen phosphide from these materials may result in the formation of an explosive atmosphere. Spontaneous ignition may occur if large quantities of aluminum phosphide or magnesium phosphide are piled in contact with liquid water. This is particularly true if quantities of these materials are placed in moist or spoiled grain which can provide partial confinement of the hydrogen phosphide gas liberated by hydrolysis.

Fires containing hydrogen phosphide or metal phosphides will produce phosphoric acid by the following reaction:



SECTION V - REACTIVITY DATA

Stability:

Phostoxin, Fumex and aluminum phosphide are stable to most chemical reactions, except for hydrolysis. They will react with moist air, liquid water, acids and some other liquids to produce toxic and flammable hydrogen phosphide gas. Hydrogen phosphide may react vigorously with oxygen and other oxidizing agents.

Incompatibility:

Avoid contact with water and oxidizing agents.

Corrosion:

Hydrogen phosphide gas may react with certain metals and cause corrosion, especially at higher temperatures and relative humidities. Metals such as copper, brass and other copper alloys, and precious metals such as gold and silver are susceptible to corrosion by phosphine. Small electric motors, smoke detectors, brass sprinkler heads, batteries and battery chargers, fork lifts,

temperature monitoring systems, switching gears, communication devices, computers, calculators and other electrical equipment may be damaged by this gas. Hydrogen phosphide will also react with certain metallic salts and, therefore, sensitive items such as photographic film, some inorganic pigments, etc., should not be exposed.

Hazardous Polymerization:

Will not occur.

SECTION VI - HEALTH HAZARD INFORMATION

Routes of Entry:

The dermal toxicity of aluminum phosphide is very low. The LD₅₀ via the dermal route is greater than 5,000 mg per kilogram for a 1-hour exposure. Primary routes of exposure are inhalation and ingestion.

Acute and Chronic Health Hazards:

Phostoxin and Fumex are highly acute toxic substances. The LC₅₀ for hydrogen phosphide gas is about 190 ppm for a one-hour inhalation exposure. The acute oral toxicity of the Phostoxin and Fumex formulations was found to be 11.5 mg/kg of body weight. Aluminum phosphide and phosphine are not known to cause chronic poisoning.

Carcinogenicity:

Aluminum phosphide and phosphine are not known to be carcinogenic and is not listed as such by NTP, IARC or OSHA.

Signs and Symptoms of Exposure:

Aluminum phosphide tablets, pellets, bags and dust react with moisture from the air, acids and many other liquids to release hydrogen phosphide (phosphine, PH₃) gas. Mild exposure by inhalation causes malaise (indefinite feeling of sickness), ringing in the ears, fatigue, nausea and pressure in the chest which is relieved by removal to fresh air. Moderate poisoning causes weakness, vomiting, pain just above the stomach, chest pain, diarrhea and dyspnea (difficulty in breathing). Symptoms of severe poisoning may occur within a few hours to several days resulting in pulmonary edema (fluid in lungs) and may lead to dizziness, cyanosis (blue or purple skin color), unconsciousness, and death.

Emergency and First Aid Procedures:

Symptoms of overexposure are headache, dizziness, nausea, difficult breathing, vomiting, and diarrhea. In all cases of overexposure get medical attention immediately. Take victim to a doctor or emergency treatment facility.

If the gas or dust from aluminum phosphide is inhaled:

Get exposed person to fresh air. Keep warm and make sure person can breathe freely. If breathing has stopped, give artificial respiration by mouth-to-mouth or other means of resuscitation. Do not give anything by mouth to an unconscious person.

If aluminum phosphide pellets, tablets or powder are swallowed:

Drink or administer one or two glasses of water and induce vomiting by touching back of throat with finger, or if available, syrup of ipecac. Do not give anything by mouth if victim is unconscious or not alert.

If powder or granules of aluminum phosphide get on skin or clothing:

Brush or shake material off clothes in a well ventilated area. Allow clothes to aerate in a ventilated area prior to laundering. Do not leave contaminated clothing in occupied and/or confined areas such as automobiles, vans, motel rooms, etc. Wash contaminated skin thoroughly with soap and water.

If dust from pellets or tablets gets in eyes:

Flush with plenty of water. Get medical attention.

SECTION VII - PRECAUTIONS FOR SAFE HANDLING

Spill Cleanup Procedures:

If possible, dispose of spilled Phostoxin and Fumex by use according to label instructions. Freshly spilled material which has not been contaminated by water or foreign matter may be replaced into original containers. Punctured flasks or containers may be temporarily repaired using aluminum tape. If the age of the spill is unknown or if the product has been contaminated with soil, debris, water, etc., gather up the spillage in small open buckets having a capacity no larger than about 1 gallon. Do not add more than about 1 to 1.5kg (2 to 3 lbs.) to a bucket. If on-site wet deactivation is not feasible, transport the uncovered buckets in open vehicles to a suitable area. Wear gloves when handling Phostoxin tablets and pellets.

Respiratory protection may be required during cleanup of spilled material. If the concentration of hydrogen phosphide is unknown, NIOSH/MSHA approved SCBA or its equivalent must be worn.

Small amounts of spillage, from about 4 to 8 kg (9 to 18 lbs.) may be spread out over the ground in an open area to be deactivated by atmospheric moisture. Alternatively, spilled Phostoxin and Fumex may be deactivated by the wet method as described in the following.

Wet Deactivation of Spilled Phostoxin and Fumex:

1. Deactivating solution is prepared by adding the appropriate amount of low sudsing detergent to water in a drum or other suitable container. A 2% solution or 4 cups of detergent in 30 gallons is suggested. The container should be filled with deactivating solution to within a few inches of the top.
2. The material is added slowly to the deactivating solution and stirred so as to thoroughly wet all of the product. This should be carried out in open air and respiratory protection may be required. At no time should the deactivation drum be covered.
3. No more than about 45 to 50 lbs. of Phostoxin or Fumex should be added to 15 gallons of water-detergent mixture. Prepacs, Ropes, and Fumex may ignite during wet deactivation if they are allowed to float to the surface. Add weights or otherwise ensure that Phostoxin® and Fumex stay submerged until deactivation is completed.
4. Allow the mixture to stand, with occasional stirring, for about 36 hours. The resultant slurry of dust or packaged product will then be safe for disposal.
5. Dispose of the slurry of deactivated material, with or without preliminary decanting, at a sanitary landfill or other suitable site approved by local authorities. Where permissible, this slurry may be poured into a storm sewer or out onto the ground.

For Assistance:

Contact - DEGESCH America, Inc.

Telephone: (540) 234-9281 / (800) 330-2525

Telefax: (540) 234-8225

Internet address: <http://www.degeschamerica.com>

E-Mail: degesch@degeschamerica.com

or

Chemtrec: (800) 424-9300

Disposal of Spent Phostoxin and Fumex:

When being disposed of, spilled or partially reacted Phostoxin and Fumex are considered hazardous wastes under existing Federal Regulations. If properly exposed, the grayish-white residual dust after a fumigation **will not be a hazardous waste** and normally contains only a very small amount of unreacted aluminum phosphide. This waste will be safe for disposal. However, the spent residual dust from incompletely exposed Phostoxin or Fumex may require special care.

Triple rinse tablet and pellet flasks and stoppers with water. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities. Rinsate may be disposed of in a storm sewer, sanitary landfill or by other approved procedures. Or, it is permissible to remove lids and expose empty flasks to atmospheric conditions until the residue in the flasks is reacted. Then puncture and dispose of in a sanitary landfill or other approved site, or by other procedures approved by state and local authorities. Since containers for Prepacs, Ropes, and Fumex are contacted only by phosphine gas, they need not be triple rinsed prior to disposal.

Some local and state waste disposal regulations may vary from the following recommendations. Disposal procedures should be reviewed with appropriate authorities to ensure compliance with local regulations. Contact your State Pesticide or Environmental Control Agency or Hazardous Waste Specialist at the nearest EPA Regional Office for guidance.

1. Confinement of partially spent residual materials, as in a closed container, or collection and storage of large quantities of dust may result in a fire or explosion hazard. Small amounts of hydrogen phosphide may be given off from unreacted aluminum phosphide, and confinement of the gas may result in a flash.
2. In open areas, small amounts of spent residual dust or spent packaged products may be disposed of on site by burial or by spreading over the land surface away from inhabited buildings.
3. Residual dust from Phostoxin and Fumex may also be collected and disposed of at a sanitary landfill, incinerator or other approved sites or by other procedures approved by Federal, State or Local authorities.
4. From 3 to 5 kg (7 to 10 lbs.) of spent dust from 2 to 3 flasks of Phostoxin or 80 to 130 Fumex bags may be collected for disposal in a 1-gallon bucket. Larger amounts, up to about one-half case, may be collected in burlap, cotton or other types of porous cloth bags for transportation in an open vehicle to the disposal site. Do not collect dust from more than 7 flasks of tablets, 10 flasks of pellets (about 11 kg or 25 lbs.) or 300 bags in a single bag. Do not pile cloth bags together. Do not use this method for partially spent or "green" dust. **Caution:** Do not collect dust in large drums, dumpsters, plastic bags or other containers where confinement may occur.

Deactivation of Partially Spent Phostoxin Prepacs and Ropes and Fumex Bags:

Packaged products, such as Phostoxin Prepacs, Ropes, and Fumex bags, which are only partially spent may be rendered inactive by either a "dry" or "wet" deactivation method. The "dry" method entails holding the Prepacs, Ropes and bags out of doors in locked, 30-gallon wire baskets which are available from DEGESCH America, Inc., or your supplier. Protect the partially spent Phostoxin and Fumex from rain. The deactivated Prepacs, Ropes, and Fumex may then be taken to an approved site for incineration or burial at periodic intervals or whenever the wire container is full. **Caution:** Storage of partially spent Prepacs and Ropes in closed containers may result in a fire hazard.

Alternatively, partially spent Prepacs, Ropes and bags and residual dust from phosphine fumigations may be treated by the "wet" deactivation method as follows:

1. Deactivating solution is prepared by adding the appropriate amount of low sudsing detergent or surface active agent to water in a drum or other suitable container. A 2% solution or 4 cups of detergent in 30 gallons is suggested. The container should be filled with deactivating solution to within a few inches of the top.
2. Immerse spent Prepacs, Ropes and Fumex or slowly pour residual dust into the deactivating solution while stirring so as to thoroughly wet all of the spent material. Keep immersed for about 36 hours. This should be done in the open air and not in the fumigated structure. Dust from Phostoxin tablets or pellets should be mixed into no less than about 10 gallons of water-detergent solution for each case of spent material.
3. Dispose of the deactivated Prepacs, Ropes, and Fumex or dust-water suspension, with or without preliminary decanting, at a sanitary landfill or other suitable site approved by local authorities. Where permissible, the slurry may be poured into a storm sewer or out onto the ground.
4. **Caution:** Respiratory protection may be required during wet deactivation. Do not cover the container at any time. Do not dispose of dust in a toilet. Do not allow quantities of dry, spent dust from Phostoxin to be collected or stored without deactivation.

Precautions to be Taken in Handling and Storage:

Store Phostoxin and Fumex products in a locked, dry, well-ventilated area away from heat. Post as a pesticide storage area. Do not store in buildings inhabited by humans or domestic animals.

Other Precautions:

1. Do not allow water or other liquids to contact Phostoxin or Fumex.
2. Do not pile up large quantities of Phostoxin or Fumex during fumigation or disposal.
3. Once exposed, do not confine Phostoxin or Fumex or otherwise allow hydrogen phosphide concentrations to exceed the LEL.
4. Open containers of Phostoxin or Fumex only in open air. Do not open in a flammable atmosphere. Hydrogen phosphide in the head space of containers may flash upon exposure to atmospheric oxygen.
5. Phostoxin and Fumex are restricted use pesticides due to acute inhalation toxicity of highly toxic hydrogen phosphide (phosphine, PH₃) gas. For retail sale to and use only by certified applicators or persons under their direct supervision and only for those uses covered by the certified applicator's certification.
6. See EPA approved labeling for additional precautions and directions for use.

SECTION VIII - CONTROL MEASURES

Respiratory Protection:

NIOSH/MSHA approved full-face mask with approved canister for phosphine (hydrogen phosphide, PH₃) may be worn at concentrations up to 15 ppm. At levels above this or when the hydrogen phosphide concentration is unknown, NIOSH/MSHA approved SCBA or equivalent must be worn.

Protective Clothing:

Wear gloves when handling aluminum phosphide tablets, pellets or dust.

Eye Protection:

None required.

Ventilation:

Local ventilation is generally adequate to reduce hydrogen phosphide levels in fumigated areas to below the TLV/TWA. Exhaust fans may be used to speed the aeration of silos, warehouses, shipholds, containers, etc.

We believe the statements, technical information and recommendations contained herein are reliable, but they are given without warranty or guarantee of any kind, expressed or implied, and we assume no responsibility for any loss, damage, or expense, direct or consequential, arising out of their use.

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MATERIAL SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: MOBIL DTE 10 EXCEL 32
Product Description: Base Oil and Additives
Product Code: 201560103630, 622621-00, 97AY99
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*
HYDROTREATED LIGHT PARAFFINIC DISTILLATES, PETROLEUM	64742-55-8	20 - 30%

* 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

Low order of toxicity. 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

Product Name: MOBIL DTE 10 EXCEL 32

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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]: >175C (347F) [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

Product Name: MOBIL DTE 10 EXCEL 32

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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.

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.

Static Accumulator: This material is a static accumulator.

STORAGE

Do not store in open or unlabelled containers.

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, 10 mg/m³ - ACGIH STEL, 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

Product Name: MOBIL DTE 10 EXCEL 32

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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

See Sections 6, 7, 12, 13.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Typical physical and chemical properties are given below. Consult the Supplier in Section 1 for additional data.

GENERAL INFORMATION

Physical State: Liquid

Color: Amber

Odor: Characteristic

Odor Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15 C): 0.84

Flash Point [Method]: >175C (347F) [ASTM D-92]

Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0

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Autoignition Temperature: N/D
Boiling Point / Range: > 316C (600F)
Vapor Density (Air = 1): > 2 at 101 kPa
Vapor Pressure: < 0.013 kPa (0.1 mm Hg) at 20 C
Evaporation Rate (n-butyl acetate = 1): N/D
pH: N/A
Log Pow (n-Octanol/Water Partition Coefficient): > 3.5
Solubility in Water: Negligible
Viscosity: 32.5 cSt (32.5 mm²/sec) at 40 C | 6.6 cSt (6.6 mm²/sec) at 100C
Oxidizing Properties: See Sections 3, 15, 16.

OTHER INFORMATION

Freezing Point: N/D
Melting Point: N/A
Pour Point: -51°C (-60°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

<u>Route of Exposure</u>	<u>Conclusion / Remarks</u>
Inhalation	
Toxicity (Rat): LC50 > 5000 mg/m ³	Minimally Toxic. Based on assessment of the components.
Irritation: No end point data.	Negligible hazard at ambient/normal handling temperatures. Based on assessment of the components.
Ingestion	
Toxicity (Rat): LD50 > 2000 mg/kg	Minimally Toxic. Based on test data for structurally similar materials.
Skin	
Toxicity (Rabbit): LD50 > 2000 mg/kg	Minimally Toxic. Based on test data for structurally similar materials.
Irritation (Rabbit): Data available.	Negligible irritation to skin at ambient temperatures. Based on assessment of the components.
Eye	
Irritation (Rabbit): Data available.	May cause mild, short-lasting discomfort to eyes. Based on assessment of the components.

CHRONIC/OTHER EFFECTS

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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.

Additional information is available by request.

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

1 = NTP CARC
2 = NTP SUS

--REGULATORY LISTS SEARCHED--

3 = IARC 1
4 = IARC 2A

5 = IARC 2B
6 = OSHA CARC

SECTION 12	ECOLOGICAL INFORMATION
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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
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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.

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, corrosivity or reactivity and is not formulated with

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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.

NATIONAL CHEMICAL INVENTORY LISTING: DSL, ENCS, TSCA

Special Cases:

Inventory	Status
AICS	Restrictions Apply
ELINCS	Restrictions Apply
IECSC	Restrictions Apply
KECI	Restrictions Apply
PICCS	Restrictions Apply

EPCRA: This material contains no extremely hazardous substances.

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

SARA (313) TOXIC RELEASE INVENTORY: This material contains no chemicals subject to the supplier notification requirements of the SARA 313 Toxic Release Program.

The Following Ingredients are Cited on the Lists Below:

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Chemical Name	CAS Number	List Citations
DICYCLOPENTADIENE	77-73-6	5
HYDROTREATED LIGHT PARAFFINIC DISTILLATES, PETROLEUM	64742-55-8	17, 18
XYLENES	1330-20-7	5

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

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:

No revision information is available.

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MHC: 0, 0, 0, 0, 0, 0

PPEC: A

DGN: 7087020XUS (1013882)

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SAFETY DATA SHEET

SECTION 1

PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: MOBIL GLYGOYLE 460
Product Description: Synthetic Base Stocks and Additives
Product Code: 201560401860, 608950-00, 97Y273
Intended Use: Gear oil

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

HAZARDS IDENTIFICATION

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

Other hazard information:

HAZARD NOT OTHERWISE CLASSIFIED (HNOC): None as defined under 29 CFR 1900.1200.

PHYSICAL / CHEMICAL HAZARDS

No significant hazards.

HEALTH HAZARDS

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

ENVIRONMENTAL HAZARDS

No significant hazards.

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

Product Name: MOBIL GLYGOYLE 460

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from person to person.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

This material is defined as a mixture.

Hazardous Substance(s) or Complex Substance(s) required for disclosure

Name	CAS#	Concentration*	GHS Hazard Codes
1H-IMIDAZOLE-1-ETHANOL, 2-(HEPTADECENYL)-4,5-DIHYDRO-	27136-73-8	0.1 - 0.25%	H302, H314(1B), H400(M factor 1), H410(M factor 1)
TRIPHENYL PHOSPHOROTHIONATE	597-82-0	0.1 - 1%	H361(D), H361(F), H402, H412

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

As per paragraph (i) of 29 CFR 1910.1200, formulation is considered a trade secret and specific chemical identity and exact percentage (concentration) of composition may have been withheld. Specific chemical identity and exact percentage composition will be provided to health professionals, employees, or designated representatives in accordance with applicable provisions of paragraph (i).

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.

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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.

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

FLAMMABILITY PROPERTIES

Flash Point [Method]: >240°C (464°F) [ASTM D-92]

Flammable Limits (Approximate volume % in air): LEL: N/D UEL: N/D

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.

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. Material will sink. Remove material, as much as possible, using mechanical equipment.

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

Remove debris in path of spill prior to oiling and remove contaminated debris from shoreline and water surface and dispose of according to local regulations. 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

Product Name: MOBIL GLYGOYLE 460

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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.

SECTION 8

EXPOSURE CONTROLS / PERSONAL PROTECTION

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.

No biological limits allocated.

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.

Product Name: MOBIL GLYGOYLE 460

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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 15.6 °C): 1.076

Flammability (Solid, Gas): N/A

Flash Point [Method]: >240°C (464°F) [ASTM D-92]

Flammable Limits (Approximate volume % in air): LEL: N/D UEL: N/D

Autoignition Temperature: N/D

Boiling Point / Range: > 316°C (601°F)

Decomposition Temperature: N/D

Vapor Density (Air = 1): > 2 at 101 kPa

Vapor Pressure: < 0.013 kPa (0.1 mm Hg) at 20 °C

Evaporation Rate (n-butyl acetate = 1): N/D

pH: N/A

Log Pow (n-Octanol/Water Partition Coefficient): < 3

Solubility in Water: Appreciable

Viscosity: 460 cSt (460 mm²/sec) at 40 °C | 78.1 cSt (78.1 mm²/sec) at 100 °C

Oxidizing Properties: See Hazards Identification Section.

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OTHER INFORMATION

Freezing Point: N/D
Melting Point: N/A
Pour Point: -27°C (-17°F)

SECTION 10	STABILITY AND REACTIVITY
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REACTIVITY: See sub-sections below.

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.

POSSIBILITY OF HAZARDOUS REACTIONS: Hazardous polymerization will not occur.

SECTION 11	TOXICOLOGICAL INFORMATION
-------------------	----------------------------------

INFORMATION ON TOXICOLOGICAL EFFECTS

<u>Hazard Class</u>	<u>Conclusion / Remarks</u>
Inhalation	
Acute 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	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin Corrosion/Irritation: No end point data for material.	Negligible irritation to skin at ambient temperatures. Based on assessment of the components.
Eye	
Serious Eye Damage/Irritation: No end point data for material.	May cause mild, short-lasting discomfort to eyes. Based on assessment of the components.
Sensitization	
Respiratory Sensitization: No end point data for material.	Not expected to be a respiratory sensitizer.
Skin Sensitization: No end point data for material.	Not expected to be a skin sensitizer. Based on assessment of the components.
Aspiration: Data available.	Not expected to be an aspiration hazard. Based on physico-chemical properties of the material.
Germ Cell Mutagenicity: No end point data for material.	Not expected to be a germ cell mutagen. Based on assessment of the components.
Carcinogenicity: No end point data for material.	Not expected to cause cancer. Based on assessment of the components.
Reproductive Toxicity: No end point data	Not expected to be a reproductive toxicant. Based on assessment

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for material.	of the components.
Lactation: No end point data for material.	Not expected to cause harm to breast-fed children.
Specific Target Organ Toxicity (STOT)	
Single Exposure: No end point data for material.	Not expected to cause organ damage from a single exposure.
Repeated Exposure: No end point data for material.	Not expected to cause organ damage from prolonged or repeated exposure. Based on assessment of the components.

OTHER INFORMATION

For the product itself:

Repeated and/or prolonged exposure may cause irritation to the skin, eyes, or respiratory tract.

Contains:

Aryl thiophosphate: Effects on the liver, adrenals, thyroid, blood and reproductive organs were seen in rats after repeated oral gavage at high doses. In a reproduction/developmental toxicity screening study, repeated oral gavage of rats with the aryl thiophosphate at high doses that produced maternal toxicity resulted in litter loss, decreased number of implantation sites and decreased number of live pups. However, when the aryl thiophosphate was tested in a subsequent, identical reproduction/developmental screening study in rats at a concentration higher than in this lubricant product, there were no reproductive/developmental effects or maternal toxicity.

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

--REGULATORY LISTS SEARCHED--

1 = NTP CARC

2 = NTP SUS

3 = IARC 1

4 = IARC 2A

5 = IARC 2B

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 -- Expected to remain in water or migrate through soil.

PERSISTENCE AND DEGRADABILITY

Biodegradation:

Base oil component -- Expected to be persistent.

BIOACCUMULATION POTENTIAL

Base oil component -- Potential to bioaccumulate is low.

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SECTION 13	DISPOSAL CONSIDERATIONS
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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, corrosivity 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
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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

Marine Pollutant: No

AIR (IATA): Not Regulated for Air Transport

SECTION 15	REGULATORY INFORMATION
-------------------	-------------------------------

OSHA HAZARD COMMUNICATION STANDARD: This material is not considered hazardous in accordance with OSHA HazCom 2012, 29 CFR 1910.1200.

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

PRODUCT REGISTRATION STATUS: USA

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

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

SARA (313) TOXIC RELEASE INVENTORY: This material contains no chemicals subject to the supplier notification requirements of the SARA 313 Toxic Release Program.

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

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

KEY TO THE H-CODES CONTAINED IN SECTION 3 OF THIS DOCUMENT (for information only):

H302: Harmful if swallowed; Acute Tox Oral, Cat 4
H314(1B): Causes severe skin burns and eye damage; Skin Corr/Irritation, Cat 1B
H361(D): Suspected of damaging the unborn child; Repro Tox, Cat 2 (Develop)
H361(F): Suspected of damaging fertility; Repro Tox, Cat 2 (Fertility)
H400: Very toxic to aquatic life; Acute Env Tox, Cat 1
H402: Harmful to aquatic life; Acute Env Tox, Cat 3
H410: Very toxic to aquatic life with long lasting effects; Chronic Env Tox, Cat 1
H412: Harmful to aquatic life with long lasting effects; Chronic Env Tox, Cat 3

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:

Updates made in accordance with implementation of GHS requirements.

The information and recommendations contained herein are, to the best of ExxonMobil's knowledge and belief, accurate and reliable as of the date issued. You can contact ExxonMobil to insure that this document is the most current available from ExxonMobil. The information and recommendations are offered for the user's consideration and examination. It is the user's responsibility to satisfy itself that the product is suitable for the intended use. If buyer repackages this product, it is the user's responsibility to insure proper health, safety and other necessary information is included with and/or on the container. Appropriate warnings and safe-handling procedures should be provided to

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Internal Use Only

MHC: 0, 0, 0, 0, 0, 0

PPEC: A

DGN: 7008809XUS (1004317)

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MATERIAL SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: MOBILGREASE XHP 221
Product Description: Base Oil and Additives
Product Code: 642454-00, 97G104
Intended Use: Grease

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 DITHIOPHOSPHATE	68649-42-3	1 - 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

Low order of toxicity. 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.



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SECTION 4 FIRST AID MEASURES**INHALATION**

Under normal conditions of intended use, this material is not expected to be an inhalation hazard.

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.

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

FLAMMABILITY PROPERTIES

Flash Point [Method]: >246C (475F) [EST. FOR OIL, ASTM D-92 (COC)]

Flammable Limits (Approximate volume % in air): LEL: N/D UEL: N/D

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.



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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:

SPILL MANAGEMENT

Land Spill: Allow spilled material to solidify and scrape up with shovels into a suitable container for recycle or disposal. Scrape up spilled material with shovels into a suitable container for recycle or disposal.

Water Spill: Stop leak if you can do it without risk. Confine the spill immediately with booms. Warn other shipping. Skim from surface.

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

Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7

HANDLING AND STORAGE

HANDLING

Prevent small spills and leakage to avoid slip hazard.

Static Accumulator: This material is not a static accumulator.

STORAGE

Do not store in open or unlabelled containers.

SECTION 8

EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMIT VALUES

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



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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 protection is ordinarily required under normal 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

See Sections 6, 7, 12, 13.

SECTION 9

PHYSICAL AND CHEMICAL PROPERTIES

Typical physical and chemical properties are given below. Consult the Supplier in Section 1 for additional data.

GENERAL INFORMATION

Physical State: Solid

Form: Semi-fluid

Color: Blue

Odor: Characteristic

Odor Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density: N/D

Flash Point [Method]: >246C (475F) [EST. FOR OIL, ASTM D-92 (COC)]



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Flammable Limits (Approximate volume % in air): LEL: N/D UEL: N/D
Autoignition Temperature: N/D
Boiling Point / Range: > 316C (600F) [Estimated]
Vapor Density (Air = 1): N/D
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: 220 cSt (220 mm²/sec) at 40 C
Oxidizing Properties: See Hazards Identification Section.

OTHER INFORMATION

Freezing Point: N/D
Melting Point: N/D
DMSO Extract (mineral oil only), IP-346: < 3 %wt
Decomposition Temperature: N/D

NOTE: Most physical properties above are for the oil component in the material.

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

<u>Route of Exposure</u>	<u>Conclusion / Remarks</u>
Inhalation	
Toxicity: No end point data.	Minimally Toxic. Based on assessment of the components.
Irritation: No end point data.	Negligible hazard at ambient/normal handling temperatures. Based on assessment of the components.
Ingestion	
Toxicity (Rat): LD50 > 5000 mg/kg	Minimally Toxic. Based on test data for structurally similar materials.
Skin	
Toxicity (Rabbit): LD50 > 5000 mg/kg	Minimally Toxic. Based on test data for structurally similar materials.
Irritation (Rabbit): Data available.	Negligible irritation to skin at ambient temperatures. Based on assessment of the components.
Eye	



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Irritation (Rabbit): Data available.

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.

Additional information is available by request.

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

1 = NTP CARC
2 = NTP SUS

--REGULATORY LISTS SEARCHED--

3 = IARC 1
4 = IARC 2A

5 = IARC 2B
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 Name: MOBILGREASE XHP 221

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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.

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, corrosivity 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:: IECSC, TSCA, EINECS, AICS, KECI, PICCS, DSL

Special Cases:

Inventory	Status
ENCS	Restrictions Apply

EPCRA: This material contains no extremely hazardous substances.

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

SARA (313) TOXIC RELEASE INVENTORY:



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Chemical Name	CAS Number	Typical Value
ZINC DITHIOPHOSPHATE	68649-42-3	1 - 5%

The following ingredients are cited on the lists below:

Chemical Name	CAS Number	List Citations
DIPHENYLAMINE	122-39-4	5, 18
DIPROPYLENE GLYCOL METHYL ETHER	34590-94-8	5
NAPHTHENIC ACIDS, ZINC SALTS	12001-85-3	15
ZINC DITHIOPHOSPHATE	68649-42-3	13, 15, 17
ZINC NEODECANOATE	27253-29-8	15

--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 10 Stability and Reactivity - Header was modified.
- Section 13: Disposal Recommendations - Note was modified.
- Section 13: Empty Container Warning was modified.
- Section 09: Boiling Point C(F) was modified.
- Section 09: n-Octanol/Water Partition Coefficient was modified.
- Section 08: Personal Protection was modified.
- Section 08: Hand Protection was modified.
- Section 07: Handling and Storage - Handling was modified.
- Section 11: Dermal Lethality Test Data was modified.
- Section 11: Oral Lethality Test Data was modified.
- Section 11: Inhalation Lethality Test Data was modified.
- Section 05: Hazardous Combustion Products was modified.
- Section 06: Accidental Release - Spill Management - Water was modified.
- Section 09: Flash Point C(F) 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.



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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 08: Exposure limits/standards was modified.
Section 15: OSHA Hazard Communication Standard 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 15: Special Cases - Header was added.
Section 15: Special Cases Table was added.
Section 15: Inventory - Header was added.
Section 15: Status - Header was added.
Section 09: Decomposition Temperature was added.
Section 09: Decomposition Temp - 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: 7049582XUS (1009415)

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SAFETY DATA SHEET

Klean Strip Paint Thinner

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Revision: 04/20/2015

Supersedes Revision: 09/08/2014

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name:	Klean Strip Paint Thinner	
Company Name:	W. M. Barr 2105 Channel Avenue Memphis, TN 38113	Phone Number: (901)775-0100
Web site address:	www.wmbarr.com	
Emergency Contact:	3E 24 Hour Emergency Contact	(800)451-8346
Information:	W.M. Barr Customer Service	(800)398-3892
Intended Use:	Paint, stain, and varnish thinning.	
Synonyms:	CKPT94402, GKPT94002B, DKPT94403CA, EKPT94401, GKPT94002, GKPT94002P, GKPT94002T, GKPT94400, GPT1KS, PA12779, QKPT94003, QKPT94203, QPT1KS, GKPTDP	
Additional Information	This product is regulated by the United States Consumer Product Safety Commission and is subject to certain labeling requirements under the Federal Hazardous Substances Act. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS). The product label also includes other important information, including directions for use, and should always be read in its entirety prior to using the product.	

2. HAZARDS IDENTIFICATION

Flammable Liquids, Category 3
Skin Corrosion/Irritation, Category 2
Serious Eye Damage/Eye Irritation, Category 2B
Toxic To Reproduction, Category 2
Specific Target Organ Toxicity (single exposure), Category 3
Specific Target Organ Toxicity (repeated exposure), Category 2
Aspiration Toxicity, Category 1



GHS Signal Word: Danger

GHS Hazard Phrases: H226: Flammable liquid and vapor.
H304: May be fatal if swallowed and enters airways.
H315: Causes skin irritation.
H320: Causes eye irritation.
H335: May cause respiratory irritation.
H336: May cause drowsiness or dizziness.
H361: Suspected of damaging fertility or the unborn child if inhaled.
H373: May cause damage to cardiovascular system and central nervous system through prolonged or repeated exposure.

GHS Precaution Phrases: P201: Obtain special instructions before use.
P202: Do not handle until all safety precautions have been read and understood.
P210: Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P233: Keep container tightly closed.
P240: Ground/bond container and receiving equipment.
P241: Use explosion-proof electrical/ventilating/lighting equipment.
P242: Use only non-sparking tools.
P243: Take precautionary measures against static discharge.
P260: Do not breathe gas/mist/vapors/spray.
P264: Wash hands thoroughly after handling.

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Klean Strip Paint Thinner

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GHS Response Phrases:

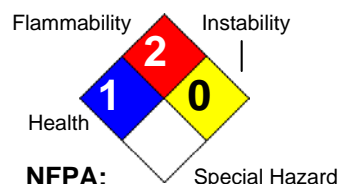
P271: Use only outdoors or in a well-ventilated area.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P281: Use personal protective equipment as required.
P235: Keep cool.
P301+310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P302+352: IF ON SKIN: Wash with plenty of soap and water.
P303+361+353: IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+313: IF exposed or concerned: Get medical attention/advice.
P312: Call a POISON CENTER or doctor/physician if you feel unwell.
P314: Get medical attention/advice if you feel unwell.
P321: Specific treatment see label.
P331: Do NOT induce vomiting.
P332+313: If skin irritation occurs, get medical advice/attention.
P337+313: If eye irritation persists, get medical advice/attention.
P362: Take off contaminated clothing and wash before re-use.
P370+378: In case of fire, use dry chemical powder to extinguish.

GHS Storage and Disposal Phrases:

P403+233: Store container tightly closed in well-ventilated place.
P405: Store locked up.
P501: Dispose of contents/container according to local, state and federal regulations.

Hazard Rating System:

HEALTH	*	1
FLAMMABILITY		2
PHYSICAL		0
PPE		

**HMIS:****OSHA Regulatory Status:**

This material is classified as hazardous under OSHA regulations.

Potential Health Effects (Acute and Chronic):**Inhalation Acute Exposure Effects:**

May cause dizziness; headache; watering of eyes; eye irritation; weakness; nausea; muscle twitches, and depression of central nervous system. Severe overexposure may cause convulsions; unconsciousness; and death. Intentional misuse of this product by deliberately concentrating and inhaling can be harmful or fatal.

Skin Contact Acute Exposure Effects:

May cause irritation; numbness in the fingers and arms; drying of skin; and dermatitis. May cause increased severity of symptoms listed under inhalation.

Eye Contact Acute Exposure Effects:

This material is an eye irritant. May cause irritation; burns; conjunctivitis of eyes; and corneal ulcerations of the eye. Vapors may irritate eyes.

Ingestion Acute Exposure Effects:

Harmful or fatal if swallowed. May cause nausea; weakness; muscle twitches; gastrointestinal irritation; and diarrhea. Severe overexposure may cause convulsions; unconsciousness; and death.

Chronic Exposure Effects:

Reports have associated repeated and prolonged overexposure to solvents with neurological and other physiological damage. Prolonged or repeated contact may cause

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dermatitis. May cause jaundice; bone marrow damage; liver damage; anemia; and skin irritation.

Medical Conditions Generally Aggravated By Exposure: Diseases of the skin, eyes, liver, kidneys, central nervous system and respiratory system.

3. COMPOSITION/INFORMATION ON INGREDIENTS

CAS #	Hazardous Components (Chemical Name)	Concentration	RTECS #
64742-47-8	Hydrotreated light distillate (petroleum)	<=100.0 %	OA5504000
64742-82-1	Naphtha (petroleum), hydrodesulfurized heavy	<=100.0 %	NA
8052-41-3	Stoddard solvent {Mineral spirits; Aliphatic Petroleum Distillates; White spirits}	<=95.0 %	WJ8925000
25550-14-5	Benzene, Ethylmethyl-	<=1.5 %	NA
25551-13-7	Benzene, Trimethyl-	<=1.5 %	DC3220000
95-63-6	1,2,4-Trimethylbenzene {Pseudocumene}	<=1.0 %	DC3325000
1330-20-7	Xylene (mixed isomers) {Benzene, dimethyl-}	<=1.0 %	ZE2100000
103-65-1	Benzene, Propyl- {N-Propylbenzene}	<=1.0 %	DA8750000

Additional Chemical Information Ingredients vary due to multiple blends and/or raw material suppliers

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 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:

Flush with large quantities of water for at least 15 minutes and seek immediate medical attention.

Ingestion:

Do not induce vomiting. Call your local poison control center, hospital emergency room or physician immediately for instructions to induce vomiting.

If spontaneous vomiting is about to occur, place victim's head below knees. If victim is drowsy or unconscious, place on the left side with head down. Never give anything by mouth to a person who is not fully conscious. Do not leave victim unattended. Seek medical attention immediately.

Signs and Symptoms Of Exposure:

Inhalation, ingestion, and dermal are possible routes of exposure.

Note to Physician:

Call your local poison control center for further information.

Inhalation: Inhalation overexposure can produce toxic effects. Monitor for respiratory distress. If cough or difficulty in breathing develops, evaluate for upper respiratory tract inflammation, bronchitis, and pneumonitis. Administer supplemental oxygen with assisted ventilation as required.

Ingestion: If ingested, this material presents a significant aspiration and chemical

pneumonitis hazard. Induction of emesis is not recommended. Consider activated charcoal and/or gastric lavage. If patient is obtunded, protect the airway by cuffed endotracheal intubation or by placement of the body in a Trendelenburg and left lateral decubitus position.

5. FIRE FIGHTING MEASURES

Flash Pt:	NFPA Class II > 100.00 F
Explosive Limits:	LEL: 0.5 UEL: 6
Autoignition Pt:	No data.
Suitable Extinguishing Media:	Use carbon dioxide, dry chemical powder, or foam.
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:	Combustible Liquid.

6. ACCIDENTAL RELEASE MEASURES

Steps To Be Taken In Case Material Is Released Or Spilled:	Clean up: Keep unnecessary people away; isolate hazard area and deny entry. Stay upwind, out of low areas, and ventilate closed spaces before entering. Shut off ignition sources; keep flares, smoking or flames out of hazard area. Small spills: Take up with sand, earth or other noncombustible absorbent material and place in a plastic container where applicable. Large spills: Dike far ahead of spill for later disposal. Waste Disposal: Dispose in accordance with applicable local, state and federal regulations.
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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. A static electrical charge can accumulate when this material is flowing through pipes, nozzles or filters, and when it is agitated. A static spark discharge can ignite accumulated vapors particularly during dry weather conditions. Always use proper bonding and grounding procedures.
Precautions To Be Taken in Storing:	Keep container tightly closed when not in use. Store in a cool, dry place. Do not store near flames or at elevated temperatures.

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Klean Strip Paint Thinner

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

CAS #	Partial Chemical Name	OSHA TWA	ACGIH TWA	Other Limits
64742-47-8	Hydrotreated light distillate (petroleum)	No data.	TLV: 200 mg/m3	No data.
64742-82-1	Naphtha (petroleum), hydrodesulfurized heavy	No data.	No data.	No data.
8052-41-3	Stoddard solvent {Mineral spirits; Aliphatic Petroleum Distillates; White spirits}	PEL: 500 ppm	TLV: 100 ppm	No data.
25550-14-5	Benzene, Ethylmethyl-	No data.	No data.	No data.
25551-13-7	Benzene, Trimethyl-	No data.	TLV: 25 ppm	No data.
95-63-6	1,2,4-Trimethylbenzene {Pseudocumene}	No data.	No data.	No data.
1330-20-7	Xylene (mixed isomers) {Benzene, dimethyl-}	PEL: 100 ppm	TLV: 100 ppm STEL: 150 ppm	No data.
103-65-1	Benzene, Propyl- {N-Propylbenzene}	No data.	No data.	No data.

Respiratory Equipment (Specify Type): For OSHA controlled work place and other regular users. Use only with adequate ventilation under engineered air control systems designed to prevent exceeding appropriate TLV. For occasional use, where engineered air control is not feasible, use properly maintained and properly fitted NIOSH approved respirator for organic solvent vapors. A dust mask does not provide protection against vapors.

Eye Protection: Safety glasses, goggles or face shields are recommended to safeguard against potential eye contact, irritation, or injury. Contact lenses should not be worn while working with chemicals.

Protective Gloves: Wear impermeable gloves. Gloves contaminated with product should be discarded. Promptly remove clothing that becomes soiled with product.

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

Engineering Controls (Ventilation etc.): Use only with adequate ventilation to prevent build-up of vapors. Open all windows and doors. Use only with 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.

Work/Hygienic/Maintenance Practices: A source of clean water should be available in the work area for flushing eyes and skin. Do not eat, drink, or smoke in the work area. Wash hands thoroughly after use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical States: [] Gas [X] Liquid [] Solid
Appearance and Odor: Water White / Free and Clear
Melting Point: No data.
Boiling Point: 318.00 F - 385.00 F
Autoignition Pt: No data.
Flash Pt: > 100.00 F
Explosive Limits: LEL: 0.5 UEL: 6
Specific Gravity (Water = 1): 0.78
Vapor Pressure (vs. Air or mm Hg): 0.3 MM HG at 68.0 F
Vapor Density (vs. Air = 1): 5 Air = 1
Evaporation Rate: No data.
Solubility in Water: No data.
Solubility Notes: Very slightly soluble in cold water.
Percent Volatile: 100.0 % by weight.
VOC / Volume: 778.0000 G/L

10. STABILITY AND REACTIVITY

Stability: Unstable [] Stable [X]
Conditions To Avoid - Instability: No data available.
Incompatibility - Materials To Avoid: Incompatible with strong acids, alkalies, and oxidizers such as liquid chlorine and oxygen.
Hazardous Decomposition Or Byproducts: Decomposition may produce carbon monoxide and carbon dioxide.
Possibility of Hazardous Reactions: Will occur [] Will not occur [X]
Conditions To Avoid - Hazardous Reactions: No data available.

11. TOXICOLOGICAL INFORMATION

Toxicological Information: Refer to section 2 for acute and chronic effects.
CAS# 25551-13-7:
Standard Draize Test, Skin, Species: Rabbit, 500.0 MG, 24 H, Moderate.
Result:
Kidney, Ureter, Bladder: Changes in liver weight.
Endocrine: Changes in thymus weight.
Immunological Including Allergic: Decreased immune response.
- "Sbornik Vysledku Toxixologickeho Vysetreni Latek A Pripravku," , Institut Pro Vychovu Vedoucicn P, Marhold, J.V., Institut Pro Vychovu Vedoucicn, Pracovniku Chemickeho, Prumyclu Praha Czechoslovakia, Vol/p/yr: -,24, 1972

Standard Draize Test, Eyes, Species: Rabbit, 500.0 MG, 24 H, Mild.
Result:
Kidney, Ureter, Bladder: Changes in liver weight.
Kidney, Ureter, Bladder: Changes in bladder weight.
Nutritional and Gross Metabolic: Weight loss or decreased weight gain.
- "Sbornik Vysledku Toxixologickeho Vysetreni Latek A Pripravku," , Institut Pro Vychovu Vedoucicn P, Marhold, J.V., Institut Pro Vychovu Vedoucicn, Pracovniku Chemickeho,

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Prumyclu Praha Czechoslovakia, Vol/p/yr: -,24, 1972

CAS# 1330-20-7:

Acute toxicity, LC50, Inhalation, Rat, 5000. PPM, 4 H.

Result:

Behavioral: Muscle contraction or spasticity.

Lungs, Thorax, or Respiration: Other changes.

- Raw Material Data Handbook, Vol.1: Organic Solvents, 1974., National Assoc. of Printing Ink Research Institute, Francis McDonald Sinclair Memorial Labor, Lehigh Univ., Bethlehem, PA 18015, Vol/p/yr: 1,123, 1974

Standard Draize Test, Eyes, Species: Rabbit, 5.000 MG, 24 H, Severe.

Result:

Behavioral: General anesthetic.

Behavioral: Somnolence (general depressed activity).

Behavioral: Irritability.

- "Sbornik Vysledku Toxixologickeho Vysetreni Latek A Pripravku," , Institut Pro Vychovu Vedoucicn P, Marhold, J.V., Institut Pro Vychovu Vedoucicn, Pracovniku Chemickeho, Prumyclu Praha Czechoslovakia, Vol/p/yr: -,24, 1972

CAS #	Hazardous Components (Chemical Name)	NTP	IARC	ACGIH	OSHA
64742-47-8	Hydrotreated light distillate (petroleum)	n.a.	n.a.	A4	n.a.
64742-82-1	Naphtha (petroleum), hydrodesulfurized heavy	n.a.	n.a.	n.a.	n.a.
8052-41-3	Stoddard solvent {Mineral spirits; Aliphatic Petroleum Distillates; White spirits}	n.a.	n.a.	n.a.	n.a.
25550-14-5	Benzene, Ethylmethyl-	n.a.	n.a.	n.a.	n.a.
25551-13-7	Benzene, Trimethyl-	n.a.	n.a.	n.a.	n.a.
95-63-6	1,2,4-Trimethylbenzene {Pseudocumene}	n.a.	n.a.	n.a.	n.a.
1330-20-7	Xylene (mixed isomers) {Benzene, dimethyl-}	n.a.	3	A4	n.a.
103-65-1	Benzene, Propyl- {N-Propylbenzene}	n.a.	n.a.	n.a.	n.a.

12. ECOLOGICAL INFORMATION

No data available.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method: Dispose in accordance with federal, state, and local regulations.

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14. TRANSPORT INFORMATION

LAND TRANSPORT (US DOT):

DOT Proper Shipping Name: Paint Related Material, Exempt Combustible Liquid per 49 CFR 173.150(f)

DOT Hazard Class:

UN/NA Number:

Additional Transport Information:

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.

15. REGULATORY INFORMATION

EPA SARA (Superfund Amendments and Reauthorization Act of 1986) Lists

CAS #	Hazardous Components (Chemical Name)	S. 302 (EHS)	S. 304 RQ	S. 313 (TRI)
64742-47-8	Hydrotreated light distillate (petroleum)	No	No	No
64742-82-1	Naphtha (petroleum), hydrodesulfurized heavy	No	No	No
8052-41-3	Stoddard solvent {Mineral spirits; Aliphatic Petroleum Distillates; White spirits}	No	No	No
25550-14-5	Benzene, Ethylmethyl-	No	No	No
25551-13-7	Benzene, Trimethyl-	No	No	No
95-63-6	1,2,4-Trimethylbenzene {Pseudocumene}	No	No	Yes
1330-20-7	Xylene (mixed isomers) {Benzene, dimethyl-}	No	Yes 100 LB	Yes
103-65-1	Benzene, Propyl- {N-Propylbenzene}	No	No	No

This material meets the EPA Yes No **Acute (immediate) Health Hazard**
'Hazard Categories' defined Yes No **Chronic (delayed) Health Hazard**
for SARA Title III Sections Yes No **Fire Hazard**
311/312 as indicated: Yes No **Sudden Release of Pressure Hazard**
 Yes No **Reactive Hazard**

CAS #	Hazardous Components (Chemical Name)	Other US EPA or State Lists
64742-47-8	Hydrotreated light distillate (petroleum)	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory; CA PROP.65: No
64742-82-1	Naphtha (petroleum), hydrodesulfurized heavy	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory; CA PROP.65: No
8052-41-3	Stoddard solvent {Mineral spirits; Aliphatic Petroleum Distillates; White spirits}	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory; CA PROP.65: No
25550-14-5	Benzene, Ethylmethyl-	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory, 4 Test; CA PROP.65: No
25551-13-7	Benzene, Trimethyl-	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory; CA PROP.65: No
95-63-6	1,2,4-Trimethylbenzene {Pseudocumene}	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory; CA PROP.65: No
1330-20-7	Xylene (mixed isomers) {Benzene, dimethyl-}	CAA HAP,ODC: HAP; CWA NPDES: Yes; TSCA: Yes - Inventory; CA PROP.65: No
103-65-1	Benzene, Propyl- {N-Propylbenzene}	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory, 12(b); CA PROP.65: No

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Regulatory Information Statement: All components of this material are listed on the TSCA Inventory or are exempt.

16. OTHER INFORMATION

Revision Date: 04/20/2015

Preparer Name: W.M. Barr and Company, Inc. (901)775-0100

Additional Information About This Product: No data available.

This Product:

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.



MATERIAL SAFETY DATA SHEET

Gasoline, All Grades

MSDS No. 9950

EMERGENCY OVERVIEW

DANGER!

**EXTREMELY FLAMMABLE - EYE AND MUCOUS MEMBRANE IRRITANT
- EFFECTS CENTRAL NERVOUS SYSTEM - HARMFUL OR FATAL IF
SWALLOWED - ASPIRATION HAZARD**



NFPA 704 (Section 16)

High fire hazard. Keep away from heat, spark, open flame, and other ignition sources.

If ingested, do NOT induce vomiting, as this may cause chemical pneumonia (fluid in the lungs). Contact may cause eye, skin and mucous membrane irritation. Harmful if absorbed through the skin. Avoid prolonged breathing of vapors or mists. Inhalation may cause irritation, anesthetic effects (dizziness, nausea, headache, intoxication), and respiratory system effects.

Long-term exposure may cause effects to specific organs, such as to the liver, kidneys, blood, nervous system, and skin. Contains benzene, which can cause blood disease, including anemia and leukemia.

1. CHEMICAL PRODUCT and COMPANY INFORMATION

Hess Corporation
1 Hess Plaza
Woodbridge, NJ 07095-0961

EMERGENCY TELEPHONE NUMBER (24 hrs):

COMPANY CONTACT (business hours):

MSDS (Environment, Health, Safety) Internet Website

CHEMTREC (800)424-9300

Corporate Safety (732)750-6000

www.hess.com

SYNONYMS: Hess Conventional (Oxygenated and Non-oxygenated) Gasoline; Reformulated Gasoline (RFG); Reformulated Gasoline Blendstock for Oxygenate Blending (RBOB); Unleaded Motor or Automotive Gasoline

See Section 16 for abbreviations and acronyms.

2. COMPOSITION and INFORMATION ON INGREDIENTS *

INGREDIENT NAME (CAS No.)	CONCENTRATION PERCENT BY WEIGHT
Gasoline (86290-81-5)	100
Benzene (71-43-2)	0.1 - 4.9 (0.1 - 1.3 reformulated gasoline)
n-Butane (106-97-8)	< 10
Ethyl Alcohol (Ethanol) (64-17-5)	0 - 10
Ethyl benzene (100-41-4)	< 3
n-Hexane (110-54-3)	0.5 to 4
Methyl-tertiary butyl ether (MTBE) (1634-04-4)	0 to 15.0
Tertiary-amyl methyl ether (TAME) (994-05-8)	0 to 17.2
Toluene (108-88-3)	1 - 25
1,2,4- Trimethylbenzene (95-63-6)	< 6
Xylene, mixed isomers (1330-20-7)	1 - 15

A complex blend of petroleum-derived normal and branched-chain alkane, cycloalkane, alkene, and aromatic hydrocarbons. May contain antioxidant and multifunctional additives. Non-oxygenated Conventional Gasoline and RBOB do not have oxygenates (Ethanol or MTBE and/or TAME).



MATERIAL SAFETY DATA SHEET

Gasoline, All Grades

MSDS No. 9950

Oxygenated Conventional and Reformulated Gasoline will have oxygenates for octane enhancement or as legally required.

3. HAZARDS IDENTIFICATION

EYES

Moderate irritant. Contact with liquid or vapor may cause irritation.

SKIN

Practically non-toxic if absorbed following acute (single) exposure. May cause skin irritation with prolonged or repeated contact. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are exposed repeatedly.

INGESTION

The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death.

Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhea, and central nervous system (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur.

INHALATION

Excessive exposure may cause irritations to the nose, throat, lungs and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.

WARNING: the burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

CHRONIC EFFECTS and CARCINOGENICITY

Contains benzene, a regulated human carcinogen. Benzene has the potential to cause anemia and other blood diseases, including leukemia, after repeated and prolonged exposure. Exposure to light hydrocarbons in the same boiling range as this product has been associated in animal studies with systemic toxicity. See also Section 11 - Toxicological Information.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

Irritation from skin exposure may aggravate existing open wounds, skin disorders, and dermatitis (rash). Chronic respiratory disease, liver or kidney dysfunction, or pre-existing central nervous system disorders may be aggravated by exposure.

4. FIRST AID MEASURES

EYES

In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 min. Hold eyelids open to ensure adequate flushing. Seek medical attention.

SKIN

Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or waterless hand cleanser. Obtain medical attention if irritation or redness develops.

INGESTION



MATERIAL SAFETY DATA SHEET

Gasoline, All Grades

MSDS No. 9950

DO NOT INDUCE VOMITING. Do not give liquids. Obtain immediate medical attention. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Small amounts of material which enter the mouth should be rinsed out until the taste is dissipated.

INHALATION

Remove person to fresh air. If person is not breathing, ensure an open airway and provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:

FLASH POINT:	-45 °F (-43°C)
AUTOIGNITION TEMPERATURE:	highly variable; > 530 °F (>280 °C)
OSHA/NFPA FLAMMABILITY CLASS:	1A (flammable liquid)
LOWER EXPLOSIVE LIMIT (%):	1.4%
UPPER EXPLOSIVE LIMIT (%):	7.6%

FIRE AND EXPLOSION HAZARDS

Vapors may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. Flowing product may be ignited by self-generated static electricity. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

EXTINGUISHING MEDIA

SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, CO₂, water spray, fire fighting foam, or Halon.

LARGE FIRES: Water spray, fog or fire fighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

During certain times of the year and/or in certain geographical locations, gasoline may contain MTBE and/or TAME. Firefighting foam suitable for polar solvents is recommended for fuel with greater than 10% oxygenate concentration - refer to NFPA 11 "Low Expansion Foam - 1994 Edition."

FIRE FIGHTING INSTRUCTIONS

Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other fire fighting equipment.

Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus with full facepiece and full protective clothing.

Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water. For massive fires the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied fire fighting foam.

See Section 16 for the NFPA 704 Hazard Rating.



MATERIAL SAFETY DATA SHEET

Gasoline, All Grades

MSDS No. 9950

6. ACCIDENTAL RELEASE MEASURES

ACTIVATE FACILITY SPILL CONTINGENCY or EMERGENCY PLAN.

Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas. Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact.

Carefully contain and stop the source of the spill, if safe to do so. Protect bodies of water by diking, absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. The use of fire fighting foam may be useful in certain situations to reduce vapors. The proper use of water spray may effectively disperse product vapors or the liquid itself, preventing contact with ignition sources or areas/equipment that require protection.

Take up with sand or other oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal - caution, flammable vapors may accumulate in closed containers. Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

7. HANDLING and STORAGE

HANDLING PRECAUTIONS

*****USE ONLY AS A MOTOR FUEL*****

*****DO NOT SIPHON BY MOUTH*****

Handle as a flammable liquid. Keep away from heat, sparks, and open flame! Electrical equipment should be approved for classified area. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion.

Special slow load procedures for "switch loading" must be followed to avoid the static ignition hazard that can exist when higher flash point material (such as fuel oil) is loaded into tanks previously containing low flash point products (such as this product) - see API Publication 2003, "Protection Against Ignitions Arising Out Of Static, Lightning and Stray Currents.

STORAGE PRECAUTIONS

Keep away from flame, sparks, excessive temperatures and open flame. Use approved vented containers. Keep containers closed and clearly labeled. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.

Store in a well-ventilated area. This storage area should comply with NFPA 30 "Flammable and Combustible Liquid Code". Avoid storage near incompatible materials. The cleaning of tanks previously containing this product should follow API Recommended Practice (RP) 2013 "Cleaning Mobile Tanks In Flammable and Combustible Liquid Service" and API RP 2015 "Cleaning Petroleum Storage Tanks".

WORK/HYGIENIC PRACTICES

Emergency eye wash capability should be available in the near proximity to operations presenting a potential splash exposure. Use good personal hygiene practices. Avoid repeated and/or prolonged skin exposure. Wash hands before eating, drinking, smoking, or using toilet facilities. Do not use as a cleaning solvent on the skin. Do not use solvents or harsh abrasive skin cleaners for washing this product from exposed skin areas. Waterless hand cleaners are effective. Promptly remove contaminated clothing and launder before reuse. Use care when laundering to prevent the formation of flammable vapors which could ignite via washer or dryer. Consider the need to discard contaminated leather shoes and gloves.



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8. EXPOSURE CONTROLS and PERSONAL PROTECTION

EXPOSURE LIMITS

Component (CAS No.)	Source	TWA (ppm)	STEL (ppm)	Exposure Limits	Note
Gasoline (86290-81-5)	ACGIH	300	500	A3	
Benzene (71-43-2)	OSHA	1	5	Carcinogen	
	ACGIH	0.5	2.5	A1, skin	
	USCG	1	5		
n-Butane (106-97-8)	ACGIH	1000	--	Aliphatic Hydrocarbon Gases Alkane (C1-C4)	
Ethyl Alcohol (ethanol) (64-17-5)	OSHA	1000	--		
	ACGIH	1000	--	A4	
Ethyl benzene (100-41-4)	OSHA	100	--		
	ACGIH	100	125	A3	
n-Hexane (110-54-3)	OSHA	500	--		
	ACGIH	50	--	Skin	
Methyl-tertiary butyl ether [MTBE] (1634-04-4)	ACGIH	50	--	A3	
Tertiary-amyl methyl ether [TAME] (994-05-8)				None established	
Toluene (108-88-3)	OSHA	200	--	Ceiling: 300 ppm; Peak: 500 ppm (10 min.)	
	ACGIH	20	--	A4	
1,2,4- Trimethylbenzene (95-63-6)	ACGIH	25	--		
Xylene, mixed isomers (1330-20-7)	OSHA	100	--		
	ACGIH	100	150	A4	

ENGINEERING CONTROLS

Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

EYE/FACE PROTECTION

Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.

SKIN PROTECTION

Gloves constructed of nitrile or neoprene are recommended. Chemical protective clothing such as that made of of E.I. DuPont Tychem®, products or equivalent is recommended based on degree of exposure.

Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for further information.

RESPIRATORY PROTECTION

A NIOSH-approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited. Refer to OSHA 29 CFR 1910.134, NIOSH Respirator Decision Logic, and the manufacturer for additional guidance on respiratory protection selection and limitations.

Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.

9. PHYSICAL and CHEMICAL PROPERTIES

APPEARANCE

A translucent, straw-colored or light yellow liquid



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ODOR

A strong, characteristic aromatic hydrocarbon odor. Oxygenated gasoline with MTBE and/or TAME may have a sweet, ether-like odor and is detectable at a lower concentration than non-oxygenated gasoline.

ODOR THRESHOLD

	<u>Odor Detection</u>	<u>Odor Recognition</u>
Non-oxygenated gasoline:	0.5 - 0.6 ppm	0.8 - 1.1 ppm
Gasoline with 15% MTBE:	0.2 - 0.3 ppm	0.4 - 0.7 ppm
Gasoline with 15% TAME:	0.1 ppm	0.2 ppm

BASIC PHYSICAL PROPERTIES

BOILING RANGE:	85 to 437 °F (39 to 200 °C)
VAPOR PRESSURE:	6.4 - 15 RVP @ 100 °F (38 °C) (275-475 mm Hg @ 68 °F (20 °C)
VAPOR DENSITY (air = 1):	AP 3 to 4
SPECIFIC GRAVITY (H ₂ O = 1):	0.70 - 0.78
EVAPORATION RATE:	10-11 (n-butyl acetate = 1)
PERCENT VOLATILES:	100 %
SOLUBILITY (H ₂ O):	Non-oxygenated gasoline - negligible (< 0.1% @ 77 °F). Gasoline with 15% MTBE - slight (0.1 - 3% @ 77 °F); ethanol is readily soluble in water

10. STABILITY and REACTIVITY)

STABILITY: Stable. Hazardous polymerization will not occur.

CONDITIONS TO AVOID

Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources

INCOMPATIBLE MATERIALS

Keep away from strong oxidizers.

HAZARDOUS DECOMPOSITION PRODUCTS

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke). Contact with nitric and sulfuric acids will form nitroresols that can decompose violently.

11. TOXICOLOGICAL PROPERTIES

ACUTE TOXICITY

Acute Dermal LD50 (rabbits): > 5 ml/kg	Acute Oral LD50 (rat): 18.75 ml/kg
Primary dermal irritation (rabbits): slightly irritating	Draize eye irritation (rabbits): non-irritating
Guinea pig sensitization: negative	

CHRONIC EFFECTS AND CARCINOGENICITY

Carcinogenicity: OSHA: NO IARC: YES - 2B NTP: NO ACGIH: YES (A3)

IARC has determined that gasoline and gasoline exhaust are possibly carcinogenic in humans. Inhalation exposure to completely vaporized unleaded gasoline caused kidney cancers in male rats and liver tumors in female mice. The U.S. EPA has determined that the male kidney tumors are species-specific and are irrelevant for human health risk assessment. The significance of the tumors seen in female mice is not known. Exposure to light hydrocarbons in the same boiling range as this product has been associated in animal studies with effects to the central and peripheral nervous systems, liver, and kidneys. The significance of these animal models to predict similar human response to gasoline is uncertain.

This product contains benzene. Human health studies indicate that prolonged and/or repeated overexposure to benzene may cause damage to the blood-forming system (particularly bone marrow), and serious blood disorders such as aplastic anemia and leukemia. Benzene is listed as a human carcinogen by the NTP, IARC, OSHA and ACGIH.



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This product may contain methyl tertiary butyl ether (MTBE): animal and human health effects studies indicate that MTBE may cause eye, skin, and respiratory tract irritation, central nervous system depression and neurotoxicity. MTBE is classified as an animal carcinogen (A3) by the ACGIH.

12. ECOLOGICAL INFORMATION

Keep out of sewers, drainage areas and waterways. Report spills and releases, as applicable, under Federal and State regulations. If released, oxygenates such as ethers and alcohols will be expected to exhibit fairly high mobility in soil, and therefore may leach into groundwater. The API (www.api.org) provides a number of useful references addressing petroleum and oxygenate contamination of groundwater.

13. DISPOSAL CONSIDERATIONS

Consult federal, state and local waste regulations to determine appropriate disposal options.

14. TRANSPORTATION INFORMATION

DOT PROPER SHIPPING NAME: Gasoline
DOT HAZARD CLASS and PACKING GROUP: 3, PG II
DOT IDENTIFICATION NUMBER: UN 1203
DOT SHIPPING LABEL: FLAMMABLE LIQUID

PLACARD:



15. REGULATORY INFORMATION

U.S. FEDERAL, STATE, and LOCAL REGULATORY INFORMATION

This product and its constituents listed herein are on the EPA TSCA Inventory. Any spill or uncontrolled release of this product, including any substantial threat of release, may be subject to federal, state and/or local reporting requirements. This product and/or its constituents may also be subject to other federal, state, or local regulations; consult those regulations applicable to your facility/operation.

CLEAN WATER ACT (OIL SPILLS)

Any spill or release of this product to "navigable waters" (essentially any surface water, including certain wetlands) or adjoining shorelines sufficient to cause a visible sheen or deposit of a sludge or emulsion must be reported immediately to the National Response Center (1-800-424-8802) as required by U.S. Federal Law. Also contact appropriate state and local regulatory agencies as required.

CERCLA SECTION 103 and SARA SECTION 304 (RELEASE TO THE ENVIRONMENT)

The CERCLA definition of hazardous substances contains a "petroleum exclusion" clause which exempts crude oil, refined, and unrefined petroleum products and any indigenous components of such. However, other federal reporting requirements (e.g., SARA Section 304 as well as the Clean Water Act if the spill occurs on navigable waters) may still apply.

SARA SECTION 311/312 - HAZARD CLASSES

Table with 5 columns: ACUTE HEALTH, CHRONIC HEALTH, FIRE, SUDDEN RELEASE OF PRESSURE, REACTIVE. Values: X, X, X, --, --

SARA SECTION 313 - SUPPLIER NOTIFICATION

This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372:

Table with 2 columns: INGREDIENT NAME (CAS NUMBER), CONCENTRATION WT. PERCENT. Rows: Benzene (71-43-2) 0.1 to 4.9 (0.1 to 1.3 for reformulated gasoline), Ethyl benzene (100-41-4) < 3



MATERIAL SAFETY DATA SHEET

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n-Hexane (110-54-3)	0.5 to 4
Methyl-tertiary butyl ether (MTBE) (1634-04-4)	0 to 15.0
Toluene (108-88-3)	1 to 15
1,2,4- Trimethylbenzene (95-63-6)	< 6
Xylene, mixed isomers (1330-20-7)	1 to 15

US EPA guidance documents (www.epa.gov/tri) for reporting Persistent Bioaccumulating Toxics (PBTs) indicate this product may contain the following deminimis levels of toxic chemicals subject to Section 313 reporting:

<u>INGREDIENT NAME (CAS NUMBER)</u>	<u>CONCENTRATION - Parts per million (ppm) by weight</u>
Polycyclic aromatic compounds (PACs)	17
Benzo (g,h,i) perylene (191-24-2)	2.55
Lead (7439-92-1)	0.079

CALIFORNIA PROPOSITION 65 LIST OF CHEMICALS

This product contains the following chemicals that are included on the Proposition 65 "List of Chemicals" required by the California Safe Drinking Water and Toxic Enforcement Act of 1986:

<u>INGREDIENT NAME (CAS NUMBER)</u>	<u>Date Listed</u>
Benzene	2/27/1987
Ethyl benzene	6/11/2004
Toluene	1/1/1991

CANADIAN REGULATORY INFORMATION (WHMIS)

Class B, Division 2 (Flammable Liquid)
Class D, Division 2A (Very toxic by other means) and Class D, Division 2B (Toxic by other means)

16. OTHER INFORMATION

<u>NFPA® HAZARD RATING</u>	HEALTH:	1	Slight
	FIRE:	3	Serious
	REACTIVITY:	0	Minimal
<u>HMIS® HAZARD RATING</u>	HEALTH:	1 *	Slight
	FIRE:	3	Serious
	PHYSICAL:	0	Minimal
			* CHRONIC

SUPERSEDES MSDS DATED: 07/01/06

ABBREVIATIONS:

AP = Approximately < = Less than > = Greater than
N/A = Not Applicable N/D = Not Determined ppm = parts per million

ACRONYMS:

ACGIH	American Conference of Governmental Industrial Hygienists	CERCLA	Comprehensive Emergency Response, Compensation, and Liability Act
AIHA	American Industrial Hygiene Association	DOT	U.S. Department of Transportation [General Info: (800)467-4922]
ANSI	American National Standards Institute (212)642-4900	EPA	U.S. Environmental Protection Agency
API	American Petroleum Institute (202)682-8000	HMIS	Hazardous Materials Information System



MATERIAL SAFETY DATA SHEET

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IARC	International Agency For Research On Cancer	REL	Recommended Exposure Limit (NIOSH)
MSHA	Mine Safety and Health Administration	SARA	Superfund Amendments and Reauthorization Act of 1986 Title III
NFPA	National Fire Protection Association (617)770-3000	SCBA	Self-Contained Breathing Apparatus
NIOSH	National Institute of Occupational Safety and Health	SPCC	Spill Prevention, Control, and Countermeasures
NOIC	Notice of Intended Change (proposed change to ACGIH TLV)	STEL	Short-Term Exposure Limit (generally 15 minutes)
NTP	National Toxicology Program	TLV	Threshold Limit Value (ACGIH)
OPA	Oil Pollution Act of 1990	TSCA	Toxic Substances Control Act
OSHA	U.S. Occupational Safety & Health Administration	TWA	Time Weighted Average (8 hr.)
PEL	Permissible Exposure Limit (OSHA)	WEEL	Workplace Environmental Exposure Level (AIHA)
RCRA	Resource Conservation and Recovery Act	WHMIS	Workplace Hazardous Materials Information System (Canada)

DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES

Information presented herein has been compiled from sources considered to be dependable, and is accurate and reliable to the best of our knowledge and belief, but is not guaranteed to be so. Since conditions of use are beyond our control, we make no warranties, expressed or implied, except those that may be contained in our written contract of sale or acknowledgment.

Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material, even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in their use of the material.



Safety Data Sheet

Material Name: Diesel Fuel, All Types

SDS No. 9909
US GHS

Synonyms: Ultra Low Sulfur Diesel; Low Sulfur Diesel; No. 2 Diesel; Motor Vehicle Diesel Fuel; Non-Road Diesel Fuel; Locomotive/Marine Diesel Fuel

*** Section 1 - Product and Company Identification ***

Manufacturer Information

Hess Corporation
1 Hess Plaza
Woodbridge, NJ 07095-0961

Phone: 732-750-6000 Corporate EHS
Emergency # 800-424-9300 CHEMTREC
www.hess.com (Environment, Health, Safety Internet Website)

*** Section 2 - Hazards Identification ***

GHS Classification:

Flammable Liquids - Category 3
Skin Corrosion/Irritation – Category 2
Germ Cell Mutagenicity – Category 2
Carcinogenicity - Category 2
Specific Target Organ Toxicity (Single Exposure) - Category 3 (respiratory irritation, narcosis)
Aspiration Hazard – Category 1
Hazardous to the Aquatic Environment, Acute Hazard – Category 3

GHS LABEL ELEMENTS

Symbol(s)



Signal Word

DANGER

Hazard Statements

Flammable liquid and vapor.
Causes skin irritation.
Suspected of causing genetic defects.
Suspected of causing cancer.
May cause respiratory irritation.
May cause drowsiness or dizziness.
May be fatal if swallowed and enters airways.
Harmful to aquatic life.

Precautionary Statements

Prevention

Keep away from heat/sparks/open flames/hot surfaces. No smoking
Keep container tightly closed.
Ground/bond container and receiving equipment.

Safety Data Sheet

Material Name: Diesel Fuel, All Types

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Use explosion-proof electrical/ventilating/lighting/equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Wear protective gloves/protective clothing/eye protection/face protection.
Wash hands and forearms thoroughly after handling.
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Avoid breathing fume/mist/vapours/spray.

Response

In case of fire: Use water spray, fog or foam to extinguish.
IF ON SKIN (or hair): Wash with plenty of soap and water. Remove/Take off immediately all contaminated clothing and wash it before reuse. If skin irritation occurs: Get medical advice/attention.
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor if you feel unwell.
If swallowed: Immediately call a poison center or doctor. Do NOT induce vomiting.
IF exposed or concerned: Get medical advice/attention.

Storage

Store in a well-ventilated place. Keep cool.
Keep container tightly closed.
Store locked up.

Disposal

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

* * * Section 3 - Composition / Information on Ingredients * * *

CAS #	Component	Percent
68476-34-6	Fuels, diesel, no. 2	100
91-20-3	Naphthalene	<0.1

A complex mixture of hydrocarbons with carbon numbers in the range C9 and higher.

* * * Section 4 - First Aid Measures * * *

First Aid: Eyes

In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 min. Hold eyelids open to ensure adequate flushing. Seek medical attention.

First Aid: Skin

Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or with waterless hand cleanser. Obtain medical attention if irritation or redness develops. Thermal burns require immediate medical attention depending on the severity and the area of the body burned.

First Aid: Ingestion

DO NOT INDUCE VOMITING. Do not give liquids. Obtain immediate medical attention. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Monitor for breathing difficulties. Small amounts of material which enter the mouth should be rinsed out until the taste is dissipated.

Safety Data Sheet

Material Name: Diesel Fuel, All Types

SDS No. 9909

First Aid: Inhalation

Remove person to fresh air. If person is not breathing, provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

* * * Section 5 - Fire Fighting Measures * * *

General Fire Hazards

See Section 9 for Flammability Properties.

Vapors may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

Hazardous Combustion Products

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

Extinguishing Media

SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, CO₂, water spray, fire fighting foam, and other gaseous agents.

LARGE FIRES: Water spray, fog or fire fighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

Unsuitable Extinguishing Media

None

Fire Fighting Equipment/Instructions

Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other fire fighting equipment. Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus with full facepiece and full protective clothing. Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water. For massive fires the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied fire fighting foam.

* * * Section 6 - Accidental Release Measures * * *

Recovery and Neutralization

Carefully contain and stop the source of the spill, if safe to do so.

Materials and Methods for Clean-Up

Take up with sand or other oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal. Caution, flammable vapors may accumulate in closed containers.

Emergency Measures

Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas. Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact.

Safety Data Sheet

Material Name: Diesel Fuel, All Types

SDS No. 9909

Personal Precautions and Protective Equipment

Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

Environmental Precautions

Protect bodies of water by diking, absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. The use of fire fighting foam may be useful in certain situations to reduce vapors. The proper use of water spray may effectively disperse product vapors or the liquid itself, preventing contact with ignition sources or areas/equipment that require protection.

Prevention of Secondary Hazards

None

* * * Section 7 - Handling and Storage * * *

Handling Procedures

Handle as a combustible liquid. Keep away from heat, sparks, excessive temperatures and open flame! No smoking or open flame in storage, use or handling areas. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion.

Special slow load procedures for "switch loading" must be followed to avoid the static ignition hazard that can exist when higher flash point material (such as fuel oil) is loaded into tanks previously containing low flash point products (such as this product) - see API Publication 2003, "Protection Against Ignitions Arising Out Of Static, Lightning and Stray Currents."

Storage Procedures

Keep away from flame, sparks, excessive temperatures and open flame. Use approved vented containers. Keep containers closed and clearly labeled. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.

Store in a well-ventilated area. This storage area should comply with NFPA 30 "Flammable and Combustible Liquid Code". Avoid storage near incompatible materials. The cleaning of tanks previously containing this product should follow API Recommended Practice (RP) 2013 "Cleaning Mobile Tanks In Flammable and Combustible Liquid Service" and API RP 2015 "Cleaning Petroleum Storage Tanks."

Incompatibilities

Keep away from strong oxidizers.

* * * Section 8 - Exposure Controls / Personal Protection * * *

Component Exposure Limits

Fuels, diesel, no. 2 (68476-34-6)

ACGIH: 100 mg/m³ TWA (inhalable fraction and vapor, as total hydrocarbons, listed under Diesel fuel)
Skin - potential significant contribution to overall exposure by the cutaneous route (listed under Diesel fuel)

Safety Data Sheet

Material Name: Diesel Fuel, All Types

SDS No. 9909

Naphthalene (91-20-3)

ACGIH: 10 ppm TWA
15 ppm STEL
Skin - potential significant contribution to overall exposure by the cutaneous route
OSHA: 10 ppm TWA; 50 mg/m³ TWA
NIOSH: 10 ppm TWA; 50 mg/m³ TWA
15 ppm STEL; 75 mg/m³ STEL

Engineering Measures

Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

Personal Protective Equipment: Respiratory

A NIOSH/MSHA-approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited.

Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.

Personal Protective Equipment: Hands

Gloves constructed of nitrile, neoprene, or PVC are recommended.

Personal Protective Equipment: Eyes

Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.

Personal Protective Equipment: Skin and Body

Chemical protective clothing such as of E.I. DuPont TyChem®, Saranex® or equivalent recommended based on degree of exposure. Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for further information.

* * * Section 9 - Physical & Chemical Properties * * *

Appearance:	Clear, straw-yellow.	Odor:	Mild, petroleum distillate odor
Physical State:	Liquid	pH:	ND
Vapor Pressure:	0.009 psia @ 70 °F (21 °C)	Vapor Density:	>1.0
Boiling Point:	320 to 690 °F (160 to 366 °C)	Melting Point:	ND
Solubility (H₂O):	Negligible	Specific Gravity:	0.83-0.876 @ 60°F (16°C)
Evaporation Rate:	Slow; varies with conditions	VOC:	ND
Percent Volatile:	100%	Octanol/H₂O Coeff.:	ND
Flash Point:	>125 °F (>52 °C) minimum	Flash Point Method:	PMCC
Upper Flammability Limit (UFL):	7.5	Lower Flammability Limit (LFL):	0.6
Burning Rate:	ND	Auto Ignition:	494°F (257°C)

* * * Section 10 - Chemical Stability & Reactivity Information * * *

Chemical Stability

This is a stable material.

Hazardous Reaction Potential

Will not occur.

Safety Data Sheet

Material Name: Diesel Fuel, All Types

SDS No. 9909

Conditions to Avoid

Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources.

Incompatible Products

Keep away from strong oxidizers.

Hazardous Decomposition Products

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

* * * Section 11 - Toxicological Information * * *

Acute Toxicity

A: General Product Information

Harmful if swallowed.

B: Component Analysis - LD50/LC50

Naphthalene (91-20-3)

Inhalation LC50 Rat >340 mg/m³ 1 h; Oral LD50 Rat 490 mg/kg; Dermal LD50 Rat >2500 mg/kg; Dermal LD50 Rabbit >20 g/kg

Potential Health Effects: Skin Corrosion Property/Stimulativeness

Practically non-toxic if absorbed following acute (single) exposure. May cause skin irritation with prolonged or repeated contact. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are repeatedly exposed.

Potential Health Effects: Eye Critical Damage/ Stimulativeness

Contact with eyes may cause mild irritation.

Potential Health Effects: Ingestion

Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhea, and central nervous system (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur.

Potential Health Effects: Inhalation

Excessive exposure may cause irritations to the nose, throat, lungs and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.

WARNING: the burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

Respiratory Organs Sensitization/Skin Sensitization

This product is not reported to have any skin sensitization effects.

Generative Cell Mutagenicity

This material has been positive in a mutagenicity study.

Carcinogenicity

A: General Product Information

Suspected of causing cancer.

Safety Data Sheet

Material Name: Diesel Fuel, All Types

SDS No. 9909

Studies have shown that similar products produce skin tumors in laboratory animals following repeated applications without washing or removal. The significance of this finding to human exposure has not been determined. Other studies with active skin carcinogens have shown that washing the animal's skin with soap and water between applications reduced tumor formation.

B: Component Carcinogenicity

Fuels, diesel, no. 2 (68476-34-6)

ACGIH: A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans (listed under Diesel fuel)

Naphthalene (91-20-3)

ACGIH: A4 - Not Classifiable as a Human Carcinogen

NTP: Reasonably Anticipated To Be A Human Carcinogen (Possible Select Carcinogen)

IARC: Monograph 82 [2002] (Group 2B (possibly carcinogenic to humans))

Reproductive Toxicity

This product is not reported to have any reproductive toxicity effects.

Specified Target Organ General Toxicity: Single Exposure

This product is not reported to have any specific target organ general toxicity single exposure effects.

Specified Target Organ General Toxicity: Repeated Exposure

This product is not reported to have any specific target organ general toxicity repeat exposure effects.

Aspiration Respiratory Organs Hazard

The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death.

* * * Section 12 - Ecological Information * * *

Ecotoxicity

A: General Product Information

Keep out of sewers, drainage areas and waterways. Report spills and releases, as applicable, under Federal and State regulations.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

Fuels, diesel, no. 2 (68476-34-6)

Test & Species

Test & Species	Conditions
96 Hr LC50 Pimephales promelas	35 mg/L [flow-through]

Conditions

Naphthalene (91-20-3)

Test & Species

Test & Species	Conditions
96 Hr LC50 Pimephales promelas	5.74-6.44 mg/L [flow-through]
96 Hr LC50 Oncorhynchus mykiss	1.6 mg/L [flow-through]
96 Hr LC50 Oncorhynchus mykiss	0.91-2.82 mg/L [static]
96 Hr LC50 Pimephales promelas	1.99 mg/L [static]

Conditions

Safety Data Sheet

Material Name: Diesel Fuel, All Types

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96 Hr LC50 Lepomis macrochirus	31.0265 mg/L [static]
72 Hr EC50 Skeletonema costatum	0.4 mg/L
48 Hr LC50 Daphnia magna	2.16 mg/L
48 Hr EC50 Daphnia magna	1.96 mg/L [Flow through]
48 Hr EC50 Daphnia magna	1.09 - 3.4 mg/L [Static]

Persistence/Degradability

No information available.

Bioaccumulation

No information available.

Mobility in Soil

No information available.

*** Section 13 - Disposal Considerations ***

Waste Disposal Instructions

See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations.

Disposal of Contaminated Containers or Packaging

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

*** Section 14 - Transportation Information ***

DOT Information

Shipping Name: Diesel Fuel

NA #: 1993 Hazard Class: 3 Packing Group: III

Placard:



*** Section 15 - Regulatory Information ***

Regulatory Information

Component Analysis

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

Naphthalene (91-20-3)

CERCLA: 100 lb final RQ; 45.4 kg final RQ

SARA Section 311/312 – Hazard Classes

<u>Acute Health</u>	<u>Chronic Health</u>	<u>Fire</u>	<u>Sudden Release of Pressure</u>	<u>Reactive</u>
X	X	X	--	--

Safety Data Sheet

Material Name: Diesel Fuel, All Types

SDS No. 9909

SARA SECTION 313 - SUPPLIER NOTIFICATION

This product may contain listed chemicals below the de minimis levels which therefore are not subject to the supplier notification requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372. If you may be required to report releases of chemicals listed in 40 CFR 372.28, you may contact Hess Corporate Safety if you require additional information regarding this product.

State Regulations

Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA	RI
Fuels, diesel, no. 2	68476-34-6	No	No	No	Yes	No	No
Naphthalene	91-20-3	Yes	Yes	Yes	Yes	Yes	No

The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):

WARNING! This product contains a chemical known to the state of California to cause cancer.

Component Analysis - WHMIS IDL

No components are listed in the WHMIS IDL.

Additional Regulatory Information

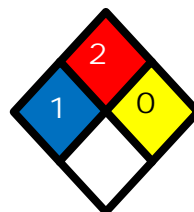
Component Analysis - Inventory

Component	CAS #	TSCA	CAN	EEC
Fuels, diesel, no. 2	68476-34-6	Yes	DSL	EINECS
Naphthalene	91-20-3	Yes	DSL	EINECS

*** Section 16 - Other Information ***

NFPA® Hazard Rating

Health	1
Fire	2
Reactivity	0



HMIS® Hazard Rating

Health	1*	Slight
Fire	2	Moderate
Physical	0	Minimal

*Chronic

Safety Data Sheet

Material Name: Diesel Fuel, All Types

SDS No. 9909

Key/Legend

ACGIH = American Conference of Governmental Industrial Hygienists; ADG = Australian Code for the Transport of Dangerous Goods by Road and Rail; ADR/RID = European Agreement of Dangerous Goods by Road/Rail; AS = Standards Australia; DFG = Deutsche Forschungsgemeinschaft; DOT = Department of Transportation; DSL = Domestic Substances List; EEC = European Economic Community; EINECS = European Inventory of Existing Commercial Chemical Substances; ELINCS = European List of Notified Chemical Substances; EU = European Union; HMIS = Hazardous Materials Identification System; IARC = International Agency for Research on Cancer; IMO = International Maritime Organization; IATA = International Air Transport Association; MAK = Maximum Concentration Value in the Workplace; NDSL = Non-Domestic Substances List; NFPA = National Fire Protection Association; NOHSC = National Occupational Health & Safety Commission; NTP = National Toxicology Program; STEL = Short-term Exposure Limit; TDG = Transportation of Dangerous Goods; TLV = Threshold Limit Value; TSCA = Toxic Substances Control Act; TWA = Time Weighted Average

Literature References

None

Other Information

Information presented herein has been compiled from sources considered to be dependable, and is accurate and reliable to the best of our knowledge and belief, but is not guaranteed to be so. Since conditions of use are beyond our control, we make no warranties, expressed or implied, except those that may be contained in our written contract of sale or acknowledgment.

Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material, even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in their use of the material.

End of Sheet

ITEM: 5HZ97 - Braid Desoldering #3

MSDS: A9354

ORDER: 0090467937

LP NUMBER: U276582381-A

MATERIAL SAFETY DATA SHEET (MSDS)

This MSDS should be attached or kept with the respective product with which it is associated.

MATERIAL SAFETY DATA SHEET - A9354

Associated Grainger Items
5HZ96, 5HZ97, 5HZ98

CHEMTRONICS (R*)

MSDS#: 1403

SECTION 1: CHEMICAL PRODUCT AND COMPANY INFORMATION

COMPANY ADDRESS:
8125 COBB CENTER DRIVE
KENNESAW, GA 30152

PRODUCT INFORMATION: 800-TECH-401
EMERGENCY: (CHEMTREC) 800-424-9300
CUSTOMER SERVICE: 800-645-5244

REVISION DATE: JANUARY 11, 2007

PRODUCT IDENTIFICATION:
SODER-WICK (R*) ROSIN, SODER-WICK (R*) ROSIN SD, SODER-WICK (R*) SMF ROSIN,
SODER-WICK (R*) BGA ROSIN

PRODUCT CODE: 50, 80, 90 SERIES (ALL PART NUMBERS - SEE SECTION 16)

SECTION 2: COMPOSITION, INFORMATION ON INGREDIENTS

PRODUCT INGREDIENT INFORMATION	CAS#	WT. % RANGE
COPPER	7440-50-8	90.0-98.0
ROSIN	8050-09-7	2.0-10.0

SECTION 3: HAZARD IDENTIFICATION

EMERGENCY OVERVIEW:
SHINY, BRAIDED COPPER WIRE. THIS PRODUCT IS NONFLAMMABLE.

POTENTIAL HEALTH EFFECTS:

EYES:
NO EFFECT EXPECTED UNDER NORMAL CONDITIONS OF USE. VAPORS RELEASED FROM OTHER MATERIALS USED IN THE DESOLDERING PROCESS MAY CAUSE EYE IRRITATION.

SKIN: PROLONGED CONTACT MAY CAUSE SKIN IRRITATION.

INGESTION:
HARMFUL IF SWALLOWED. METAL CONTACT MAY BE IRRITATING TO MOUTH, THROAT AND STOMACH TISSUES.

INHALATION:
NO EFFECTS EXPECTED UNDER NORMAL CONDITIONS OF USE. VAPORS FROM OTHER MATERIALS USED IN THE DESOLDERING PROCESS MAY CAUSE IRRITATION OF THE MOUTH, NOSE AND THROAT.

PRE-EXISTING MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: NONE KNOWN.

SECTION 4: FIRST AID MEASURES

EYES:
USUALLY NOT REQUIRED. IF EYE IRRITATION OCCURS IMMEDIATELY FLUSH WITH PLENTY OF WATER. AFTER INITIAL FLUSHING, REMOVE ANY CONTACT LENSES AND CONTINUE FLUSHING FOR AT LEAST 15 MINUTES. HAVE EYES EXAMINED AND TESTED BY MEDICAL PERSONNEL IF IRRITATION DEVELOPS OR PERSISTS.

SKIN:
USUALLY NOT REQUIRED. IF SKIN IRRITATION OCCURS WASH SKIN WITH SOAP AND WATER. REMOVE CONTAMINATED CLOTHING. GET MEDICAL ATTENTION IF IRRITATION DEVELOPS OR PERSISTS. WASH CLOTHING SEPARATELY BEFORE REUSE.

INGESTION: DO NOT INDUCE VOMITING. GET IMMEDIATE MEDICAL ATTENTION.

INHALATION:
IF USER IS OVERCOME BY FUMES DURING THE DESOLDERING PROCESS, REMOVE VICTIM TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN. GET MEDICAL ATTENTION.

SECTION 5: FIRE FIGHTING MEASURES

FLASH POINT: NONFLAMMABLE

LEL/UEL: NOT APPLICABLE

EXTINGUISHING MEDIA:
WATER FOG, CO2, DRY CHEMICAL, FOAM ARE COMPATIBLE FOR EXTINGUISHING FIRES INVOLVING OTHER MATERIALS WHEN SODER-WICK IS PRESENT.

FIRE FIGHTING INSTRUCTIONS:
AS IN ANY FIRE, WEAR SELF-CONTAINED BREATHING APPARATUS (PRESSURE-DEMAND, MSHA/NIOSH APPROVED OR EQUIVALENT) AND FULL PROTECTIVE GEAR.

SECTION 6: ACCIDENTAL RELEASE MEASURES

SMALL SPILLS:
PICK UP SPILLED BRAID. IF SOILED OR DIRTY STORE IN A CLOSED CONTAINER FOR DELIVERY TO A METALS RECYCLING CENTER. DO NOT DISPOSE OF BY PLACING IN TRASH.

SECTION 7: HANDLING AND STORAGE

AVOID PROLONGED OR REPEATED CONTACT WITH EYES, SKIN, WASH HANDS BEFORE EATING. USE WITH ADEQUATE VENTILATION. AVOID BREATHING VAPORS GIVEN OFF BY

HE DESOLDERING PROCESS. STORE IN A COOL DRY PLACE. KEEP CONTAINER CLOSED WHEN NOT IN USE.
KEEP OUT OF REACH OF CHILDREN.

SECTION 8: EXPOSURE CONTROLS/PERSONNEL PROTECTION

EXPOSURE GUIDELINES:

CHEMICAL NAME	ACGIH TLV	OSHA PEL	ACGIH STEL
COPPER	0.2 MG/M3	1.0 MG/M3	NA
ROSIN	NA	NA	NA

WORK/HYGIENIC PRACTICES:
GOOD GENERAL VENTILATION SHOULD BE SUFFICIENT TO CONTROL AIRBORNE LEVELS OF DESOLDERING PROCESS VAPORS. LOCAL EXHAUST VENTILATION MAY BE NECESSARY TO CONTROL ANY AIR CONTAMINANTS TO WITHIN THEIR TLVS DURING THE USE OF THIS PRODUCT. WEAR SAFETY GLASSES WITH SIDE SHIELDS OR GOGGLES WHEN USING THIS PRODUCT.

NFPA AND HMIS CODES:

	NFPA	HMIS
HEALTH	1	1
FLAMMABILITY	0	0
REACTIVITY	1	1
PERSONAL PROTECTION		

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: ROSIN COATED BRAIDED COPPER WIRE

SOLUBILITY IN WATER: INSOLUBLE

ODOR: NONE

SPECIFIC GRAVITY (WATER=1): 8.92

pH: NA

EVAPORATION RATE: NA

VAPOR PRESSURE: NA

VISCOSITY: NA

VAPOR DENSITY: NA

PERCENT VOLATILE: NA

COLOR: COPPER METALLIC

BOILING POINT: 604F @ 100MM HG

SECTION 10: STABILITY AND REACTIVITY

STABILITY - THIS PRODUCT IS STABLE.

CONDITIONS TO AVOID: NONE KNOWN

INCOMPATIBILITY:
DO NOT MIX WITH POWDERED ALKALI AND ALKALINE EARTH METALS OR STRONG OXIDIZING AGENTS.

PRODUCTS OF DECOMPOSITION: CARBON DIOXIDE, CARBON MONOXIDE.

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

CONDITIONS TO AVOID: NA

SECTION 11: TOXICOLOGICAL INFORMATION

INHALATION:
INHALATION OF DUST AND FUMES DURING DESOLDERING CAN IRRITATE THE RESPIRATORY TRACT. LONG-TERM ACUTE OVEREXPOSURE TO FUMES DURING DESOLDERING CAN LEAD TO LEAD POISONING.

INGESTION: CAN CAUSE ALLERGIC REACTION IN SOME INDIVIDUALS.

SKIN: CAN CAUSE ALLERGIC REACTION IN SOME INDIVIDUALS.

EYE: CONTACT WITH ROSIN DUST AND DESOLDERING FUMES CAN IRRITATE THE EYES.

CANCER INFORMATION:
NO INGREDIENTS LISTED AS HUMAN CARCINOGENS BY NTP OR IARC

REPRODUCTIVE EFFECTS: NONE

TERATOGENIC EFFECTS: NONE

MUTAGENIC EFFECTS: NONE

SECTION 12: ECOLOGICAL INFORMATION

ENVIRONMENTAL IMPACT INFORMATION:
AVOID RUNOFF INTO STORM SEWERS AND DITCHES WHICH LEAD TO WATERWAYS. WATER RUNOFF OF DESOLDERING PROCESS RESIDUES MAY CAUSE ENVIRONMENTAL DAMAGE.

REPORTING:
US REGULATIONS REQUIRE REPORTING SPILLS OF THIS MATERIAL THAT COULD REACH ANY SURFACE WATERS. THE TOLL FREE NUMBER FOR THE US COAST GUARD NATIONAL RESPONSE CENTER IS: 1-800-424-8802

SECTION 13: DISPOSAL CONSIDERATIONS

DISPOSE OF IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL REGULATIONS.

SECTION 14: TRANSPORTATION INFORMATION

PROPER SHIPPING NAME

AIR: WIRE NOT REGULATED
GROUND: WIRE NOT REGULATED

SECTION 15: REGULATORY INFORMATION

SECTION 313 SUPPLIER NOTIFICATION:
THIS PRODUCT CONTAINS THE FOLLOWING TOXIC CHEMICALS SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF THE EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT OF 1986 (40 CFR 372).

CHEMICAL NAME	CAS#	WT. % RANGE
COPPER	7440-50-8	90.0-98.0

THIS INFORMATION SHOULD BE INCLUDED ON ALL MSDSS COPIED AND DISTRIBUTED FOR THIS MATERIAL.
TOXIC SUBSTANCES CONTROL ACT (TSCA).
ALL INGREDIENTS OF THIS PRODUCT ARE LISTED ON THE TSCA INVENTORY.

WHMIS:
NOT HAZARDOUS. THIS PRODUCT HAS BEEN CLASSIFIED ACCORDING TO THE HAZARD CRITERIA OF THE CPR AND THE MSDS CONTAINS ALL OF THE INFORMATION REQUIRED BY THE CPR.

SECTION 16: OTHER INFORMATION

PRODUCT SHOULD BE USED ONLY WITH ADEQUATE VENTILATION TO QUICKLY DISPERSE VAPORS PRODUCED DURING THE DESOLDERING PROCESS. MECHANICAL VENTILATION SHOULD BE USED WHEN LARGE VOLUMES OF SUCH FUMES ARE PRODUCED. IF SUCH VENTILATION IS NOT AVAILABLE PERSONNEL SHOULD WEAR NIOSH APPROVED ORGANIC VAPOR RESPIRATORS EQUIPPED WITH PARTICULATE DUST FILTERS SPECIFIED FOR USE DURING WELDING OR SOLDERING.

MSDS#: 1403

50, 80, 90 SERIES PART NUMBERS
50-1-5, 50-2-5, 50-3-5, 50-4-5, 50-5-5, 50-6-5, 50-1-10, 50-2-10, 50-3-10, 50-4-10, 50-5-10, 50-1-25, 50-2-25, 50-3-25, 50-4-25, 50-5-25, 50-1-50, 50-2-50, 50-3-50, 50-4-50, 50-5-50, 50-6-50, 50-1-100, 50-2-100, 50-3-100, 50-4-100, 50-5-100, 50-6-100, 50-1-500, 50-2-500, 50-3-500, 50-4-500, 50-5-500, 50-6-250, 80-1-5, 80-2-5, 80-3-5, 80-4-5, 80-5-5, 80-6-5, 80-1-10, 80-2-10, 80-3-10, 80-4-10, 80-5-10, 90-00-5, 90-01-5, 90-02-5, 90-00-10, 90-01-10, 90-02-10, SW15015, SW15025, SW15035, SW15045, SW15055, SW18015, SW18025, SW18035, SW18045, SW18055, 80-BGA-5, SW180BGA

TO THE BEST OF OUR KNOWLEDGE, THE INFORMATION CONTAINED HEREIN IS ACCURATE. HOWEVER, ALL MATERIALS MAY PRESENT UNKNOWN HAZARDS AND SHOULD BE USED WITH CAUTION. IN PARTICULAR, IMPROPER USE OF OUR PRODUCTS AND THEIR INAPPROPRIATE COMBINATION WITH OTHER PRODUCTS AND SUBSTANCES MAY PRODUCE HARMFUL RESULTS WHICH CANNOT BE ANTICIPATED. FINAL DETERMINATION OF THE SUITABILITY OF ANY MATERIAL IS THE SOLE RESPONSIBILITY OF THE USER. ALTHOUGH CERTAIN HAZARDS ARE DESCRIBED HEREIN, WE CANNOT GUARANTEE THAT THESE ARE THE ONLY HAZARDS THAT MAY EXIST.



SAFETY DATA SHEET

1. Identification

Product identifier	Brakleen® Brake Parts Cleaner
Other means of identification	
Product code	05089, 05089T, 85089, 85089AZ
Recommended use	Brake cleaner
Recommended restrictions	None known.
Manufacturer/Importer/Supplier/Distributor information	
Manufactured or sold by:	
Company name	CRC Industries, Inc.
Address	885 Louis Dr. Warminster, PA 18974 US
Telephone	
General Information	215-674-4300
Technical Assistance	800-521-3168
Customer Service	800-272-4620
24-Hour Emergency (CHEMTREC)	800-424-9300 (US) 703-527-3887 (International)
Website	www.crcindustries.com

2. Hazard(s) identification

Physical hazards	Gases under pressure	Compressed gas
Health hazards	Skin corrosion/irritation	Category 2
	Carcinogenicity	Category 1B
	Specific target organ toxicity, single exposure	Category 3 narcotic effects
Environmental hazards	Hazardous to the aquatic environment, long-term hazard	Category 2
OSHA defined hazards	Not classified.	
Label elements		



Signal word	Danger
Hazard statement	Contains gas under pressure; may explode if heated. Causes skin irritation. May cause drowsiness or dizziness. May cause cancer. Toxic to aquatic life with long lasting effects.
Precautionary statement	
Prevention	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not puncture or incinerate container. Do not expose to heat or store at temperatures above 49°C/120°F. Use with adequate ventilation. Open doors and windows or use other means to ensure a fresh air supply during use and while product is drying. If you experience any symptoms listed on this label, increase ventilation or leave the area. Avoid breathing mist or vapor. Avoid breathing gas. Wash thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection. Avoid release to the environment.
Response	If on skin: Wash with plenty of water. If skin irritation occurs: Get medical attention. Take off contaminated clothing and wash before reuse. If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor if you feel unwell. If exposed or concerned: Get medical attention. Collect spillage.
Storage	Store locked up. Protect from sunlight. Store in a well-ventilated place. Exposure to high temperature may cause can to burst.
Disposal	Dispose of contents/container in accordance with local/regional/national regulations.

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

Supplemental information

When exposed to extreme heat or hot surfaces, vapors may decompose to harmful or fatal corrosive gases such as hydrogen chloride and possibly phosgene.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
Tetrachloroethylene	Perchloroethylene	127-18-4	90 - 100
Carbon dioxide		124-38-9	1 - 5

Specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
Skin contact	Remove contaminated clothing. Rinse skin with water/shower. If skin irritation occurs: Get medical advice/attention. Wash contaminated clothing before reuse.
Eye contact	Rinse with water. Get medical attention if irritation develops and persists.
Ingestion	In the unlikely event of swallowing contact a physician or poison control center. Rinse mouth.
Most important symptoms/effects, acute and delayed	May cause drowsiness and dizziness. Headache. Nausea, vomiting. Irritation of eyes and mucous membranes. Irritation of nose and throat. Skin irritation. May cause redness and pain.
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	IF exposed or concerned: Get medical advice/attention. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media	Dry chemical, CO2, or water spray.
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. Exposure to high temperature may cause can to burst. When exposed to extreme heat or hot surfaces, vapors may decompose to harmful or fatal corrosive gases such as hydrogen chloride and possibly phosgene.
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	In case of fire: Stop leak if safe to do so. Move containers from fire area if you can do so without risk. Containers should be cooled with water to prevent vapor pressure build up.

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. Wear appropriate protective equipment and clothing during clean-up. Avoid breathing mist or vapor. Avoid breathing gas. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up	Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil, etc.) away from spilled material. This material is classified as a water pollutant under the Clean Water Act and should be prevented from contaminating soil or from entering sewage and drainage systems which lead to waterways. Stop the flow of material, if this is without risk. Collect spillage. 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.
Environmental precautions	Avoid release to the environment. Contact local authorities in case of spillage to drain/aquatic environment. Prevent further leakage or spillage if safe to do so. Do not contaminate water. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. 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. Use with adequate ventilation. Open doors and windows or use other means to ensure a fresh air supply during use and while product is drying. If you experience any symptoms listed on this label, increase ventilation or leave the area. Do not cut, weld, solder, drill, grind, or expose containers to heat, flame, sparks, or other sources of ignition. Use caution around energized equipment. The metal container will conduct electricity if it contacts a live source. This may result in injury to the user from electrical shock and/or flash fire. Avoid breathing mist or vapor. Avoid breathing gas. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Use only in well-ventilated areas. Should be handled in closed systems, if possible. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. Avoid release to the environment. Do not empty into drains. For product usage instructions, please see the product label.

Conditions for safe storage, including any incompatibilities

Level 1 Aerosol.

Contents under pressure. Do not puncture or incinerate container. Do not expose to heat or store at temperatures above 49 °C/120 °F. Do not handle or store near an open flame, heat or other sources of ignition. Exposure to high temperature may cause can to burst. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Carbon dioxide (CAS 124-38-9)	PEL	9000 mg/m3
		5000 ppm

US. OSHA Table Z-2 (29 CFR 1910.1000)

Components	Type	Value
Tetrachloroethylene (CAS 127-18-4)	Ceiling	200 ppm
	TWA	100 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value
Carbon dioxide (CAS 124-38-9)	STEL	30000 ppm
	TWA	5000 ppm
Tetrachloroethylene (CAS 127-18-4)	STEL	100 ppm
	TWA	25 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Carbon dioxide (CAS 124-38-9)	STEL	54000 mg/m3
	TWA	30000 ppm 9000 mg/m3 5000 ppm

Biological limit values

ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
Tetrachloroethylene (CAS 127-18-4)	0.5 mg/l	Tetrachloroethylene	Blood	*
	3 ppm	Tetrachloroethylene	End-exhaled air	*

* - For sampling details, please see the source document.

Exposure guidelines

US - Minnesota Haz Subs: Skin designation applies

Tetrachloroethylene (CAS 127-18-4)

Skin designation applies.

Appropriate engineering controls

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear safety glasses with side shields (or goggles).

Skin protection

Hand protection

Wear protective gloves such as: Viton®. Polyvinyl alcohol (PVA). Nitrile. Silver Shield®

Other

Wear appropriate chemical resistant clothing.

Respiratory protection

If engineering controls are not feasible or if exposure exceeds the applicable exposure limits, use a NIOSH-approved cartridge respirator with an organic vapor cartridge. Use a self-contained breathing apparatus in confined spaces and for emergencies. Air monitoring is needed to determine actual employee exposure levels.

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

Liquid.

Form

Aerosol.

Color

Colorless.

Odor

Irritating.

Odor threshold

50 ppm

pH

Not available.

Melting point/freezing point

-8.1 °F (-22.3 °C) estimated

Initial boiling point and boiling range

250.3 °F (121.3 °C) estimated

Flash point

None (Tag Closed Cup)

Evaporation rate

Very fast.

Flammability (solid, gas)

Not available.

Upper/lower flammability or explosive limits

Flammability limit - lower (%)

Not available.

Flammability limit - upper (%)

Not available.

Vapor pressure

1352.4 hPa estimated

Vapor density

5.76 (air = 1)

Relative density

1.62

Solubility (water)

0.02 % (77 °F (25 °C))

Partition coefficient (n-octanol/water)

Not available.

Auto-ignition temperature

Not available.

Decomposition temperature

Not available.

Viscosity (kinematic)

Not available.

Percent volatile

97.7 % estimated

Other information

Partition coefficient (oil/water)

2.88

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Heat, flames and sparks. Contact with incompatible materials. When exposed to extreme heat or hot surfaces, vapors may decompose to harmful or fatal corrosive gases such as hydrogen chloride and possibly phosgene.
Incompatible materials	Strong oxidizing agents. Strong acids. Strong bases.
Hazardous decomposition products	Hydrogen chloride. Trace amounts of chlorine and phosgene. Carbon oxides. Halogenated materials. Carbonyl halides.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Prolonged inhalation may be harmful. May cause drowsiness and dizziness. Headache. Nausea, vomiting.
Skin contact	Causes skin irritation.
Eye contact	Direct contact with eyes may cause temporary irritation.
Ingestion	Ingestion of large amounts may produce gastrointestinal disturbances including irritation, nausea, and diarrhea.

Symptoms related to the physical, chemical and toxicological characteristics May cause drowsiness and dizziness. Headache. Nausea, vomiting. Irritation of nose and throat. Irritation of eyes and mucous membranes. Skin irritation. May cause redness and pain.

Information on toxicological effects

Acute toxicity Narcotic effects.

Product	Species	Test Results
Brakleen® Brake Parts Cleaner		
Acute		
<i>Dermal</i>		
LD50	Rabbit	3305.1284 mg/kg estimated
<i>Inhalation</i>		
LC50	Rat	20.4779 mg/l, 4 Hours estimated
<i>Oral</i>		
LD50	Rat	2691.8162 mg/kg estimated

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

Skin corrosion/irritation	Causes skin irritation.
Serious eye damage/eye irritation	Direct contact with eyes may cause temporary irritation.
Respiratory sensitization	Not available.
Skin sensitization	This product is not expected to cause skin sensitization.
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Carcinogenicity	May cause cancer.

IARC Monographs. Overall Evaluation of Carcinogenicity

Tetrachloroethylene (CAS 127-18-4) 2A Probably carcinogenic to humans.

US. National Toxicology Program (NTP) Report on Carcinogens

Tetrachloroethylene (CAS 127-18-4) Reasonably Anticipated to be a Human Carcinogen.

Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.
Specific target organ toxicity - single exposure	May cause drowsiness and dizziness.
Specific target organ toxicity - repeated exposure	Not classified.
Aspiration hazard	May be an aspiration hazard.

Chronic effects

Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects.

12. Ecological information**Ecotoxicity** Toxic to aquatic life with long lasting effects. Accumulation in aquatic organisms is expected.

Product	Species	Test Results
Brakleen® Brake Parts Cleaner		
Aquatic		
Fish	LC50	Fish
		19.1805 mg/l, 96 hours estimated
Components	Species	Test Results
Tetrachloroethylene (CAS 127-18-4)		
Aquatic		
Fish	LC50	Rainbow trout,donaldson trout (Oncorhynchus mykiss)
		4.73 - 5.27 mg/l, 96 hours

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

Persistence and degradability Not available.**Bioaccumulative potential** Not available.**Partition coefficient n-octanol / water (log Kow)**

Tetrachloroethylene 2.88

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 of waste from residues / unused products** This material and its container must be disposed of as hazardous waste. Consult authorities before disposal. Contents under pressure. Do not puncture, incinerate or crush. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose in accordance with all applicable regulations.**Hazardous waste code**
D039: Waste Tetrachloroethylene
F001: Waste Halogenated Solvent - Spent Halogenated Solvent Used in Degreasing
F002: Waste Halogenated Solvent - Spent Halogenated Solvent**US RCRA Hazardous Waste U List: Reference**

Tetrachloroethylene (CAS 127-18-4) U210

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information**DOT**

UN number	UN1950
UN proper shipping name	Aerosols, poison, Packing Group III, Limited Quantity, MARINE POLLUTANT
Transport hazard class(es)	
Class	2.2
Subsidiary risk	6.1(PGIII)
Label(s)	2.2, 6.1
Packing group	Not applicable.
Environmental hazards	
Marine pollutant	Yes
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	Not available.
Packaging exceptions	306
Packaging non bulk	None
Packaging bulk	None

IATA

UN number	UN1950
UN proper shipping name	Aerosols, non-flammable, containing substances in Division 6.1, Packing Group III, Limited Quantity

Transport hazard class(es)**Class** 2.2**Subsidiary risk** 6.1**Packing group** Not applicable.**Environmental hazards** No.**ERG Code** 2P**Special precautions for user** Read safety instructions, SDS and emergency procedures before handling.**Other information****Passenger and cargo aircraft** Allowed.**Cargo aircraft only** Allowed.**IMDG****UN number** UN1950**UN proper shipping name** AEROSOLS, MARINE POLLUTANT**Transport hazard class(es)****Class** 2**Subsidiary risk** 6.1**Packing group** Not applicable.**Environmental hazards****Marine pollutant** Yes**EmS** Not available.**Special precautions for user** Read safety instructions, SDS and emergency procedures before handling.**General information**

DOT Regulated Marine Pollutant. IMDG Regulated Marine Pollutant.

15. Regulatory information**US federal regulations**

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

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

Not regulated.

SARA 304 Emergency release notification

Not regulated.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance

Tetrachloroethylene (CAS 127-18-4)

CERCLA Hazardous Substance List (40 CFR 302.4)

Tetrachloroethylene (CAS 127-18-4)

CERCLA Hazardous Substances: Reportable quantity

Tetrachloroethylene (CAS 127-18-4) 100 LBS

Spills or releases resulting in the loss of any ingredient at or above its RQ require immediate notification to the National Response Center (800-424-8802) and to your Local Emergency Planning Committee.

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Tetrachloroethylene (CAS 127-18-4)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA)

Not regulated.

Food and Drug Administration (FDA)

Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)**Section 311/312** Immediate Hazard - Yes**Hazard categories** Delayed Hazard - Yes

Fire Hazard - No

Pressure Hazard - Yes

Reactivity Hazard - No

SARA 302 Extremely hazardous substance No

US state regulations

US. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)

Not listed.

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

Carbon dioxide (CAS 124-38-9)

Tetrachloroethylene (CAS 127-18-4)

US. Massachusetts RTK - Substance List

Carbon dioxide (CAS 124-38-9)

Tetrachloroethylene (CAS 127-18-4)

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

Tetrachloroethylene (CAS 127-18-4)

Carbon dioxide (CAS 124-38-9)

US. Rhode Island RTK

Tetrachloroethylene (CAS 127-18-4)

US. California Proposition 65

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

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

Tetrachloroethylene (CAS 127-18-4)

Listed: April 1, 1988

Volatile organic compounds (VOC) regulations

EPA

VOC content (40 CFR 51.100(s)) 0 %

Consumer products (40 CFR 59, Subpt. C) Not regulated

State

Consumer products This product is regulated as a Brake Cleaner. This product is not compliant to be sold for use in California and New Jersey. This product is compliant in all other states.

VOC content (CA) 0 %

VOC content (OTC) 0 %

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)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date	12-20-2013
Revision date	08-07-2014
Prepared by	Allison Cho
Version #	02
Further information	CRC # 491G

HMIS® ratings

Health: 2*
Flammability: 0
Physical hazard: 0
Personal protection: B

NFPA ratings

Health: 2
Flammability: 0
Instability: 0

NFPA ratings



Disclaimer

CRC cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information contained in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. This information is accurate to the best of CRC Industries' knowledge or obtained from sources believed by CRC to be accurate. Before using any product, read all warnings and directions on the label. For further clarification of any information contained on this (M)SDS consult your supervisor, a health & safety professional, or CRC Industries.



Material Safety Data Sheet

The information presented in these forms is believed to be correct and sufficient to meet the requirements of OSHA Hazard Communication standard (29 CFR 1910.1200) concerning worker's right to know.

The following material safety data sheet covers the hazardous ingredients associated with more than one color aerosol product. As per 29 CFR 1900.1200 paragraph (g); whenever the hazards associated with similar mixtures are the same, then one MSDS may be prepared to cover several products.

This MSDS covers the following Aerove aerosol products.

PRODUCT NAME: All Purpose Marking Paint

Non-Fluorescent Colors

1380 Black
1381 Red
1382 Yellow
1383 Blue

Fluorescent Colors

1384 Green
1385 Orange
1387 White
1390 Red
1391 Green
1392 Orange
1393 Yellow
1395 Red-Orange
1399 Pink

SECTION I - MANUFACTURER IDENTIFICATION

MANUFACTURER'S NAME: Aerove Industries, Inc.
INFORMATION PHONE: 775-782-0100
DATE REVISED: November 8, 2006

ADDRESS: 1198 Mark Circle, Gardnerville, NV 89410
EMERGENCY PHONE: 1-800-424-9300
REASON REVISED: Updated

**SECTION II - HAZARDOUS INGREDIENTS / SARA III INFORMATION
OCCUPATIONAL EXPOSURE LIMITS**

HAZARDOUS COMPONENTS	WEIGHT PERCENT	OSHA PEL		LD50 SPECIES & ROUTE	LC50 SPECIES & ROUTE
		OSHA PEL	ACGIH TLV		
Hydrocarbon Propellant (CAS 68476-86-8)	10 - 30	1000 ppm	1000 ppm	N / AV	N / AV
*Hexane (CAS 110-54-3)	7 - 13	500 ppm	50 ppm (skin)	2870 mg / kg (Rat-Oral)	N / AV
Aliphatic Petroleum Distillates (CAS 64742-89-8)	7 - 13	N / AV	300 ppm	N / AV	N / AV
Aliphatic Petroleum Distillates (CAS 64742-88-7)	1 - 5	100 ppm	100 ppm	N / AV	N / AV
Non-Fluorescent Colors Also Contain: Acetone (CAS 67-64-1)	1 - 5	1000 ppm	500 ppm	5800 mg / kg (Rat-Oral)	21000 ppm / 8 hr (Rat-Inha)

*Indicates toxic chemical(s) subject to the reporting requirements of section 313 of Title III and of 40 CFR 372.

NOTE: N / AP = Not Applicable N / AV = Not Available

All Purpose Marking Paint November 8, 2006

SECTION III - PHYSICAL / CHEMICAL CHARACTERISTICS

BOILING POINT: N / AP
VAPOR DENSITY: Heavier than air
EVAPORATION RATE: Faster than n-Butyl Acetate
SPECIFIC GRAVITY (H2O=1): 0.9
SOLUBILITY IN WATER: Partial
APPEARANCE AND ODOR: Opaque liquid with hydrocarbon odor.

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: < 0° F (-18° C)
EXTINGUISHING MEDIA: Carbon dioxide, dry chemical, water spray.
SPECIAL FIRE FIGHTING PROCEDURES: Use water spray to cool containers exposed to heat or fire to prevent pressure build up. Self-contained breathing apparatus should be used if product is involved in fire.
UNUSUAL FIRE AND EXPLOSION HAZARDS: Treat as cylinders of compressed gas. Closed containers may rupture due to pressure build up from extreme temperature.
FLAMMABILITY: Yes - Flammable aerosol under conditions of sparks, flame, or hot surfaces.
SENSITIVITY TO IMPACT: Do not puncture
METHOD USED: Estimated
FLAMMABLE LIMITS - LEL: 0.9% **UEL:** 13.0%
SENSITIVITY TO STATIC DISCHARGE: Primarily vapors

SECTION V - REACTIVITY DATA

STABILITY: Stable
INCOMPATIBILITY (MATERIALS TO AVOID): Strong oxidizing agents.
HAZARDOUS DECOMPOSITION OR BY-PRODUCTS: Carbon Monoxide, Carbon Dioxide.
HAZARDOUS POLYMERIZATION: Will not occur
CONDITIONS TO AVOID: Open flames, sparks, electrical arcs.

SECTION VI - HEALTH HAZARD DATA

INHALATION: Respiratory tract irritant. May cause dizziness, light-headedness and / or headaches. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal.
SKIN CONTACT: Prolonged or repeated contact may cause irritation and dermatitis.
EYE CONTACT: Painful with slight to moderate irritation.
INGESTION: May be harmful or fatal if swallowed
EFFECTS OF CHRONIC OVEREXPOSURE: 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.
CARCINOGENICITY: The ingredients are not listed as a human carcinogen by IARC, ACGIH, NTP, or OSHA.
TERATOGENICITY: Not established **MUTAGENICITY:** Not established
MEDICAL CONDITION GENERALLY AGGRAVATED BY EXPOSURE: Not established
EMERGENCY AND FIRST AID PROCEDURES: INHALATION - Remove from exposure, seek medical attention if signs/symptoms persist.
SKIN - Wash affected area with soap and water, remove contaminated clothing, seek medical attention if irritation persists.
EYES - Flush immediately with water for 15 minutes, seek medical attention if irritation persists.
INGESTION - Do not induce vomiting. Contact physician or poison control center immediately.

SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND USE

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Remove all sources of ignition. Ventilate area. Prevent from entering a watercourse. Use an inert absorbent material and non-sparking type tools.
WASTE DISPOSAL METHOD: Dispose of in accordance with local, state and federal regulations. Do not incinerate closed containers.
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: Do not store above 120° F (49° C). Do not store or use near heat, sparks or flame.
OTHER PRECAUTIONS: Avoid contact with eyes and skin. Do not breathe vapors, take internally or smoke while using this product.

SECTION VIII - CONTROL MEASURES

RESPIRATORY PROTECTION: In areas with poor ventilation, use a NIOSH approved Organic Vapor Cartridge Respirator. For concentrations above the TLV (as defined in Section II), use a positive air supplied respirator.
VENTILATION: General ventilation to maintain exposure limits below TLV's as defined in Section II.
PROTECTIVE GLOVES: Chemical resistant gloves such as Neoprene or Nitrile rubber.
EYE PROTECTION: Safety glasses or goggles.
OTHER PROTECTIVE CLOTHING OR EQUIPMENT: Not established.
WORK / HYGIENIC PRACTICES: Avoid prolonged or repeated contact. Do not breathe vapors. Wash contaminated clothing prior to reuse.

SECTION IX - DISCLAIMER

THE INFORMATION CONTAINED HEREIN IS BELIEVED TO BE ACCURATE BUT IS NOT WARRANTED TO BE SO. NOTHING CONTAINED HEREIN CONSTITUTES A SPECIFICATION NOR IS IT INTENDED TO WARRANT SUITABILITY FOR THE INTENDED USE.