



COMANCHE CONSTRUCTION, INC.

PO Box 14158 Shawnee Mission, KS 66285 (913) 782-2980 - Fax (913) 782-6165

MATERIAL SAFETY DATA SHEETS

(MSDS)

LIST OF HAZARDOUS MATERIALS

1. OXYGEN
2. ACETYLENE
3. ANTIFREEZE
4. WINDSHIELD WASHER FLUID
5. MOTOR OIL
 - a. CONOCO 10W30 SYNTHETIC BLEND
 - b. SHELL ROTELLA T3 15W40
6. TRANSMISSION FLUID
7. UNLEADED GAS
8. DIESEL FUEL
9. WOOD DUST
10. CREOSOTE TREATED WOOD
11. CCA TREATED WOOD
12. PENTA TREATED WOOD
13. MORTAR CEMENT
14. SILICA FUME CEMENT
15. MASONRY CEMENT
16. PORTLAND CEMENT
17. SAND
18. BLENDED CEMENT
19. FORM OIL
20. DOUBLE BOILED LINSEED OIL
21. SEGMENTED DIAMOND BLADES
22. PANEL CONSTRUCTION ADHESIVE
23. WATER REDUCER/RETARDER FOR CONCRETE
24. AIR ENTRAINMENT FOR CONCRETE
25. READY MIX CONCRETE
26. EMACO GP
27. ACRYL 60
28. MEADOWS CURE
29. CWC 910 EPOXY
30. CWC 202 EPOXY
31. PROTECTOSIL TYPE 2 SEALER
32. STAR MACRO DECK SEALER
33. PRIMA LUB
34. WABO BONDING AGENT
35. WABOCRETE
36. WABO SILICONE SEAL
37. GAL-VIZ
38. PRO POXY TYPE III DOT
39. J & JP SERIES SEALING SYSTEMS

Praxair Material Safety Data Sheet

1. Chemical Product and Company Identification

Product Name: Oxygen, compressed (MSDS No. P-4638-H)	Trade Names: Oxygen, MediPure® Oxygen
Chemical Name: Oxygen	Synonyms: Dioxygen
Chemical Family: Permanent gas	Product Grades: Industrial, Oxygen Aviator's Breathing, USP, 2.6, 2.6-Zero, 4.0–Hydrocarbon Free, 4.3-UHP, 5.0-Research, 6.0
Telephone:	Company Name: Praxair, Inc.
Emergencies: 1-800-645-4633*	39 Old Ridgebury Road
CHEMTREC: 1-800-424-9300*	Danbury, CT 06810-5113
Routine: 1-800-PRAXAIR	

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

2. Hazards Identification

EMERGENCY OVERVIEW

**WARNING! High-pressure, oxidizing gas.
Vigorously accelerates combustion.**

**Self-contained breathing apparatus may be required by rescue workers.
Under ambient conditions, this is a colorless, odorless, and tasteless gas.**

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

POTENTIAL HEALTH EFFECTS:

Effects of a Single (Acute) Overexposure

Inhalation. Breathing 80 percent or more oxygen at atmospheric pressure for more than a few hours may cause nasal stuffiness, cough, sore throat, chest pain, and breathing difficulty. Breathing oxygen at higher pressure increases the likelihood of adverse effects within a shorter time period. Breathing pure oxygen under pressure may cause lung damage and also Central Nervous System (CNS) effects resulting in dizziness, poor coordination, tingling sensation, visual and hearing disturbances, muscular twitching, unconsciousness, and convulsions. Breathing oxygen under pressure may cause prolongation of adaptation to darkness and reduced peripheral vision.

Skin Contact. No harm expected.

Swallowing. This product is a gas at normal temperature and pressure.

Eye Contact. No harm expected.

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

Other Effects of Overexposure. See section 11, Toxicological Information.

Medical Conditions Aggravated by Overexposure. See section 11, Toxicological Information.

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

POTENTIAL ENVIRONMENTAL EFFECTS: For further information, see section 12, Ecological Information.

3. Composition/Information on Ingredients

See section 16 for important information about mixtures.

COMPONENT	CAS NUMBER	CONCENTRATION
Oxygen	7782-44-7	>99%*
*The symbol > means "greater than."		

4. First Aid Measures

INHALATION: Immediately remove to fresh air. If not breathing, give artificial respiration. Keep victim warm and at rest. Call a physician. Advise the physician that the victim has been exposed to a high concentration of oxygen.

SKIN CONTACT: Wash with soap and water; seek medical attention if discomfort persists.

SWALLOWING: This product is a gas at normal temperature and pressure.

EYE CONTACT: Flush eyes thoroughly with water. Hold the eyelids open and away from the eyeballs to ensure that all surfaces are flushed thoroughly. Get medical attention if discomfort persists.

NOTES TO PHYSICIAN: Supportive treatment should include immediate sedation, anti-convulsive therapy if needed, and rest. See section 11, Toxicological Information.

5. Fire Fighting Measures

FLAMMABLE PROPERTIES: Oxidizing agent; vigorously accelerates combustion. Contact with flammable materials may cause fire or explosion.

SUITABLE EXTINGUISHING MEDIA: Vigorously accelerates combustion. Use media appropriate for surrounding fire. Water (e.g., safety shower) is the preferred extinguishing method for clothing fires.

PRODUCTS OF COMBUSTION: Not applicable.

PROTECTION OF FIREFIGHTERS: WARNING! High-pressure, oxidizing gas. Evacuate all personnel from danger area. Immediately deluge cylinders with water from maximum distance until cool; then move them away from fire area if without risk. Self-contained breathing apparatus may be required by rescue workers. On-site fire brigades must comply with OSHA 29 CFR 1910.156.

Specific Physical and Chemical Hazards. Heat of fire can build pressure in cylinder and cause it to rupture. Oxygen cylinders are equipped with a pressure relief device. (Exceptions may exist where authorized by DOT.) No part of cylinder should be subjected to a temperature higher than 125°F (52°C). Smoking, flames, and electric sparks in the presence of enriched oxygen atmospheres are potential explosion hazards.

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

6. Accidental Release Measures

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

WARNING! High-pressure, oxidizing gas.

Personal Precautions. Shut off flow if without risk. Ventilate area or move cylinder to a well-ventilated area. Remove all flammable materials from vicinity. Oxygen must never be permitted to strike an oily surface, greasy clothes, or other combustible material.

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

7. Handling and Storage

PRECAUTIONS TO BE TAKEN IN HANDLING: *Protect cylinders from damage.* Use a suitable hand truck to move cylinders; do not drag, roll, slide, or drop. Never attempt to lift a cylinder by its cap; the cap is intended solely to protect the valve. Never insert an object (e.g., wrench, screwdriver, pry bar) into cap openings; doing so may damage the valve and cause a leak. Use an adjustable strap wrench to remove over-tight or rusted caps. Slowly open valve. If valve is hard to open, discontinue use and contact your supplier. Close cylinder valve after each use; keep closed even when empty. Never apply flame or localized heat directly to any part of the cylinder. High temperatures may damage the cylinder and could cause the pressure relief device to fail prematurely, venting the cylinder contents. For other precautions in using this mixture, see section 16.

PRECAUTIONS TO BE TAKEN IN STORAGE: Store and use with adequate ventilation, away from oil, grease, and other hydrocarbons. Separate oxygen cylinders from flammables by at least 20 ft (6.1 m) or use a barricade of noncombustible material. This barricade should be at least 5 ft (1.53 m) high and have a fire resistance rating of at least ½ hour. Firmly secure cylinders upright to keep them from falling or being knocked over. Screw valve protection cap firmly in place by hand. Store only where temperature will not exceed 125°F (52°C). Store full and empty cylinders separately. Use a first-in, first-out inventory system to prevent storing full cylinders for long periods.

RECOMMENDED PUBLICATIONS: For further information on storage, handling, and use, see Praxair publications P-14-153, *Guidelines for Handling Gas Cylinders and Containers*; P-15-276, *Storage and Safe Handling of Oxygen*; and P-3499, *Safety Precautions and Emergency Response Planning*. Obtain from your local supplier.

8. Exposure Controls/Personal Protection

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

COMPONENT	OSHA PEL	ACGIH TLV-TWA (2009)
Oxygen	Not Established.	Not Established.

IDLH = Not available.

ENGINEERING CONTROLS:

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

Mechanical (General). General exhaust ventilation may be acceptable if it can maintain a supply of air that is not too rich in oxygen and, during welding, can keep hazardous fumes and gases below applicable TLVs in the worker's breathing zone.

Special. None

Other. None

PERSONAL PROTECTIVE EQUIPMENT:

Skin Protection. Wear work gloves when handling cylinders; welding gloves for welding. Gloves must be free of oil and grease. Metatarsal shoes for cylinder handling. Select in accordance with OSHA 29 CFR 1910.132 and 1910.133. As needed for welding, wear hand, head, and body protection to help prevent injury from radiation and sparks. (See ANSI Z49.1.) At a minimum, this includes welder's gloves and protective goggles, and may include arm protectors, aprons, hats, shoulder protection, as well as substantial clothing. Regardless of protective equipment, never touch live electrical parts.

Eye/Face Protection. Wear safety glasses when handling cylinders. For welding, wear goggles with filter lens selected as per ANSI Z49.1. Provide protective screens and goggles, if necessary, to protect others. Select as per OSHA 29 CFR 1910.33

Respiratory Protection. None required. However, air supplied respirators are required while working in oxygen deficient atmospheres such as confined spaces.

9. Physical and Chemical Properties
--

APPEARANCE:	Colorless, odorless, tasteless gas at normal temperature and pressure.
ODOR:	None
ODOR THRESHOLD:	Not available.
PHYSICAL STATE:	Gas at normal temperature and pressure
pH:	Not applicable.
MELTING POINT at 1 atm:	-361.82°F (-218.79°C)
BOILING POINT at 1 atm:	-297.36°F (-182.98°C)
FLASH POINT (test method):	-62°F (-52.2°C) TCC ASTM D56
EVAPORATION RATE (Butyl Acetate = 1):	Not applicable.
FLAMMABILITY:	Not applicable.
FLAMMABLE LIMITS IN AIR , % by volume:	LOWER: Not applicable. UPPER: Not applicable.
VAPOR PRESSURE at 68°F (20°C):	Not applicable.
VAPOR DENSITY at 70°F (21.1°C) and 1 atm:	0.0827 lb/ft ³ (1.325 kg/m ³)
SPECIFIC GRAVITY (H ₂ O = 1) at boiling point	1.141
SPECIFIC GRAVITY (Air = 1) at 70°F (21.1°C) and 1 atm:	1.105
SOLUBILITY IN WATER , vol/vol at 32°F (0°C):	0.0489
PARTITION COEFFICIENT: n-octanol/water:	Not available.

AUTOIGNITION TEMPERATURE:	Not applicable.
DECOMPOSITION TEMPERATURE:	Not available.
PERCENT VOLATILES BY VOLUME:	100
MOLECULAR WEIGHT:	31.9988
MOLECULAR FORMULA:	O ₂

10. Stability and Reactivity

CHEMICAL STABILITY: ☐ Unstable ☒ Stable

CONDITIONS TO AVOID: None known.

INCOMPATIBLE MATERIALS: Combustible materials, asphalt, flammable materials, especially oils and greases. Oxygen reacts with many materials.

HAZARDOUS DECOMPOSITION PRODUCTS: None known.

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

11. Toxicological Information

ACUTE DOSE EFFECTS: The welding process may generate hazardous fumes and gases. (See sections 2, 10, 15, and 16.)

At atmospheric concentration and pressure, oxygen poses no toxicity hazards. At high concentrations, newborn premature infants may suffer delayed retinal damage (retrolental fibroplasia) that can progress to retinal detachment and blindness. Retinal damage may also occur in adults exposed to 100% oxygen for extended periods (24 to 48 hours) or at pressures exceeding atmospheric pressure, particularly in individuals whose retinal circulation has been previously compromised. All individuals exposed for long periods to oxygen at high pressure and all who exhibit overt oxygen toxicity should have ophthalmologic examinations.

At two or more atmospheres, CNS toxicity occurs. Symptoms include nausea, vomiting, dizziness or vertigo, muscle twitching, vision changes, and loss of consciousness and generalized seizures. At three atmospheres, CNS toxicity occurs in less than two hours; at six atmospheres, in only a few minutes.

Patients with chronic obstructive pulmonary disease retain carbon dioxide abnormally. If oxygen is administered, raising their blood-oxygen concentration, their breathing becomes depressed, and retained carbon dioxide rises to a dangerous level.

Airway obstruction during high oxygen tension may cause alveolar collapse following absorption of the oxygen. Similarly, occlusion of the eustachian tubes may cause retraction of the eardrum, and obstruction of the paranasal sinuses may produce vacuum-type headache.

STUDY RESULTS: Animal studies suggest that the administration of certain drugs, including phenothiazine drugs and chloroquine, increases the susceptibility to toxicity from oxygen at high concentrations or pressures. Animal studies also indicate that vitamin E deficiency may increase susceptibility to oxygen toxicity.

12. Ecological Information

ECOTOXICITY: No known effects.

OTHER ADVERSE EFFECTS: The atmosphere contains approximately 21 percent oxygen. No adverse ecological effects expected. Oxygen does not contain any Class I or Class II ozone-depleting chemicals.

13. Disposal Considerations

WASTE DISPOSAL METHOD: Do not attempt to dispose of residual or unused quantities. Return cylinder to supplier. For emergency disposal, secure cylinder in a well-ventilated area or outdoors; then slowly discharge gas to the atmosphere.

14. Transport Information

DOT/IMO SHIPPING NAME: Oxygen, compressed

HAZARD CLASS:	PACKING GROUP/Zone:	IDENTIFICATION NUMBER:	PRODUCT RQ:
2.2	NA*	UN1072	None

SHIPPING LABEL(s): OXYGEN. An oxygen label may be used for domestic shipment in the United States and Canada in place of the NONFLAMMABLE GAS and OXIDIZER labels (49 CFR Part 172).

PLACARD (when required): NONFLAMMABLE GAS or OXYGEN

*Not available.

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

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

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

15. Regulatory Information

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

U.S. FEDERAL REGULATIONS:

EPA (ENVIRONMENTAL PROTECTION AGENCY)

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

Reportable Quantity (RQ): None

SARA: SUPERFUND AMENDMENT AND REAUTHORIZATION ACT:

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

TPQ: None

EHS RQ (40 CFR 355): None

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

IMMEDIATE: No

DELAYED: No

PRESSURE: Yes

REACTIVITY: No

FIRE: Yes

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

Oxygen is not subject to reporting under Section 313.

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

Oxygen is not listed as a regulated substance.

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

OSHA: OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION:

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

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

STATE REGULATIONS:

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

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

16. Other Information

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

WARNING: Medical grades of oxygen are subject to strict federal regulations and are for use only under the control of a licensed physician or clinician familiar with the product and its hazards.

OTHER HAZARDOUS CONDITIONS OF HANDLING, STORAGE, AND USE: *High-pressure, oxidizing gas.* Clean all gauges, valves, regulators, piping, and equipment to be used in oxygen service in accordance with CGA pamphlet G-4.1. Keep cylinders and their valves free of oil and grease. Use piping and equipment adequately designed to withstand pressures to be encountered. Use a backflow prevention device in any piping. Never use oxygen as a substitute for compressed air. Never use an oxygen jet for cleaning purposes of any sort, especially for clothing. Oxygen increases the likelihood of an engulfing fire. Never work on a pressurized system. If a leak occurs, close the cylinder valve. Blow down the system in a safe and environmentally sound manner in compliance with all federal, state, and local laws; then repair the leak. Never place a compressed gas cylinder where it may become part of an electrical circuit.

Personnel who have been exposed to high concentrations of oxygen should stay in a well-ventilated or open area before going into a confined space or near an ignition source.

SPECIAL PRECAUTIONS: Use in welding and cutting. Read and understand the manufacturer's instructions and the precautionary label on the product. Ask your welding products supplier for a copy of Praxair's free safety booklet, P-2035, *Precautions and Safe Practices for Gas Welding, Cutting, and Heating*, and for other manufacturers' safety publications. For a detailed treatment, get ANSI Z49.1, *Safety in Welding, Cutting, and Allied Processes*, published by the American Welding Society (AWS), 550 N.W. Le Jeune Rd., Miami, FL 33126, <http://www.aws.org/>, or see OSHA's Web site at <http://www.osha-slc.gov/SLTC/weldingcuttingbrazing/>. Order AWS documents from Global Engineering Documents, 15 Inverness Way East, Englewood, CO 80112-5710, <http://global.ihs.com/>.

Arcs and sparks can ignite combustible materials. Prevent fires. Refer to NFPA 51B, Standard for Fire Prevention During Welding, Cutting, and Other Hotwork. Do not strike an arc on the cylinder. The defect produced by an arc burn could lead to cylinder rupture.

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

HAZARD RATING SYSTEMS:

NFPA RATINGS:

HEALTH	= 0
FLAMMABILITY	= 0
INSTABILITY	= 0
SPECIAL	= OX

HMIS RATINGS:

HEALTH	= 0
FLAMMABILITY	= 0
PHYSICAL HAZARD	= 3

STANDARD VALVE CONNECTIONS FOR U.S. AND CANADA:

THREADED:

0-3000 psig	CGA-540
3001-4000 psig	CGA-577
4001-5500 psig	CGA-701

PIN-INDEXED YOKE:

0-3000 psig	CGA-870 (Medical Use)
-------------	-----------------------

ULTRA-HIGH-INTEGRITY CONNECTION:

0-3000 psig	CGA-714
-------------	---------

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

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

AV-1	<i>Safe Handling and Storage of Compressed Gases</i>
AV-8	<i>Characteristics and Safe Handling of Cryogenic Liquid and Gaseous Oxygen</i>
G-4	<i>Oxygen</i>
G-4.1	<i>Cleaning Equipment for Oxygen Service</i>
P-1	<i>Safe Handling of Compressed Gases in Containers</i>
P-2	<i>Characteristics and Safe Handling of Medical Gases</i>
P-39	<i>Oxygen-Rich Atmospheres</i>
SB-2	<i>Oxygen-Deficient Atmospheres</i>
SB-8	<i>Use of Oxy-Fuel Gas Welding and Cutting Apparatus</i>
V-1	<i>Compressed Gas Cylinder Valve Inlet and Outlet Connections</i>
—	<i>Handbook of Compressed Gases, Fourth Edition</i>

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

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

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

Praxair, the *Flowing Airstream* design, and *Medipure* are trademarks or registered trademarks of Praxair Technology, Inc. in the United States and/or other countries.



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

Praxair Material Safety Data Sheet

1. Chemical Product and Company Identification

Product Name: Acetylene, dissolved (MSDS No. P-4559-K)	Trade Names: Acetylene
Chemical Name: Acetylene	Synonyms: Acetylen, ethine, ethyne, narylene
Chemical Family: Alkyne	Product Grades: Industrial, 2.6 atomic absorption
Telephone:	Emergencies: 1-800-645-4633*
	CHEMTREC: 1-800-424-9300*
	Routine: 1-800-PRAXAIR
	Company Name: Praxair, Inc. 39 Old Ridgebury Road Danbury, CT 06810-5113

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

2. Hazards Identification

EMERGENCY OVERVIEW

DANGER! Flammable gas under pressure.

Can form explosive mixtures with air.

Fusible plugs in top, bottom, or valve melt at 208-224°F (98-107°C).

Do not discharge at pressures above 15 psig (103 kPa).

May cause dizziness and drowsiness.

Self-contained breathing apparatus may be required by rescue workers.

At normal temperature and pressure, commercial acetylene is a colorless gas with a distinctive garlic-like odor.

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

POTENTIAL HEALTH EFFECTS:

Effects of a Single (Acute) Overexposure

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

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

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

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

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

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

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

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

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

3. Composition/Information on Ingredients

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

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

*The symbol > means "greater than."

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

4. First Aid Measures

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

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

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

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

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

5. Fire Fighting Measures

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

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

PRODUCTS OF COMBUSTION: Carbon monoxide, carbon dioxide

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

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

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

6. Accidental Release Measures

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

DANGER! Flammable gas under pressure.

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

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

7. Handling and Storage

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

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

PRECAUTIONS TO BE TAKEN IN STORAGE: Acetylene storage in excess of 2,500 cu ft (70.79 m³) is prohibited in buildings with other occupancies. Store and use with adequate ventilation. Separate acetylene cylinders from oxygen and other oxidizers by at least 20 ft (6.1 m), or use a barricade of noncombustible material. This barricade should be at least 5 ft (1.53 m) high and have a fire resistance rating of at least ½ hour. Post “No Smoking or Open Flames” signs in storage and use areas. There must be no sources of ignition. All electrical equipment in storage areas must be explosion-proof. Storage areas must meet national electric codes for Class 1 hazardous areas. Store only where temperature will not exceed 125°F (52°C). For other precautions in using acetylene, see section 16.

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

8. Exposure Controls/Personal Protection

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

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

*N.E.—Not Established.

NOTE: Acetone, used as a solvent, has a TLV-TWA of 500 ppm for acetone and a TLV-STEL of 750 ppm (ACGIH, 2009). OSHA PEL, 1000 ppm (2400 mg/m³).

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

IDLH = Not available.

ENGINEERING CONTROLS:

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

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

Special. None

Other. None

PERSONAL PROTECTIVE EQUIPMENT:

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

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

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

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

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

9. Physical and Chemical Properties

APPEARANCE:	Colorless gas
ODOR:	Acetylene of 100% purity is odorless, but commercial acetylene has a distinctive, garlic-like odor.
ODOR THRESHOLD:	Not available.
PHYSICAL STATE:	Gas at normal temperature and pressure
pH:	Not applicable.
SUBLIMATION POINT at 1 atm:	-118°F (-83.3°C)
MELTING POINT at 10 psig (170 kPa abs):	-116°F (-82.2°C)
BOILING POINT at 10 psig (170 kPa abs):	-103.4°F (-75.2°C)
FLASH POINT:	-0°F (-17.8°C)
EVAPORATION RATE (Butyl Acetate = 1):	Not applicable.
FLAMMABILITY:	Flammable
FLAMMABLE LIMITS IN AIR , % by volume:	LOWER: 2.5% UPPER: 100%
VAPOR PRESSURE at 70°F (21.1°C):	649.6 psia (4479 kPa abs)*
VAPOR DENSITY at 32°F (0°C) and 1 atm:	0.07314 lb/ft ³ (1.1716 kg/m ³)
SPECIFIC GRAVITY (H ₂ O = 1):	Not applicable.
SPECIFIC GRAVITY (Air = 1) at 32°F (0°C) and 1 atm:	0.906
SOLUBILITY IN WATER vol/vol at 32°F (0°C):	1.7
PARTITION COEFFICIENT: n-octanol/water:	Not available.
AUTOIGNITION TEMPERATURE:	581°F (305°C) at 1 atm
DECOMPOSITION TEMPERATURE:	Not available.
PERCENT VOLATILES BY VOLUME:	100
MOLECULAR WEIGHT:	26.04
MOLECULAR FORMULA:	C ₂ H ₂

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

10. Stability and Reactivity**CHEMICAL STABILITY:** ☒ Unstable ☐ Stable

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

CONDITIONS TO AVOID: Elevated temperature and pressure and/or the presence of a catalyst.**INCOMPATIBLE MATERIALS:** Copper, silver, mercury, or their alloys; oxidizing agents; acids; halogens; moisture.**HAZARDOUS DECOMPOSITION PRODUCTS:** Thermal decomposition or burning may produce CO/CO₂H₂. The welding and cutting process may form reaction products such as CO and CO₂. Other decomposition products of normal operation originate from the volatilization, reaction, or oxidation of the material being worked.**POSSIBILITY OF HAZARDOUS REACTIONS:** ☒ May Occur ☐ Will Not Occur

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

11. Toxicological Information**ACUTE DOSE EFFECTS:** No known effects from acetylene gas. The welding process may generate hazardous fumes and gases. (See sections 8, 10, 15, and 16.)**12. Ecological Information****ECOTOXICITY:** No adverse ecological effects expected.**OTHER ADVERSE EFFECTS:** None known. Acetylene does not contain any Class I or Class II ozone-depleting chemicals.**13. Disposal Considerations****WASTE DISPOSAL METHOD:** Do not attempt to dispose of residual or unused quantities. Return cylinder to supplier.**14. Transport Information****DOT/IMO SHIPPING NAME:** Acetylene, dissolved.

HAZARD CLASS: 2.1	PACKING GROUP/Zone: None	IDENTIFICATION NUMBER: UN1001	PRODUCT RQ: None
SHIPPING LABEL(s): FLAMMABLE GAS			
PLACARD (when required): FLAMMABLE GAS			

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

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

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

15. Regulatory Information

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

U.S. FEDERAL REGULATIONS:

EPA (ENVIRONMENTAL PROTECTION AGENCY)

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

Reportable Quantity (RQ): None

SARA: SUPERFUND AMENDMENT AND REAUTHORIZATION ACT:

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

TPQ: None

EHS RQ (40 CFR 355): None

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

IMMEDIATE: No

DELAYED: No

PRESSURE: Yes

REACTIVITY: Yes

FIRE: Yes

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

Acetylene is not subject to reporting under Section 313.

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

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

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

OSHA: OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION:

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

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

STATE REGULATIONS:

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

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

16. Other Information

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

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

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

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

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

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

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

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

NOTES TO PHYSICIAN:

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

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

PROTECTIVE CLOTHING AND EQUIPMENT FOR WELDING OPERATIONS:

PROTECTIVE GLOVES: Wear welding gloves.

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

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

OTHER HAZARDOUS CONDITIONS OF HANDLING, STORAGE, AND USE: *Flammable gas under pressure.*

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

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

HAZARD RATING SYSTEMS:

NFPA RATINGS:

HEALTH	= 0
FLAMMABILITY	= 4
INSTABILITY	= 2
SPECIAL	= None

HMIS RATINGS:

HEALTH	= 2
FLAMMABILITY	= 4
PHYSICAL HAZARD	= 2

STANDARD VALVE CONNECTIONS FOR U.S. AND CANADA:

THREADED:

The CGA-510 connection is standard for cylinders of greater than 50 cu ft (1.42 m³) capacity. See CGA Pamphlet V-1 for other, limited-standard connections.

PIN-INDEXED YOKE:

Not applicable.

ULTRA-HIGH-INTEGRITY CONNECTION:

Not applicable.

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

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

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

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

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

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

Praxair and the *Flowing Airstream* design are trademarks or registered trademarks of Praxair Technology, Inc. in the United States and/or other countries.



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

Initial Preparation Date: 8/16/1990
Last Revision Date: 4/14/2012
Effective Date: 6/4/2012

MATERIAL SAFETY DATA SHEET

PRODUCT IDENTITY: FULL FORCE ANTIFREEZE & COOLANT

1. CHEMICAL PRODUCT & COMPANY INFORMATION

OLD WORLD INDUSTRIES, LLC
4065 COMMERCIAL AVENUE
NORTHBROOK, ILLINOIS 60062
PHONE: 847-559-2000
EMERGENCY PHONE: 1-800-424-9300 (CHEMTREC)

2. COMPOSITION/INFORMATION ON INGREDIENTS

<u>Material</u>	<u>CAS#</u>	<u>% by Wt</u>	<u>PEL (OSHA)</u>	<u>TLV (ACGIH)</u>
Ethylene Glycol	107-21-1	90 - 95	50 ppm	50 ppm
Diethylene Glycol	111-46-6	0 - 5	None	None
Denatonium Benzoate	3734-33-6	30-50 ppm	None	None
Dipotassium Phosphate	7758-11-4	1 - 2	None	None

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

<i>Slight odor.</i>	<i>May be fatal if swallowed.</i>	<i>Vapors can cause eye irritation.</i>
----------------------------	--	--

Lowest Known LD50 (Oral)	107-21-1	5840 mg/kg (Rats)
Lowest Known LD50 (Skin)	107-21-1	9530 mg/kg (Rabbits)

HAZARD RATING SYSTEM

NFPA: HEALTH: 1 **FLAMMABILITY: 1** **REACTIVITY: 0**
HMIS: HEALTH: 2 **FLAMMABILITY: 1** **REACTIVITY: 0**

KEY: 0 – Minimal 1 – Slight 2 - Moderate 3 - Serious 4 - Severe

POTENTIAL HEALTH EFFECTS

Routes of Exposure: Inhalation, Ingestion, Skin Contact/Absorption, Eye Contact

Eye: May cause slight transient (temporary) eye irritation. Corneal injury is unlikely. Vapors or mists may cause eye irritation.

Skin: Prolonged or repeated exposure not likely to cause significant skin irritation. A single prolonged exposure is not likely to result in the material being absorbed through skin in harmful amounts. Repeated skin exposure may result in absorption of harmful amounts. Massive contact with damaged skin or of material sufficiently hot to burn skin may result in absorption of potential lethal amounts.

Ingestion: Single dose oral toxicity is considered to be moderate. Excessive exposure may cause central nervous system effects, cardiopulmonary effects (metabolic acidosis), and kidney failure. Small amounts swallowed incidental to normal handling operations are not likely to cause injury; however, swallowing amounts larger than that may cause serious injury, even death.

Inhalation: At room temperature, exposures to vapors are minimal due to physical properties; higher temperatures may generate vapor levels sufficient to cause adverse effects.

Systemic (Other Target Organ) Effects: Repeated excessive exposures may cause severe kidney and also liver and gastrointestinal effects. Signs and symptoms of excessive exposure may be central nervous system effects. Signs and symptoms of excessive exposure may be nausea and/or vomiting. Signs and symptoms of excessive exposure may be anesthetic or narcotic effects. Observations in animals include formation of bladder stones after repeated oral doses of ethylene glycol. Reports of kidney failure and death in burn patients suggest the ethylene glycol may have been a factor. The use of topical applications containing this material may not be appropriate in severely burned patients or individuals with impaired renal function.

Cancer Information: Based on data from long-term animal studies, ethylene glycol is not believed to pose a carcinogenic risk to man.

Teratology (Birth Defects): Exposure to ethylene glycol has caused birth defects in laboratory animals only at doses toxic to the mother.

Reproductive Effects: Ethylene glycol has not interfered with reproduction in animal studies except at very high doses.

CHRONIC, PROLONGED OR REPEATED OVEREXPOSURE

Effects of Repeated Overexposure: Repeated inhalation of ethylene glycol mist may produce signs of central nervous system involvement, particularly dizziness and nystagmus.

Other Effects of Overexposure: repeated skin contact with ethylene glycol may, in a very small proportion of cases, cause sensitization with the development of allergic contact dermatitis. The incidence is significantly less than 1% with the undiluted material.

4. FIRST AID MEASURES

Ensure physician has access to this MSDS.

TREATMENT

Eyes: Immediately flush eyes with large amounts of water for 15 minutes, lifting lower and upper lids. Get medical attention as soon as possible. Contact lenses should never be worn when working with this chemical.

Skin: Flush area of skin contact immediately with large amounts of water for at least 15 minutes while removing contaminated clothing. If irritation persists after flushing, get medical attention promptly. Wash clothing before re-use.

Inhalation: If inhaled, immediately remove victim to fresh air and call ***emergency medical care***. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

Ingestion: Obtain medical attention immediately. If patient is fully conscious, give two glasses of water. Do not induce vomiting. If medical advice is delayed, and if the person has swallowed a moderate volume of material (a few ounces), then give three to four ounces of hard liquor, such as whisky. For children, give proportionally less liquor, according to weight.

Notes to Physician:

It is estimated that the lethal oral dose to adults is of the order of 1.0 ml/kg. Ethylene glycol is metabolized by alcohol dehydrogenase to various metabolites including glyceraldehydes, glycolic acid and oxalic acid which cause an elevated anion-gap metabolic acidosis and renal tubular injury. The signs and symptoms in ethylene glycol poisoning are those of metabolic acidosis, CNS depression, and kidney injury. Urinalysis may show albuminuria, hematuria and oxaluria. Clinical chemistry may reveal anion-gap metabolic acidosis and uremia. The currently recommended medical management of ethylene glycol poisoning includes elimination of ethylene glycol and metabolites, correction of metabolic acidosis and prevention of kidney injury. It is essential to have immediate and follow up urinalysis and clinical chemistry. There should be particular emphasis on acid-base balance and renal function tests. A continuous infusion of 5% sodium bicarbonate with frequent monitoring of electrolytes and fluid balance is used to achieve correction of metabolic acidosis and forced diuresis. As a competitive substrate for alcohol dehydrogenase, ethanol is antidotal. Given in the early stages of intoxication, it blocks the formulation of nephrotoxic metabolites. A therapeutically effective blood concentration of ethanol is in the range 100-150 mg/dl, and should be achieved by a rapid loading dose and maintained by intravenous infusion. For severe and/or deteriorating cases, hemodialysis may be required. Dialysis should be considered for patients who are symptomatic, have severe metabolic acidosis, a blood ethylene glycol concentration greater than 25 md/dl, or compromise of renal functions.

A more effective intravenous antidote for physician use is 4-methylpyrazole, a potent inhibitor of alcohol dehydrogenases, which effectively blocks the formation of toxic metabolites of ethylene glycol. It has been used to decrease the metabolic consequences of ethylene glycol poisoning before metabolic acidosis coma, seizures, and renal failure have occurred. A generally recommended protocol is a loading dose of 15 mg/kg followed by 10 mg/kg every 12 hours for 4 doses and then 15 mg/kg every 12 hours until ethylene glycol concentrations are below 20 mg/100 ml. Slow intravenous infusion is required. Since 4-methylpyrazole is dialyzable, increased dosage may be necessary during hemodialysis. Additional therapeutic measures may include the administration of cofactors involved in the metabolism of ethylene glycol. Thiamine (100 mg) and pyridoxine (50 mg) should be given every six hours.

Pulmonary edema with hypoxemia has been described in a number of patients following poisoning with ethylene glycol. The mechanism of production has not been elucidated, but it appears to be non-cardiogenic in origin in several cases. Respiratory support with mechanical ventilation and positive end expiratory pressure may be required. There may be cranial nerve involvement in the late stages of toxicity from swallowed ethylene glycol. In particular, effects have been reported involving the seventh, eighth and ninth cranial nerves, presenting with bilateral facial paralysis, diminished hearing and dysphasia.

5. FIRE FIGHTING MEASURES

Flammable Properties:

Flash Point: 119°C (247°F)

Method Used: Setaflash

Auto-ignition Temperature: Auto-ignition temperature for ethylene glycol is 398°C (748°F).

Flammability Limits: Percentage of vapor concentration at which product can ignite in presence of spark:

Lower Flammability Limit: 3.2%

Upper Flammability Limit: 15.3%

Hazardous Combustion Products: Hazardous combustion products may include and are not limited to carbon monoxide, carbon dioxide and trace amounts of aldehydes and organic acids. When available oxygen is limited, as in a fire or when heated to very high temperatures by a hot wire or plate, carbon monoxide and other hazardous compounds such as aldehydes might be generated.

Extinguishing Media: Water fog or fine spray. Alcohol resistant foams (ATC type) are preferred if available. General purpose synthetic foams (including AFFF) or protein foams may function, but much less effectively. Carbon dioxide. Dry chemical. Do not use direct water stream. May spread fire.

Fire Fighting Instructions: No fire and explosion hazards expected under normal storage and handling conditions (i.e. ambient temperatures). However, ethylene glycol or solutions of ethylene glycol and water can form flammable vapors with air if heated sufficiently. Keep people away. Isolate fire area and deny unnecessary entry.

Protective Equipment for Fire Fighters: Wear positive-pressure, self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire-fighting helmet, coat, pants, boots and gloves).

6. ACCIDENTAL RELEASE MEASURES

Protect People: Material is moderately toxic when ingested. Take adequate precautions to keep people, especially children away from spill site. PVC-coated rubber gloves and monogoggles or face shield can be used during cleanup of spill site. Product on surfaces can cause slippery conditions. Practice reasonable care and cleanliness. Avoid breathing spray mists if generated. Keep out of reach of children. Product may become a solid at temperatures below -18°C (0°F). Do not store near food, foodstuffs, drugs or potable water supplies.

Protect the Environment: Do not dump used product or diluted material into sewers, on the ground, or into any body of water.

Cleanup: Small spills: Soak up with absorbent material. Large spills: Dike and pump into suitable containers for disposal. Ensure compliance with all applicable statutes that require notification of appropriate government officials.

7. HANDLING AND STORAGE

Steps to be Taken in Case Material is Released or Spilled: Eliminate all sources of ignition in vicinity of the spilled or released fluid.

Other Precautions: Use normal precautions in handling any combustible liquid. Keep container closed when not in use. Store away from heat or open flame. Product on surfaces can cause slippery conditions. Practice reasonable care and cleanliness. Avoid breathing spray mists if generated. Keep out of reach of children. Product may become a solid at temperatures below -18°C (0°F). Do not store near food, foodstuffs, drugs or potable water supplies.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Respiratory Protection: Respiratory protection is required if airborne concentration exceeds TLV. At any detectable concentration any self-contained breathing apparatus with a full face piece and operated in a pressure-demand or other positive pressure mode or any supplied-air respirator with a full face piece and operated in a pressure-demand or other positive pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive pressure mode.

Escape: Any air-purifying full face piece respirator (gas mask) with a chin-style or front- or back-mounted organic vapor canister or any appropriate escape-type self-contained breathing apparatus.

Skin Protection: Protective gloves recommended when prolonged skin contact cannot be avoided. Polyethylene; Neoprene; Nitrile; Polyvinyl alcohol; Natural Rubber, Butyl Rubber. Safety shower should be available.

Eye Protection: Safety goggles and face shield. Emergency eyewash should be available. Contact lenses should not be worn when working with this chemical.

Engineering Controls: Use general or local exhaust ventilation to meet TLV requirements.

EXPOSURE LIMITS

<u>Component</u>	<u>Exposure Limits</u>	<u>Skin Form</u>
Ethylene glycol	100 mg/m3 CEILING ACGIH	Aerosol
Ethylene glycol	125 mg/m3 CEILING OSHA-vacated	
	50 ppm CEILING OSHA – vacated	
	100 mg/m3 CEILING UCC	
Diethylene glycol	50 ppm TWA8 AIHA WEEL	Aerosol and Vapor
Diethylene glycol	10 mg/m3 TWA8 AIHA WEEL	Aerosol and Vapor
		Aerosol

In the Exposure Limits Chart above, if there is no specific qualifier (i.e., Aerosol) listed in the Form Column for a particular limit, the listed limit includes all airborne forms of the substance that can be inhaled.

A “blank” in the Skin column indicates that exposure by the cutaneous (skin) route is not a potential significant contributor to overall exposure.

9. PHYSICAL / CHEMICAL PROPERTIES

Boiling Range:	171 - 175°C (339 - 348°F)
Freeze Point:	-18°C (0°F)
Specific Gravity (Water =1):	1.12
Pounds/Gallons:	9.3
Vapor Pressure (mm of Hg) @ 20C:	<0.1
Vapor Density (air=1):	2.1
Water Solubility:	Complete
Evaporation Rate (BuAc = 1):	Nil
% Volatile By Volume:	97.0
Appearance:	Green
Odor:	Mild
pH (50 % Water Solution):	10.5-11.0

10. STABILITY & REACTIVITY DATA

Stability:	Stable
Conditions to Avoid:	Keep away from flame
Incompatibility (Materials to Avoid):	Strong acid or oxidizing agents
Hazardous Decomposition Products:	Incomplete combustion may produce CO gas
Hazardous Polymerization:	Will not occur

11. TOXICOLOGICAL INFORMATION

Skin: The dermal LD50 has not been determined.

Ingestion: The lethal dose in humans is estimated to be 100 ml (3 ozs.). The oral LD50 for rats is in the 6000-13,000-mg/kg range.

Mutagenicity (The Effects on Genetic Material): In vitro mutagenicity studies were negative. Animal mutagenicity studies were negative.

Significant Data with Possible Relevance to Humans: Ethylene glycol has been shown to produce dose-related teratogenic effects in rats and mice when given by gavage or in drinking water at high concentrations or doses. The no-effect doses for developmental toxicity for ethylene glycol given by gavage over the period of organogenesis has been shown to be 150 mg/kg/day for the mouse and 500 mg/kg/day for the rat. Also, in a preliminary study to assess the effects of exposure of pregnant rats and made to aerosol at concentrations of 150, 1000 and 25000 mg/m³ for 6 hours a day throughout the period of organogenesis, teratogenic effects were produced at the highest concentration, but only in mice. The conditions of these latter experiments did not allow a conclusion as to whether the developmental toxicity was mediated by inhalation of aerosol percutaneous absorption of ethylene glycol from contaminated skin, or swallowing ethylene glycol as a result of grooming the wetted coat. In a further study, comparing effects from high aerosol concentration by whole-body or nose-only exposure, it was shown that nose-only exposure resulted in maternal toxicity (1000 and 25000 mg/m³) and developmental toxicity with minimal evidence of teratogenicity (2500 mg/m³). The no-effects concentration (based on maternal toxicity) was 500 mg/m³.

In a further study in mice, no teratogenic effects could be produced when ethylene glycol was applied to skin of pregnant mice over the period of organogenesis. The above observations suggest that ethylene glycol is to be regarded as an animal teratogen. There is currently no available information to suggest that ethylene glycol has caused birth defects in humans. Cutaneous application of ethylene glycol is ineffective in producing developmental toxicity. Exposure to high aerosol concentrations is only minimally effective in producing developmental toxicity.

The major route for producing developmental toxicity is perorally. Two chronic feeding studies, using rats and mice, have not produced any evidence that ethylene glycol causes dose-related increases in tumor incidence or a different pattern of tumors compared with untreated controls. The absence of carcinogenic potential for ethylene glycol has been supported by numerous in vitro genotoxicity studies showing that it does not produce mutagenic or clastogenic effects.

A chronic dietary feeding study of diethylene glycol with rats showed mild kidney injury at 1%, while concentrations of 2% and 4% caused more marked kidney injury. In addition, at 2% and 4% of diethylene glycol in the diet, some rats developed benign papillary tumors in the urinary bladder. These have been attributed to the presence of urinary bladder calcium oxalate stones. No evidence for carcinogenicity was found with a chronic skin-painting study with diethylene glycol in mice. The absence of a direct chemical carcinogenic effect addords with the results in vitro genotoxicity studies that show that it does not produce mutagenic or clastogenic effects. A feeding study employing up to 5.0% diethylene glycol in the diet failed to produce any teratogenic effects. In a mouse continuous breeding study with large doses of diethylene glycol in drinking water, there was evidence for reproductive toxicity at 3.5% (equivalent to 6.1 g/kg/day) as reduced number of litter, live pups per litter and live pup weight. No such effects were seen at 1.75% (approximately 3.05 g/kg/day). The relevance of these very high dosages to human health is uncertain. Pregnant rats receiving undiluted diethylene glycol by gavage over the period of organogenesis had toxic effects at 4.0 and 8.0 ml/kg/day as mortality, decreased body weight, decreased food consumption increased water consumption and increased liver and kidney weights. Fetotoxicity was seen only at these maternally toxic dosages. Decreased fetal body weight occurred at 8.0 ml/kg/day, and increased skeletal variants at 4.0 and 8.0 ml/kg/day. No embryotoxic or teratogenic effects were seen. Neither maternal toxicity nor fetotoxicity occurred at 1.0 ml/kg/day. In a study with mice also receiving undiluted diethylene glycol over the period of organogenesis, maternal toxicity occurred at 2.5 and 10.0 ml/kg/day, but not at 0.5 ml/kg/day. Definitive developmental toxicity was not seen in this species.

ACUTE TOXICITY

- Peroral:** The lethal dose in humans is estimated to be 3 oz. or 100 ml.
Rat: LD50 (6000 – 13000) mg/kg
- Percutaneous:** Rabbit: LD50 = >22270 mg/kg; 24 h occluded
- Inhalation:** Rat: 8-hour exposure, substantially saturated vapor studies, dynamic generation method
Mortality: 0/6
- Inhalation:** Mist/vapor study, rat, at 170°C, 8-hour exposure = 2.2 mg/l
Mortality: 0/6
- Inhalation:** Rat: 8-hour exposure, fog = 10000 ppm; 65° - 70°C
Mortality: 0/6

IRRITATION

- Skin:** Rabbit: 24-hour occluded contact, 0.5 ml
Results: Minor erythema and edema
- Skin:** Human: Primary irritation patch test, 48-hour occluded, 0.2 ml
Results: Evidence of irritation
- Eye:** Rabbit: 0.1 ml
Results: Minor transient iritis, conjunctival irritation with discharge

REPEATED EXPOSURE

In a 7-day dietary study with rats, a significant increase in kidney weights in females was observed at 5.0 gm/kg. The NOEL was 2.5 gm/kg.

In a 24-month dietary study with rats, increased mortality in males was observed at the highest dose, 1.0 gm/kg/day. There were multiple signs: mineralization of several organs, including the cardiac vessels, cardiac muscle, vas deferens, stomach and pulmonary vessels; cellular hyperplasia of the parathyroids, hemosiderosis of the spleen, myocardial fibrosis, portal fibrosis of the liver, bile duct hyperplasia and hydronephrosis and oxylate nephrosis of the kidneys. Ethylene glycol was not oncogenic.

In a 90-day dietary study with dogs, repeated exposures to 2.5 gm/kg resulted in acute renal failure and deaths. The NOAEL was 1.0 gm/kg.

SENSITIZATION (ANIMAL AND HUMAN STUDIES)

Repeated skin contact with ethylene glycol may, in a very small proportion of cases, cause sensitization with the development of allergic contact dermatitis. The incidence is significantly less than 1% with the undiluted material.

REPRODUCTIVE TOXICITY

A three-generation study indicated that ethylene glycol did not affect reproductive parameters at dietary concentrations up to 1.0 gm/kg/day in any generation.

CHRONIC TOXICITY AND CARCINOGENICITY

Two chronic feeding studies, using rats and mice, have not produced any evidence that ethylene glycol causes dose-related increases in tumor incidence or a different pattern of tumors compared with untreated controls. The absence of a carcinogenic potential for ethylene glycol has been supported by numerous in vitro genotoxicity studies showing that it does not produce mutagenic or clastogenic effects.

GENETIC TOXICOLOGY

In Vitro: Ethylene glycol was devoid of genotoxic activity in an Ames test, forward gene mutation and sister chromatid exchange (SCE) studies in Chinese Hamster Ovary (CHO) cells and an in vitro cytogenetics study.

In Vivo: Ethylene glycol by three different routes (intravenous, peroral and percutaneous) demonstrates apparent first-order pharmacokinetic behavior for the disposition in and the elimination from the plasma. Dose-dependent changes occur for the elimination of metabolites in the urine and as $^{14}\text{CO}_2$ after single doses for the intravenous and peroral, but not the percutaneous route. The hypothesis from literature sources exists that developmental toxicity is caused by a metabolite of ethylene glycol, called glycolic acid, and not parent ethylene glycol. Under most conditions of ethylene glycol exposure, the glycolic acid metabolite is present in the blood in very low levels. However, it can become the major metabolite following large doses of ethylene glycol due to saturation of glycolic acid oxidation and/or elimination. When levels of this acidic metabolite exceed the capacity of maternal blood buffers to neutralize it, a maternal metabolic acidosis ensues, which has been hypothesized to be the true agent responsible for ethylene glycol induced developmental toxicity. Research suggests that ethylene glycol developmental toxicity is due to a dose-rate dependent toxicokinetic shift leading to glycolate accumulation and metabolic acidosis.

ADDITIONAL STUDIES

Ethylene glycol has been shown to produce dose-related teratogenic effects in rats and mice when given by gavage or in drinking water at high concentrations or doses. The no-effect doses for developmental toxicity for ethylene glycol given by gavage over the period of organogenesis has been shown to be 150 mg/kg/day for the mouse and 500

mg/kg/day for the rat. Also, in a preliminary study to assess the effects of exposure of pregnant rats and mice to aerosols at concentrations of 150, 1000 and 2500 mg/m³ for 6 hours a day throughout the period of organogenesis, teratogenic effects were produced at the highest concentration, but only in mice. The conditions of these latter experiments did not allow a conclusion as to whether the developmental toxicity was mediated by inhalation of aerosol, percutaneous absorption of ethylene glycol from contaminated skin, or swallowing of ethylene glycol as a result of grooming the wetted coat. In a further study, comparing effects from high aerosol concentration by whole-body or nose-only exposure, it was shown that nose-only exposure resulted in maternal toxicity (1000 and 2500 mg/m³) and developmental toxicity with minimal evidence of teratogenicity (2500 mg/m³). The no-effects concentration (based on maternal toxicity) was 500 mg/m³. In a further study in mice, no teratogenic effects could be produced when ethylene glycol was applied to the skin of pregnant mice over the period of organogenesis. The above observations suggest that ethylene glycol is to be regarded as an animal teratogen. There is currently no available information to suggest that ethylene glycol has caused birth defects in humans. Cutaneous application of ethylene glycol is ineffective in producing developmental toxicity. Exposure to high aerosol concentrations is only minimally effective in producing developmental toxicity.

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL FATE

Movement & Partitioning: Bio-concentration potential is low (BCF less than 100 or Log Kow less than 3). Log octanol/water partition coefficient (log Kow) is -1.36. Henry's Law Constant (H) is 6.0E-08 atm-m³/mol. Bio-concentration factor (BCF) is 10 in golden orfe.

Degradation & Transformation: Biodegradation under aerobic static laboratory conditions is high (BOD₂₀ or BOD₂₈/ThOD greater than 40%). 5-Day biochemical oxygen demand (BOD₅) is 0.78 p/p. 10-Day biochemical oxygen demand (BOD₁₀) is 1.06 p/p. 20-Day biochemical oxygen demand (BOD₂₀) is 1.15 p/p. Theoretical oxygen demand (THOD) is calculated to be 1.29 p/p. Biodegradation may occur under both aerobic and anaerobic conditions (in either the presence or absence of oxygen). Inhibitory concentration (IC₅₀) in OECD "Activated Sludge, Respiration Inhibition Test" (Guideline # 209) is < 1000 mg/L. Degradation is expected in the atmospheric environment within days to weeks.

Ecotoxicology: Material is practically non-toxic to aquatic organisms on an acute basis (LC₅₀ greater than 100 mg/L in most sensitive species). Acute LC₅₀ for fathead minnow (*Pimephales promelas*) is 51000 mg/L. Acute LC₅₀ for bluegill (*Lepomis macrochirus*) is 27549 mg/L. Acute LC₅₀ for rainbow trout (*Oncorhynchus mykiss*) is about 18000-46000 mg/L. Acute LC₅₀ for guppy (*Poecilia reticulata*) is 49300 mg/L. Acute LC₅₀ for water flea (*Daphnia magna*) is 46300-51100 mg/L. Acute LC₅₀ for the cladoceran *Ceriodaphnia dubia* is 10000-25800 mg/L. Acute LC₅₀ for crayfish is 91430 mg/L. Acute LC₅₀ for brine shrimp (*Artemia salina*) is 20000 mg/L. Acute LC₅₀ for golden orfe (*Leuciscus idus*) is greater than 10000 mg/L. Acute LC₅₀ for goldfish (*Carassius auratus*) is greater than 5000 mg/L. Growth inhibition EC₅₀ for green alga *Selenastrum capricornutum* is 9500-13000 mg/L.

BOD (% Oxygen Consumption):

Day 5	Day 10	Day 15	Day 20	Day 30
51%	80%		97%	

ECOTOXICITY

Toxicity to Micro-organisms:

Bacterial / NA: 16 h; IC₅₀

Result Value: >10000 mg/l

Toxicity to Aquatic Invertebrates:

Daphnia: 48 h; LC₅₀

Result Value: >100000 mg/l

Toxicity to Fish:

Fathead Minnow: 94 h; LC50

Result Value: 70000 mg/l

FURTHER INFORMATION

Chemical Oxygen Demand (COD) – Measured: 1.29 mg/mg

Theoretical Oxygen Demand (THOD) – Calculated: 1.30 mg/mg

Octanol/Water Partition Coefficient – Measured: -1.36

13. DISPOSAL CONSIDERATIONS

DO NOT discharge to sewer. Wear appropriate personal protection. Take up with sand, vermiculite, or similar inert material. Dispose in accordance with federal, state and local regulations.

14. TRANSPORT INFORMATION**U.S. DEPARTMENT OF TRANSPORTATION****Non-Bulk:** Not regulated by the US D.O.T. (in quantities under 5,000 lbs in any one inner package)**Bulk:**

Proper Shipping Name: Environmentally Hazardous Substance, LIQUID N.O.S. (ETHYLENE GLYCOL)

Technical Name: ETHYLENE GLYCOL

ID Number: UN 3082

Hazard Class: 9

Packing Group: PG III

Reportable Quantity: 5,000 lb.

IATA**Non-Bulk:** Not Regulated by IATA**IMDG****Non-Bulk:** Not regulated by IMDG (in quantities under 5,000 lbs in any one inner package)***15. REGULATORY INFORMATION******THIS PRODUCT CONTAINS COMPONENT(S) CITED ON THE FOLLOWING REGULATIONS.***

<u>Chemical Name</u>	<u>Cas Number</u>
Ethylene Glycol	107-21-1

United States - TSCA**Inventory:** Listed**Water Standards:** No data available**Atmospheric Standards:** Clean Air Act (1990) - List of Hazardous Air Contaminants: listed

CERCLA: Reportable Quantity (RQ): 5,000 pounds (532 gallons)

OSHA Hazard Communication

Standard: This product is a “hazardous chemical” as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

SARA Title III: Section 311/312 - Categories: Acute hazard; chronic hazard

Section 312 - Inventory Reporting: Ethylene glycol is subject to Tier I and/or Tier II annual inventory reporting.

Section 313 - Emission Reporting: Ethylene glycol is subject to Form R reporting requirements.

Section 302 - Extremely Hazardous Substances: Ethylene glycol is not listed.

State Right-To-Know:

California - Exposure Limits - Ceilings:	vapor-50 ppm ceiling; 125 mg/m3 ceiling
Director's List of Hazardous Substances:	listed
Florida - Hazardous Substances List:	listed
Massachusetts - Right-to-Know List:	listed
Minnesota - Haz. Subs. List:	listed (particulate and vapor)
New Jersey - Right-to-Know List (Total):	Present greater than 1.0%
Pennsylvania Right-to-Know List:	environmental hazard

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

WHMIS Information: D2A - material has potential toxic effects. Refer elsewhere in the MSDS for specific warnings and safe handling information. Refer to the employer's workplace education program.

California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986): The normal consumer use of this product does not result in exposure to chemicals known to the state of California to cause Cancer and/or reproductive harm above the significant risk level for carcinogens or the maximum allowable dose levels for reproductive toxins. Warnings are not required for consumer packaging. However, industrial or other occupational use of this product at higher frequency and using larger quantities of this product may result in exposures exceeding these levels and are labeled accordingly.

California SCAQMD Rule 443.1 (South Coast Air Quality Management District Rule 443.1, Labeling of Materials Containing Organic Solvents):

VOC: Vapor pressure 0.06 mmHg at 20°C
1113.38 g/l

16. OTHER INFORMATION

Contact: Thomas Cholke

Phone: (847) 559-2225

Old World Industries, LLC makes no warranty, representation or guarantee as to the accuracy, sufficiency or completeness of the material set forth herein. It is the user's responsibility to determine the safety, toxicity and suitability of his own use, handling and disposal of this product. Since actual use by others is beyond our control, no warranty, expressed or implied, is made by Old World Industries, LLC as to the effects of such use, the results to be obtained or the safety and toxicity of this product, nor does Old World Industries, LLC assume liability arising out of the use by others of this product referred to herein. The data in this MSDS relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

Initial Preparation Date: 11/10/2004

Last Revision Date: None

Effective Date: 8/1/2005

MATERIAL SAFETY DATA SHEET

PRODUCT IDENTITY: BOYER -20° WASH

1. CHEMICAL PRODUCT & COMPANY INFORMATION

BOYER PETROLEUM COMPANY
1817 HULL AVENUE
DES MOINES, IOWA 50313
PHONE: 515-243-4450 / 800-532-1480
EMERGENCY PHONE: 800-424-9300 (CHEMTREC)

2. COMPOSITION / INFORMATION ON INGREDIENTS

<u>MATERIAL</u>	<u>CAS#</u>	<u>% BY WT</u>	<u>8-Hour Time Weighted Avg. (TWA)</u>
Methanol	67-56-1	<33	200 ppm (260 Mg/M ³)

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Slight odor.

May be fatal if swallowed.

Vapors can cause eye irritation.

LD50 Rat (Oral):

5628 mg/kg

methanol

LD50 Rabbit (Skin):

12800 mg/kg

methanol

Carcinogenicity:

No

National Toxicology Program:

No

International Agency for Research on Cancer:

No

OSHA Regulated:

Yes

HAZARD RATING SYSTEM

HMIS: HEALTH: 1 FLAMMABILITY: 3 REACTIVITY: 0 PERSONAL PROTECTION: A

KEY: 0 - Minimal 1 - Slight 2 - Moderate 3 - Serious 4 - Severe A - Safety
glasses

POTENTIAL HEALTH EFFECTS

Health Hazards (Acute and Chronic):

Acute:

Acute methanol intoxication is manifested initially by signs of narcosis. This is followed by a latent period in which formic acid accumulates in the body causing metabolic acidosis. Severe abdominal, leg, and back pain occur and visual degeneration can lead to blindness.

1. Humans – Ingestion of 80 to 150 mL of methanol is usually fatal to humans (HSDB 1994). One worker died from exposure to vapor ranging from 4,000 to 13,000 ppm over 12 hours (ACGIH 1991). The concentration of 4,000 ppm is roughly equivalent to a total of 1,140 mg/kg over the 12-hour period (see end note 2). Poisoning by nonlethal doses can be described in three stages: (1) narcotic stage similar to ethanol; (2) latent period of 10-15 hours; (3) visual disturbances and central nervous system lesions (Rowe and McCollister 1981). Visual disturbances can lead to blindness due to edema of the retina and atrophy of the optic nerve head (HSDB 1994). Third-stage CNS lesions include headache, dizziness, abdominal, back, and leg pain, delirium that can lead to coma, and nausea (HSDB 1994). Formic acid production causes severe metabolic acidosis (Rowe and McCollister 1981).
2. Animals – Oral LD50 values for methanol in animals are 0.4 g/kg in the mouse, 6.2 to 13 g/kg in the rat, 14.4 g/kg in the rabbit, and 2 to 7 g/kg in the monkey (Rowe and McCollister 1981). The LD50 for dermal application to rabbits is 20 mL/kg (approximately 16 g/kg) (Rowe and McCollister 1981). Dose-response data for inhalation vary with species, dose, and duration (8,800 ppm for 8 hours to 152,800 ppm for 94 minutes). Symptoms of intoxication include incoordination, salivation, lethargy, narcosis, and death (Rowe and McCollister 1981).

Subchronic/Chronic:

Chronic exposure to methanol, either orally or by inhalation, causes headache, insomnia, gastrointestinal problems, and blindness in humans and hepatic and brain alterations in animals. EPA has derived an oral RfD (reference dose) (see end note 3) for methanol of 0.5 mg/kg/day, based on the absence of liver and brain effects in animals exposed by mouth to 500 mg/kg/day.

1. Humans – “Chronic” exposure to methanol vapors (no time or dose given) caused conjunctivitis, headache, giddiness, insomnia, gastric disturbances, and bilateral blindness (ACGIH 1991). Marked vision loss occurred in one worker exposed to 1,200 to 8,000 ppm vapor for 4 years (ACGIH 1991).
2. Animals – No effects were seen in rats given 1% (approximately 140 mg/kg/day) methanol in drinking water for 6 months (Rowe and McCollister 1981). Hepatic abnormalities (proteinic degeneration, altered RNA metabolism) occurred in rhesus monkeys given 3 to 6 g/kg for 3 to 20 weeks and in rats given 10, 100, or 500 mg/kg/day for one month (Rowe and McCollister 1981). Rabbits chronically fed methanol (no dose or time given) had increasing blood levels, brain and eye edema, and myelin thinning (HSDB 1994). Male and female rats were gavaged with 100, 500, or 2,500 mg/kg/day for 90 days (U.S. EPA 1994). Increased levels of SGPT and SAP as well as decreased brain weights were seen in both sexes at the highest dose; a no-observed-adverse effect level (NOAEL) for the study was 500 mg/kg/day. Based on

these data, the U.S. EPA (1994) calculated a chronic RfD (see end note 4) for methanol of 0.5 mg/kg/day. No toxic effects were seen in dogs exposed by inhalation to either 10,000 ppm for 3 minutes, 3x/day, for 100 days or to 450 or 500 ppm, 8 hours/day for 379 days (Rowe and McCollister 1981). Ultrastructural changes were observed in the photoreceptor cells of rabbits exposed to 46.6 ppm for 6 months (Rowe and McCollister 1981). Rowe and McCollister (1981) concluded that the effects of combined oral and inhalation exposure appear to be additive. Rats exposed by inhalation to 16.8 ppm, 4 hours/day, for 6 months and administered 0.7 mg/kg/day orally had changes in blood morphology, oxidation-reduction processes, and liver function (Rowe and McCollister 1981).

Carcinogenicity:

No information was found on the carcinogenicity of methanol in the secondary sources searched.

1. Humans – No information was found in the secondary sources searched concerning the carcinogenicity of methanol to humans.
2. Animals – No information was found in the secondary sources searched concerning the carcinogenicity of methanol to animals. The NTP has assigned a project leader for methanol and the design of the study is in progress (NTP 1994).

4. FIRST AID MEASURES

Ensure physician has access to this MSDS.

Routes of Entry: Inhalation, Skin, Ingestion

Signs and Symptoms of Exposure:

Eye Contact: May cause eye irritation.

Skin Contact: Frequent or prolonged contact may cause skin irritation experienced as burning, drying, cracking and redness.

Inhalation: May cause nose and throat irritation. High concentrations may cause acute central nervous system depression characterized by headaches, dizziness, nausea and confusion.

Skin Absorption Health Risks and Symptoms of Exposure: Harmful quantities of Methyl Alcohol may affect eyes and central nervous system.

Ingestion Health Risks and Symptoms of Exposure: May cause nausea, abdominal pain, headache, shortness of breath, visual impairment and blindness. Severe poisoning can cause coma and death.

Medical Conditions Generally Aggravated by Exposure: Ingestion of large amounts of Methyl Alcohol has been shown to damage organs including liver, kidney, pancreas, heart, lungs and brain. Although this rarely occurs, survivors of severe intoxication may suffer permanent neurological damage. Overexposure may aggravate pre-existing disorders of the eyes.

People have died as a result of drinking large amounts of methanol. Drinking smaller, non-lethal amounts of methanol adversely affects the human nervous system. Effects range from headaches to incoordination similar to that associated with drunkenness. Delayed effects such as severe abdominal, leg, and back pain can follow the

inebriation effects of methanol. Loss of vision and even blindness can also occur after exposure to amounts of methanol causing inebriation. These effects are not likely to occur at levels of methanol that are normally found in the environment.

Human health effects associated with breathing or otherwise consuming smaller amounts of methanol over long periods of time are not known. Workers repeatedly exposed to methanol have experienced several adverse effects. Effects range from headaches to sleep disorders and gastrointestinal problems to optic nerve damage. Laboratory studies show that repeat exposure to large amounts of methanol in air or in drinking water cause similar adverse effects in animals.

TREATMENT

Eyes: Flush with large quantities of water for 15 minutes and seek medical attention.

Skin: Remove contaminated clothing and wash contaminated skin with large amounts of soap and water. If irritation persists, get medical attention. Launder clothing before reuse.

Inhalation: Remove to fresh air. If breathing has stopped, apply artificial respiration. If breathing is difficult, give oxygen provided a qualified operator is available. Get medical attention.

Ingestion: Notes to Physician: This product contains methanol which can cause intoxication and central nervous system depression. Methanol is metabolized to formic acid and formaldehyde. These metabolites can cause metabolic acidosis, visual disturbances and blindness. Since metabolism is required for these toxic symptoms, their onset may be delayed from 6 to 30 hours following ingestion. Ethanol competes for the same metabolic pathway and has been used to prevent methanol metabolism. Ethanol administration is indicated in symptomatic patients or at blood hemodialysis. Preexisting disorders of the following organs (or organ systems) may be aggravated by exposure to this material: skin, lung (for example, asthma-like conditions), liver, kidney, central nervous system, pancreas, heart). Exposure to this material may aggravate any preexisting condition sensitive to a decrease in available oxygen, such as chronic lung disease, coronary artery disease or anemias.

If swallowed, induce vomiting of conscious patient immediately by giving two glasses of water and pressing finger down throat. Drink a large amount of water, milk or sodium bicarbonate to dilute material in stomach. (Never give anything by mouth to an unconscious person.) Call Poison Control Center, hospital emergency room or physician immediately.

5. FIRE FIGHTING MEASURES

FIRE & EXPLOSION HAZARD DATA

Flammable Properties

Flash Point:	92° F
Method Used:	TCC

Flammability Limits - % of vapor concentration at which methanol can ignite in presence of spark.

LEL:	6.0%
UEL:	36.0%

Hazardous Combustion Products: Methanol

Extinguishing Media: Foam, dry chemical, carbon dioxide or any Class B extinguishing agent. Water may be unsuitable as an extinguishing medium but helpful in keeping adjacent containers cool

Fire Fighting Instructions: Use water spray to cool fire exposed containers.

Water may be ineffective but may be used to cool exposed containers to prevent pressure buildup and possible auto-ignition or explosion when exposed to extreme heat. If water is used, fog nozzles are preferable.

Unusual Fire and Explosion Hazards: Handle as flammable liquid. Vapors are heavier than air and may travel along the ground or may be moved by ventilation. Vapors form an explosive mixture in air between the upper and lower explosive limits which can be ignited by many sources, such as pilot lights, open flames, electrical motors and switches.

Protective Equipment For Fire Fighters: Wear NIOSH approved self-contained breathing apparatus with full face piece and protective clothing to prevent contact with skin and eyes.

6. ACCIDENTAL RELEASE MEASURES

Small Spill

Absorb liquid on vermiculite, floor absorbent or other absorbent material.

Large Spill

Eliminate all ignition sources (flares, flames including pilot lights, electrical sparks). Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed. Stop spill at source. Prevent from entering drains, sewers, streams or other bodies of water. Prevent from spreading. If runoff occurs, notify authorities as required. Pump or vacuum transfer spilled product to clean containers for recovery. Absorb unrecoverable product. Transfer contaminated absorbent, soil and other materials to containers for disposal. Prevent run-off to sewers, streams or other bodies of water. If run-off occurs, notify proper authorities as required, that a spill has occurred.

7. HANDLING AND STORAGE

Do not swallow. Store in closed containers in a cool, dry, well-ventilated area. Keep away from sparks and open flame.

Respiratory Protection: Use approved NIOSH respirator when TLV is exceeded.

Ventilation: Provide sufficient ventilation to maintain exposure below TLV.

Protective Gloves: Wear appropriate impermeable gloves.

Eye Protection: Use chemical safety glasses, goggles and face shields for eye protection.

Other Protective Clothing or Equipment: Long sleeves and apron are recommended.

Work / Hygienic Practices: Avoid prolonged or repeated skin contact.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Eye Protection:

Chemical splash goggles in compliance with OSHA regulations are advised; however, OSHA regulations also permit other type safety glasses. Consult your safety representative.

Skin Protection:

Wear resistant gloves (consult your safety equipment supplier). To prevent repeated or prolonged skin contact, wear impervious clothing and boots.

Respiratory Protection:

If workplace exposure limit(s) of product or any component is exceeded (see exposure guidelines), a NIOSH/MSHA approved air supplied respiratory is advised in absence of proper environmental control. OSHA regulations also permit other NIOSH/MSHA respirators (negative pressure type) under specified conditions (see your industrial hygienist). Engineering or administrative controls should be implemented to reduce exposure.

Engineering Controls:

Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below TLV(s).

Exposure Guidelines:

Component

Methyl Alcohol (67-56-1)

OSHA VPEL 200.000 ppm – TWA (skin)

OSHA VPEL 250.000 ppm – STEL (skin)

ACGIH TLV 200.000 ppm – TWA (skin)

ACGIH TLV 250.000 ppm – STEL (skin)

9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Range:

177° F - 181° F

Specific Gravity (Water =1):

.96 @ 20° C

Vapor Pressure (mm of Hg):

43 @ 20° C

Vapor Density (Air=1):

Heavier than air

Water Solubility:

Soluble

Appearance:

Clear blue liquid

Odor:

Mild alcohol odor

Evaporation Rate:

Greater than m-butyl acetate

10. STABILITY AND REACTIVITY

Stability: Stable

Conditions to Avoid: Ignition sources, such as heat, sparks and flames

Incompatibility (Materials to Avoid): Strong acids and strong oxidizing agents

Hazardous Decomposition Products: Burning can produce carbon monoxide and/or carbon dioxide. Carbon monoxide is highly toxic if inhaled; carbon dioxide in sufficient concentrations can act as an asphyxiant.

Hazardous Polymerization: Will not occur

11. TOXICOLOGICAL INFORMATION

Mutagenicity (The Effects On Genetic Material):

Genotoxicity:

Methanol was negative for cell transformation in Syrian hamster embryo cells (clonal assay and viral enhanced), sister chromatid exchange in vitro, and for aneuploidy and chromosome aberrations in *Neurospora crassa* (GENETOX 1992). The micronucleus test and the assay for chromosome aberrations in mammalian polychromatic erythrocytes were inconclusive (GENETOX 1992).

Developmental/Reproductive Toxicity:

No information was found on the developmental toxicity of methanol in humans. Methanol can cause adverse effects in the developing offspring in rats at doses that cause overt maternal intoxication.

1. Humans – No information was found in the secondary sources searched regarding the developmental or reproductive toxicity of methanol to humans. However, one of the breakdown products of the artificial sweetener aspartame is methanol. Increased blood methanol levels did not lead to increased formic acid levels in women receiving up to 200 mg/kg aspartame (no other details reported) and no evidence of fetal risk was detected (HSDB 1994).
2. Animals – Rats were exposed by inhalation, 7 hours/day, to 5,000 or 10,000 ppm methanol on gestation days 1-19 or to 20,000 ppm on days 7-15. Maternal intoxication (unsteadiness) occurred at the highest dose and coincided with extra or rudimentary ribs and urinary or cardiovascular defects in the fetuses (ACGIH 1991). Male rats had significantly lowered testosterone levels after inhalation exposure to 200 ppm methanol for 6 weeks; at 10,000 ppm a change in luteinizing hormone was also observed (HSDB 1994).

Neurotoxicity:

Methanol causes central nervous system depression in humans and animals as well as degenerative changes in the brain and visual system.

1. Humans – Methanol causes narcosis similar to ethanol intoxication and nonlethal doses can lead to blindness. Autopsy of individuals after lethal doses revealed edema and hyperemia of the brain and degeneration of the ganglion cells of the retina (Rowe and McCollister 1981).
2. Animals – Acute methanol intoxication in animals causes CNS depression as observed by narcosis, incoordination, lethargy, drowsiness, and prostration (Rowe and McCollister 1981).

Significant Data With Possible Relevance To Humans:

Pharmacokinetics:

1. Absorption – Methanol is readily absorbed after oral, inhalation, or dermal exposure. Oral doses in humans of 71 to 84 mg/kg resulted in blood levels of 4.7 to 7.6 mg/100 mL of blood within 3 hours (Rowe and McCollister 1981). Inhalation of 500 to 1,000 ppm methanol for 3 to 4 hours gave urine concentrations of 1 to 3 mg methanol/100 mL of urine at the end of exposure (Rowe and McCollister 1981). Based on urinary methanol levels, the rate of absorption of the chemical appears to be proportional to the concentration of vapor inhaled (HSDB 1994). The rate of dermal absorption increased for 35 minutes then decreased over the next 25 minutes (no other details given) (HSDB 1994).
2. Distribution – Methanol distributes rapidly in dogs exposed to 4,000 to 15,000 ppm for 12 hours to 5 days; the highest concentrations of the chemical were found in blood, eye fluid, bile, and urine (HSDB 1994).
3. Metabolism – Methanol is oxidized in the human liver by the enzyme alcohol dehydrogenase (Rowe and McCollister 1981). Metabolic products include formaldehyde and formic acid (HSDB 1994). The rate of metabolism for methanol (25 mg/kg/hr) is much slower than for ethanol (175 mg/kg/hr) and is independent of concentrations in the blood (HSDB 1994). Formic acid is responsible for the toxic effects of methanol (ACGIH 1991).
4. Excretion – Methanol is excreted either as parent compound in the urine or expired air, or as the formic acid metabolite in urine (Rowe and McCollister 1981; HSDB 1994). The amount of formic acid excreted varies greatly with species from 1% in rabbits to 20% in dogs; humans are intermediate (HSDB 1994). In humans, the half-life of methanol elimination in expired air after oral or dermal exposure is 1.5 hours (HSDB 1994).

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL FATE

Methanol evaporates when exposed to air. It dissolves completely when mixed with water. Most direct releases of methanol to the environment are to air. Methanol also evaporates from water and soil exposed to air. Once in air, it breaks down to other chemicals. Microorganisms that live in water and in soil can also break down methanol. Because it is a liquid that does not bind well to soil, methanol that makes it way into the ground can move through the ground and enter groundwater. Plants and animals are not likely to store methanol.

Methanol by itself is not likely to cause environmental harm at levels normally found in the environment. Methanol can contribute to the formation of photochemical smog when it reacts with other volatile organic carbon substances in air.

Movement & Partitioning:

The miscibility of methanol in water and a low KOC (9) indicate that the chemical will be highly mobile in soil (HSDB 1994). Volatilization half-lives from a model river and an environmental pond were estimated at 4.8 days and 51.7 days, respectively (HSDB 1994). Methanol can be removed from the atmosphere in rain water (HSDB 1994).

Degradation & Transformation:

1. Air – Once in the atmosphere, methanol exists in the vapor phase with a half life of 17.8 days (HSDB 1994). The chemical reacts with photochemically produced hydroxyl radicals to produce formaldehyde (HSDB 1994). Methanol can also react with nitrogen dioxide in polluted air to form methyl nitrite (HSDB 1994).
2. Soil – Biodegradation is the major route of removal of methanol from soils. Several species of *Methylobacterium* and *Methylomonas* isolated from soils are capable of utilizing methanol as a sole carbon source (CHEMFATE 1994).
3. Water – Most methanol is removed from water by biodegradation. The degradation products of methane and carbon dioxide were detected from aqueous cultures of mixed bacteria isolated from sewage sludge (CHEMFATE 1994). Aerobic, Gram-negative bacteria (65 strains) isolated from seawater, sand, mud, and weeks of marine origin utilized methanol as a sole carbon source (CHEMFATE 1994). Aquatic hydrolysis, oxidation, and photolysis are not significant fate processes for methanol (HSDB 1994).
4. Biota – Bioaccumulation of methanol in aquatic organisms is not expected to be significant based on an estimated bioconcentration factor of 0.2 (HSDB 1994).

Ecotoxicology:

1. Toxicity to Aquatic Organisms – Methanol has low acute toxicity to aquatic organisms; lethal concentrations are much greater than 100 mg/L. Ninety-six hour LC50 values for fish are 28,100 mg/L for *Pimephales promelas* (fathead minnow), 20,100 mg/L for *Oncorhynchus mykiss* (rainbow trout), and >28,000 mg/L for *Alburnus alburnus* (bleak) (AQUIRE 1994). Forty-eight hour LC50 values for *Cyprinus carpio* (common carp) and *Carassius auratus* (goldfish) are 28,000 mg/L and 1,700 mg/L, respectively (AQUIRE 1994). Growth inhibition occurred for 4 strains of *Anabaena* (blue-green algae) over a range of EC50s of 2.57%-3.13% for 10-14 days (AQUIRE 1994). The LC50 for *Artemia salina* (brine shrimp) is >10,000 mg/L in 24 hours and that for *Culex restuans* (mosquito) is 20,000 mg/L in 18 hours (AQUIRE 1994).
2. Toxicity to Terrestrial Organisms – No information was found in the secondary sources searched regarding the toxicity of methanol to terrestrial organisms. However, based on the range of oral LD50s, 0.4 to 14.2 g/kg, for monkeys, rats, mice, and rabbits (Rowe and McCollister 1981), it is unlikely that methanol would be toxic to terrestrial animals at environmental levels.
3. Abiotic Effects – Methanol reacts with nitrogen dioxide in polluted atmospheres to produce methyl nitrite (HSDB 1994). According to the definition provided in the Federal Register (1992), methanol is a volatile organic compound (VOC) substance. As a VOC, methanol can contribute to the formation of photochemical smog in the presence of other VOCs.

13. DISPOSAL CONSIDERATIONS

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

14. TRANSPORT INFORMATION

(U.S. D.O.T.) – U. S. Department of Transportation

UN1230, Methanol, (mixture), 3(6.1), PGII

(IATA) International Air Dangerous Good Regulations

Proper Shipping Name: Flammable Liquid, n.o.s. (Methanol)
ID #: UN 1993
Class: 3
Hazard Label: Flammable Liquid
PG: III
Ltd. Qty. Packaging Instruction: Y309 (Max qty. per package 10L)
Special Provision: A3

(IMDG) International Maritime Dangerous Goods

Not IMDG regulated according to IMDG Code – Page 3003 Part 1.1.1

15. REGULATORY INFORMATION

THIS PRODUCT CONTAINS COMPONENT(S) CITED ON THE FOLLOWING REGULATIONS:

<u>CHEMICAL NAME</u>	<u>CAS NUMBER</u>
Methanol	67-56-1

U.S. Federal Regulations

TSCA (Toxic Substances Control Act) Status – TSCA (UNITED STATES)

The intentional ingredients of this product are listed.

CERCLA RQ – 40 CFR 302.4(a)

<u>Component</u>	<u>RQ (lbs)</u>
Methyl Alcohol	5,000

SARA 302 Components – 40 CFR 355 Appendix A

None

Section 311/312 Hazard Class – 40 CFR 370.2

Immediate (X) Delayed (X) Fire (X) Reactive () Sudden Release of Pressure ()

SARA 313 Components – 40 CFR 372.65Section 313 Component(s)

Methanol

CAS Number

67-56-1

%

33

International Regulations**Inventory Status – DSL (CANADA)**

The intentional ingredients of this product are listed.

WHMIS Information: B2, D1A**ECL (SOUTH KOREA)**

The intentional ingredients of this product are listed.

EINECS (EUROPE)

The intentional ingredients of this product are listed.

ENCS (JAPAN)

The intentional ingredients of this product are listed.

State and Local Regulations – California Proposition 65

None

New Jersey RTK (Right-to-Know) Label Information

Methyl Alcohol

67-56-1

Pennsylvania RTK (Right-to-Know) Label Information

Methanol

67-56-1

Atmospheric Standards: The Clean Air Act Amendments of 1990 list methanol as a hazardous air pollutant.**16. OTHER INFORMATION****Contact:** Art Boyer**Phone:** (515) 243-4450

Boyer Petroleum Company makes no warranty, representation or guarantee as to the accuracy, sufficiency or completeness of the material set forth herein. It is the user's responsibility to determine the safety, toxicity and suitability of his own use, handling and disposal of this product. Since actual use by others is beyond our control, no warranty, expressed or implied, is made by Boyer Petroleum Company as to the effects of such use, the results to be obtained or the safety and toxicity of this product, nor does Boyer Petroleum Company assume liability arising out of the use by others of this product referred to herein. The data in this MSDS relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.



MATERIAL SAFETY DATA SHEET

Conoco Super All Season Synthetic Blend Motor Oil

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Conoco Super All Season Synthetic Blend Motor Oil
Product Code: 1040824, 1040522, 1040527
Intended Use: Crankcase Oil
Synonyms: Conoco Super All Season Synthetic Blend Motor Oil, SAE 5W-20
Conoco Super All Season Synthetic Blend Motor Oil, SAE 5W-30
Conoco Super All Season Synthetic Blend Motor Oil, SAE 10W-30
Chemical Family: Petroleum Hydrocarbon
Responsible Party: Conoco Lubricants
A Division of ConocoPhillips
600 N. Dairy Ashford
Houston, Texas
77079-1175
Customer Service: 800-640-1956
Technical Information: 800-255-9556

The intended use of this product is indicated above. If any additional use is known, please contact us at the Technical Information number listed.

EMERGENCY OVERVIEW

24 Hour Emergency Telephone Numbers:

Spill, Leak, Fire or Accident Call CHEMTREC:

North America: (800) 424-9300

Others: (703) 527-3887 (collect)

California Poison Control System: (800) 356-3219

Health Hazards/Precautionary Measures: Avoid contact with skin and clothing. Wash thoroughly after handling.

Physical Hazards/Precautionary Measures: Keep away from all sources of ignition.

Appearance: Clear, Amber
Physical Form: Liquid
Odor: Characteristic petroleum

NFPA 704 Hazard Class:

Health: 1 (Slight)
Flammability: 1 (Slight)
Instability: 0 (Least)

HMIS Hazard Class:

Health: 1 (Slight)
Flammability: 1 (Slight)
Physical Hazards: 0 (Least)

2. COMPOSITION / INFORMATION ON INGREDIENTS

HAZARDOUS COMPONENTS					
Component / CAS No:	Percent (%)	ACGIH:	OSHA:	NIOSH:	Other:
Zinc Compound(s) PROPRIETARY	0.5-1.5	NE	NE	NE	NE

NON-HAZARDOUS COMPONENTS					
Component / CAS No:	Percent (%)	ACGIH:	OSHA:	NIOSH:	Other:
Lubricant Base Oil (Petroleum) VARIOUS	79-83	5mg/m ³ TWA 10 mg/m ³ STEL	5 mg/m ³ TWA	2500 mg/m ³ IDLH	as Oil Mist, if Generated 5 mg/m ³ NOHSC TWA
Additives PROPRIETARY	17-21	NE	NE	NE	NE

The base oil for this product can be a mixture of any of the following highly refined petroleum streams: CAS 64741-88-4; CAS 64741-89-5; CAS 64741-96-4; CAS 64741-97-5; CAS 64742-01-4; CAS 64742-52-5; CAS 64742-53-6; CAS 64742-54-7; CAS 64742-55-8; CAS 64742-56-9; CAS 64742-57-0; CAS 64742-62-7; CAS 64742-63-8; CAS 64742-65-0; CAS 72623-83-7; CAS 72623-85-9; CAS 72623-86-0; CAS 72623-87-1

Note: State, local or other agencies or advisory groups may have established more stringent limits. Consult an industrial hygienist or similar professional, or your local agencies, for further information.

1%=10,000 PPM.
NE=Not Established

All components are listed on the TSCA inventory.

3. HAZARDS IDENTIFICATION

Potential Health Effects:

Eye: Contact may cause mild eye irritation including stinging, watering, and redness.

Skin: Contact may cause mild skin irritation including redness, and a burning sensation. Prolonged or repeated contact can worsen irritation by causing drying and cracking of the skin leading to dermatitis (inflammation). No harmful effects from skin absorption are expected.

Inhalation (Breathing): No information available. Studies by other exposure routes suggest a low degree of toxicity by inhalation.

Ingestion (Swallowing): No harmful effects expected from ingestion.

Signs and Symptoms: Effects of overexposure may include irritation of the nose and throat, irritation of the respiratory tract, irritation of the digestive tract, nausea, diarrhea. Inhalation of oil mist or vapors at elevated temperatures may cause respiratory irritation.

Cancer: Inadequate evidence available to evaluate the cancer hazard of this material. See Section 11 for carcinogenicity information of individual components, if any.

Target Organs: No data available for this material.

Developmental: No data available for this material.

Pre-Existing Medical Conditions: Conditions aggravated by exposure may include skin disorders.

4. FIRST AID MEASURES

Eye: If irritation or redness develops, move victim away from exposure and into fresh air. Flush eyes with clean water. If symptoms persist, seek medical attention.

Skin: Wipe material from skin and remove contaminated shoes and clothing. Cleanse affected area(s) thoroughly by washing with mild soap and water and, if necessary, a waterless skin cleanser. If irritation or redness develops and persists, seek medical attention.

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

Ingestion (Swallowing): First aid is not normally required; however, if swallowed and symptoms develop, seek medical attention.

Notes to Physician: High-pressure hydrocarbon injection injuries may produce substantial necrosis of underlying tissue despite an innocuous appearing external wound. Often these injuries require extensive emergency surgical debridement and all injuries should be evaluated by a specialist in order to assess the extent of injury.

Acute aspirations of large amounts of oil-laden material may produce a serious aspiration pneumonia. Patients who aspirate these oils should be followed for the development of long-term sequelae. Inhalation exposure to oil mists below current workplace exposure limits is unlikely to cause pulmonary abnormalities.

5. FIRE-FIGHTING MEASURES

Flammable Properties:

Flash Point:	365°F / 185°C (PMCC) (minimum)
OSHA Flammability Class:	Not regulated
NFPA Flammability Class:	No data
LEL%:	No data
UEL%:	No data
Autoignition Temperature:	No data

Unusual Fire & Explosion Hazards: This material may burn, but will not ignite readily. Vapors are heavier than air and can accumulate in low areas. If container is not properly cooled, it can rupture in the heat of a fire.

Extinguishing Media: Dry chemical, carbon dioxide, foam, or water spray is recommended. Water or foam may cause frothing of materials heated above 212°F. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces.

Fire Fighting Instructions: For fires beyond the incipient stage, emergency responders in the immediate hazard area should wear bunker gear. When the potential chemical hazard is unknown, in enclosed or confined spaces, or when explicitly required by DOT, a self contained breathing apparatus should be worn. In addition, wear other appropriate protective equipment as conditions warrant (see Section 8).

Isolate immediate hazard area, keep unauthorized personnel out. Stop spill/release if it can be done with minimal risk. Move undamaged containers from immediate hazard area if it can be done with minimal risk.

Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Cool equipment exposed to fire with water, if it can be done with minimal risk. Avoid spreading burning liquid with water used for cooling purposes.

6. ACCIDENTAL RELEASE MEASURES

This material may burn, but will not ignite readily. Keep all sources of ignition away from spill/release.

Stay upwind and away from spill/release. Notify persons down wind of the spill/release, isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done with minimal risk. Wear appropriate protective equipment including respiratory protection as conditions warrant (see Section 8).

Prevent spilled material from entering sewers, storm drains, other unauthorized drainage systems, and natural waterways. Dike far ahead of spill for later recovery or disposal. Spilled material may be absorbed into an appropriate absorbent material.

Notify fire authorities and appropriate federal, state, and local agencies. Immediate cleanup of any spill is recommended. If spill of any amount is made into or upon navigable waters, the contiguous zone, or adjoining shorelines, notify the National Response Center (phone number 800-424-8802).

7. HANDLING AND STORAGE

Handling: Do not enter confined spaces such as tanks or pits without following proper entry procedures such as ASTM D-4276 and 29CFR 1910.146. The use of appropriate respiratory protection is advised when concentrations exceed any established exposure limits (see Sections 2 and 8).

Do not wear contaminated clothing or shoes. Use good personal hygiene practices.

"Empty" containers retain residue and may be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury or death. "Empty" drums should be completely drained, properly bunged, and promptly shipped to the supplier or a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

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

Before working on or in tanks which contain or have contained this material, refer to OSHA regulations, ANSI Z49.1, and other references pertaining to cleaning, repairing, welding, or other contemplated operations.

Storage: Keep container(s) tightly closed. Store only in approved containers. Use and store this material in cool, dry, well-ventilated areas away from heat and all sources of ignition. Storage temperatures above 113°F may lead to thermal decomposition, resulting in the generation of hydrogen sulfide and other sulfur containing gases. Keep away from any incompatible material (see Section 10). Protect container(s) against physical damage.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering controls: If current ventilation practices are not adequate to maintain airborne concentrations below the established exposure limits (see Section 2), additional engineering controls may be required.

Personal Protective Equipment (PPE):

Respiratory: A NIOSH certified air purifying respirator with a Type 95 (R or P) particulate filter may be used under conditions where airborne concentrations are expected to exceed exposure limits (see Section 2).

Protection provided by air purifying respirators is limited (see manufacturer's respirator selection guide). Use a NIOSH approved self-contained breathing apparatus (SCBA) or equivalent operated in a pressure demand or other positive pressure mode if there is potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.

A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use.

Skin: The use of gloves impervious to the specific material handled is advised to prevent skin contact and possible irritation (see manufacturers literature for information on permeability).

Eye/Face: Approved eye protection to safeguard against potential eye contact, irritation, or injury is recommended. Depending on conditions of use, a face shield may be necessary.

Other Protective Equipment: A source of clean water should be available in the work area for flushing eyes and skin. Impervious clothing should be worn as needed.

Suggestions for the use of specific protective materials are based on readily available published data. Users should check with specific manufacturers to confirm the performance of their products.

9. PHYSICAL AND CHEMICAL PROPERTIES

Note: Unless otherwise stated, values are determined at 20°C (68°F) and 760 mm Hg (1 atm).

Appearance:	Clear Amber
Physical Form:	Liquid
Odor:	Characteristic petroleum

Odor Threshold:	No data
pH:	Not applicable
Vapor Pressure (mm Hg):	<1
Vapor Density (air=1):	>1
Boiling Point:	No data
Solubility in Water:	Negligible
Partition Coefficient (n-octanol/water):	No data
Specific Gravity:	0.85-0.87
Bulk Density:	7.08-7.24
Bulk Density Units	lbs/gal
Viscosity cSt @ 100°C:	8.1-11.5
Viscosity cSt @ 40°C:	44-70
Evaporation Rate (nBuAc=1):	<1
Flash Point:	365°F / 185°C
Test Method:	(PMCC) (minimum)
LEL%:	No data
UEL%:	No data
Autoignition Temperature:	No data

10. STABILITY AND REACTIVITY

Stability: Stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

Conditions to Avoid: Extended exposure to high temperatures can cause decomposition.

Materials to Avoid (Incompatible Materials): Avoid contact with strong oxidizing agents, reducing agents.

Hazardous Decomposition Products: Combustion can yield carbon, nitrogen, sulfur, phosphorus, and zinc oxides. Hydrogen sulfide and alkyl mercaptans may also be released. Thermal decomposition may produce hydrogen sulfide and other sulfur-containing gases at temperatures greater than 113°F.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Chronic Data:

Lubricant Base Oil (Petroleum) - CAS: VARIOUS

Carcinogenicity: The petroleum base oils contained in this product have been highly refined by a variety of processes including solvent extraction, hydrotreating, and dewaxing to remove aromatics and improve performance characteristics. All of the oils meet the IP-346 criteria of less than 3 percent PAH's and therefore none are listed as a carcinogen by NTP, IARC, or OSHA.

Acute Data:

Lubricant Base Oil (Petroleum) - CAS: VARIOUS

Dermal LD50 = >2 g/kg

LC50 = No information available

Oral LD50 = >5 g/kg

Additives - CAS: PROPRIETARY

Dermal LD50 = No information available

LC50 = No information available

Oral LD50 = No information available

Zinc Compound(s) - CAS: PROPRIETARY

Dermal LD50 = No information available

LC50 = No information available

Oral LD50 = No information available

12. ECOLOGICAL INFORMATION

Not evaluated at this time.

13. DISPOSAL CONSIDERATIONS

This material under most intended uses would become used oil due to contamination by physical or chemical impurities. RECYCLE ALL USED OIL. While being recycled, used oil is regulated by 40 CFR 279. Use resulting in chemical or physical change or contamination may also subject it to regulation as hazardous waste. Under federal regulations, used oil is a solid waste managed under 40 CFR 279. However, in California, used oil is managed as hazardous waste until tested to show it is not hazardous. Consult state and local regulations regarding the proper handling of used oil. In the case of used oil, the intent to discard it may cause the used oil to be regulated as hazardous waste.

Contents should be completely used and containers emptied prior to discard. Rinsate may be considered a RCRA hazardous waste and must be disposed of with care and in compliance with federal, state and local regulations. Large empty containers, such as drums, should be returned to the distributor or a drum reconditioner. To assure proper disposal of small empty containers, consult with state and local regulations and disposal authorities.

14. TRANSPORTATION INFORMATION

DOT Proper Shipping Name: Not classified as hazardous

Note: Material is unregulated unless in container of 3500 gallons or more, then provisions of 49 CFR Part 130 apply for land shipment.

IMDG Shipping Description: Not regulated

ICAO/IATA Shipping Description: Not regulated

15. REGULATORY INFORMATION

U.S. Regulations:

EPA SARA 311/312 (Title III Hazard Categories)

Acute Health:	No
Chronic Health:	No
Fire Hazard:	No
Pressure Hazard:	No
Reactive Hazard:	No

SARA - Section 313 and 40 CFR 372:

This material contains the following chemicals subject to the reporting requirements of SARA 313 and 40 CFR 372:
Zinc Compound(s).....PROPRIETARY.....0.5-1.5%

EPA (CERCLA) Reportable Quantity (in pounds):

--None Known--

CERCLA/SARA - Section 302 Extremely Hazardous Substances and TPQs (in pounds):

This material contains the following chemicals subject to the reporting requirements of SARA 302 and 40 CFR 372:
-- None Known --

California Proposition 65:

Warning: This material contains the following chemicals which are known to the State of California to cause cancer, birth defects or other reproductive harm, and are subject to the requirements of California Proposition 65 (CA Health & Safety Code Section 25249.5):

Used engine oils, while not a component of this material, is on the Proposition 65 list of chemicals known to the State of California to cause cancer.

Carcinogen Identification:

This material has not been identified as a carcinogen by NTP, IARC, or OSHA. See Section 11 for carcinogenicity information of individual components, if any.

Used motor oil has been identified as a possible skin carcinogen by IARC.

TSCA:

All components are listed on the TSCA inventory.

International Regulations:**Canadian Regulations:**

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

Domestic Substances List: Listed

WHMIS Classification: Not regulated

16. OTHER INFORMATION

Issue Date:	22-Feb-2005
Previous Issue Date:	10/15/2004
Product Code:	1040824, 1040522, 1040527
Reason for revision:	Additional product grades added/removed - See Synonyms, SECTION 1 No change to hazards.
MSDS Code:	778616

Disclaimer of Expressed and implied Warranties:

The information presented in this Material Safety Data Sheet is based on data believed to be accurate as of the date this Material Safety Data Sheet was prepared. HOWEVER, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTY IS EXPRESSED OR IS TO BE IMPLIED REGARDING THE ACCURACY OR COMPLETENESS OF THE INFORMATION PROVIDED ABOVE, THE RESULTS TO BE OBTAINED FROM THE USE OF THIS INFORMATION OR THE PRODUCT, THE SAFETY OF THIS PRODUCT, OR THE HAZARDS RELATED TO ITS USE. No responsibility is assumed for any damage or injury resulting from abnormal use or from any failure to adhere to recommended practices. The information provided above, and the product, are furnished on the condition that the person receiving them shall make their own determination as to the suitability of the product for their particular purpose and on the condition that they assume the risk of their use. In addition, no authorization is given nor implied to practice any patented invention without a license.

Material Safety Data Sheet

1. MATERIAL AND COMPANY IDENTIFICATION

Material Name : Shell Rotella T3 15W-40
Uses : Engine oil.

Manufacturer/Supplier : SOPUS Products
 PO BOX 4427
 Houston, TX 77210-4427
 USA

MSDS Request : 877-276-7285

Emergency Telephone Number
Spill Information : 877-242-7400
Health Information : 877-504-9351

2. COMPOSITION/INFORMATION ON INGREDIENTS

Blend of a synthetic ester, polyolefin and additives.
 The highly refined mineral oil contains <3% (w/w) DMSO-extract, according to IP346.

3. HAZARDS IDENTIFICATION

Emergency Overview	
Appearance and Odour	: Amber. Liquid at room temperature. Slight hydrocarbon.
Health Hazards	: Not classified as dangerous for supply or conveyance.
Safety Hazards	: Not classified as flammable but will burn.
Environmental Hazards	: Not classified as dangerous for the environment.

Health Hazards : Not expected to be a health hazard when used under normal conditions.

Health Hazards Inhalation : Under normal conditions of use, this is not expected to be a primary route of exposure.

Skin Contact : Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis.

Eye Contact : May cause slight irritation to eyes.

Ingestion : Low toxicity if swallowed.

Other Information : Used oil may contain harmful impurities.

Signs and Symptoms : Oil acne/folliculitis signs and symptoms may include formation of black pustules and spots on the skin of exposed areas. Ingestion may result in nausea, vomiting and/or diarrhoea.

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

Environmental Hazards : Not classified as dangerous for the environment.

Additional Information : Under normal conditions of use or in a foreseeable emergency,

Material Safety Data Sheet

this product does not meet the definition of a hazardous chemical when evaluated according to the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

4. FIRST AID MEASURES

General Information	: Not expected to be a health hazard when used under normal conditions.
Inhalation	: No treatment necessary under normal conditions of use. If symptoms persist, obtain medical advice.
Skin Contact	: Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available. If persistent irritation occurs, obtain medical attention.
Eye Contact	: Flush eye with copious quantities of water. If persistent irritation occurs, obtain medical attention.
Ingestion	: In general no treatment is necessary unless large quantities are swallowed, however, get medical advice.
Advice to Physician	: Treat symptomatically.

5. FIRE FIGHTING MEASURES

Clear fire area of all non-emergency personnel.

Flash point	: > 230 °C / 446 °F (COC)
Upper / lower Flammability or Explosion limits	: Typical 1 - 10 %(V)
Auto ignition temperature	: > 320 °C / 608 °F
Specific Hazards	: Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide. Unidentified organic and inorganic compounds.
Suitable Extinguishing Media	: Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.
Unsuitable Extinguishing Media	: Do not use water in a jet.
Protective Equipment for Firefighters	: Proper protective equipment including breathing apparatus must be worn when approaching a fire in a confined space.

6. ACCIDENTAL RELEASE MEASURES

Avoid contact with spilled or released material. For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. See Chapter 13 for information on disposal. Observe all relevant local and international regulations.

Protective measures	: Avoid contact with skin and eyes. Use appropriate containment to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers.
Clean Up Methods	: Slippery when spilt. Avoid accidents, clean up immediately. Prevent from spreading by making a barrier with sand, earth or other containment material. Reclaim liquid directly or in an

Material Safety Data Sheet

- absorbent. Soak up residue with an absorbent such as clay, sand or other suitable material and dispose of properly.
- Additional Advice** : Local authorities should be advised if significant spillages cannot be contained.

7. HANDLING AND STORAGE

- General Precautions** : Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols. Properly dispose of any contaminated rags or cleaning materials in order to prevent fires. Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material.
- Handling** : Avoid prolonged or repeated contact with skin. Avoid inhaling vapour and/or mists. When handling product in drums, safety footwear should be worn and proper handling equipment should be used.
- Storage** : Keep container tightly closed and in a cool, well-ventilated place. Use properly labelled and closeable containers. Storage Temperature: 0 - 50 °C / 32 - 122 °F
- Recommended Materials** : For containers or container linings, use mild steel or high density polyethylene.
- Unsuitable Materials** : PVC.
- Additional Information** : Polyethylene containers should not be exposed to high temperatures because of possible risk of distortion.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Occupational Exposure Limits**

Contains no components with occupational exposure limit values.

- Exposure Controls** : The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include: Adequate ventilation to control airborne concentrations. Where material is heated, sprayed or mist formed, there is greater potential for airborne concentrations to be generated.
- Personal Protective Equipment** : Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.
- Respiratory Protection** : No respiratory protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid breathing of material. If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the

Material Safety Data Sheet

	specific conditions of use and meeting relevant legislation. Check with respiratory protective equipment suppliers. Where air-filtering respirators are suitable, select an appropriate combination of mask and filter. Select a filter suitable for combined particulate/organic gases and vapours [boiling point >65°C (149 °F)].
Hand Protection	: Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739) made from the following materials may provide suitable chemical protection: PVC, neoprene or nitrile rubber gloves. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, glove thickness, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.
Eye Protection	: Wear safety glasses or full face shield if splashes are likely to occur.
Protective Clothing	: Skin protection not ordinarily required beyond standard issue work clothes.
Monitoring Methods	: Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate.
Environmental Exposure Controls	: Minimise release to the environment. An environmental assessment must be made to ensure compliance with local environmental legislation.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: Amber. Liquid at room temperature.
Odour	: Slight hydrocarbon.
pH	: Not applicable.
Initial Boiling Point and Boiling Range	: > 280 °C / 536 °F estimated value(s)
Pour point	: Typical -20 °C / -4 °F
Flash point	: > 230 °C / 446 °F (COC)
Upper / lower Flammability or Explosion limits	: Typical 1 - 10 %(V)
Auto-ignition temperature	: > 320 °C / 608 °F
Vapour pressure	: < 0.5 Pa at 20 °C / 68 °F (estimated value(s))
Specific gravity	: Typical 0.89
Density	: Typical 0.895 kg/m3
Water solubility	: Negligible.
n-octanol/water partition coefficient (log Pow)	: > 6 (based on information on similar products)
Kinematic viscosity	: > 40 cSt at 40 °C / 104 °F
Vapour density (air=1)	: > 1 (estimated value(s))
Evaporation rate (nBuAc=1)	: Data not available

Material Safety Data Sheet

10. STABILITY AND REACTIVITY

Stability	: Stable.
Conditions to Avoid	: Extremes of temperature and direct sunlight.
Materials to Avoid	: Strong oxidising agents.
Hazardous Decomposition Products	: Hazardous decomposition products are not expected to form during normal storage.

11. TOXICOLOGICAL INFORMATION

Basis for Assessment	: Information given is based on data on the components and the toxicology of similar products.
Acute Oral Toxicity	: Expected to be of low toxicity: LD50 > 5000 mg/kg
Acute Dermal Toxicity	: Expected to be of low toxicity: LD50 > 5000 mg/kg
Acute Inhalation Toxicity	: Not considered to be an inhalation hazard under normal conditions of use.
Skin Irritation	: Expected to be slightly irritating. Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis.
Eye Irritation	: Expected to be slightly irritating.
Respiratory Irritation	: Inhalation of vapours or mists may cause irritation.
Sensitisation	: Not expected to be a skin sensitiser.
Repeated Dose Toxicity	: Not expected to be a hazard.
Mutagenicity	: Not considered a mutagenic hazard.
Carcinogenicity	: Components are not known to be associated with carcinogenic effects.
Reproductive and Developmental Toxicity	: Not expected to be a hazard.
Additional Information	: Used oils may contain harmful impurities that have accumulated during use. The concentration of such impurities will depend on use and they may present risks to health and the environment on disposal. ALL used oil should be handled with caution and skin contact avoided as far as possible. Continuous contact with used engine oils has caused skin cancer in animal tests.

12. ECOLOGICAL INFORMATION

Ecotoxicological data have not been determined specifically for this product. Information given is based on a knowledge of the components and the ecotoxicology of similar products.

Acute Toxicity	: Poorly soluble mixture. May cause physical fouling of aquatic organisms. Expected to be practically non toxic: LL/EL/IL50 > 100 mg/l (to aquatic organisms) (LL/EL50 expressed as the nominal amount of product required to prepare aqueous test extract).
Mobility	: Liquid under most environmental conditions. Floats on water. If it enters soil, it will adsorb to soil particles and will not be mobile.

Material Safety Data Sheet

- Persistence/degradability** : Expected to be not readily biodegradable. Major constituents are expected to be inherently biodegradable, but the product contains components that may persist in the environment.
- Bioaccumulation** : Contains components with the potential to bioaccumulate.
- Other Adverse Effects** : Product is a mixture of non-volatile components, which are not expected to be released to air in any significant quantities. Not expected to have ozone depletion potential, photochemical ozone creation potential or global warming potential.

13. DISPOSAL CONSIDERATIONS

- Material Disposal** : Recover or recycle if possible. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations. Do not dispose into the environment, in drains or in water courses.
- Container Disposal** : Dispose in accordance with prevailing regulations, preferably to a recognised collector or contractor. The competence of the collector or contractor should be established beforehand.
- Local Legislation** : Disposal should be in accordance with applicable regional, national, and local laws and regulations.

14. TRANSPORT INFORMATION

US Department of Transportation Classification (49CFR)

This material is not subject to DOT regulations under 49 CFR Parts 171-180.

IMDG

This material is not classified as dangerous under IMDG regulations.

IATA (Country variations may apply)

This material is not classified as dangerous under IATA regulations.

15. REGULATORY INFORMATION

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

Federal Regulatory Status

Notification Status

- | | |
|--------|--|
| EINECS | All components listed or polymer exempt. |
| DSL | All components listed. |
| TSCA | All components listed. |

Material Safety Data Sheet

SARA Hazard Categories (311/312)

No SARA 311/312 Hazards.

SARA Toxic Release Inventory (TRI) (313)

Zinc alkyl dithiophosphate (68649-42-3) 5.00%

State Regulatory Status

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

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

New Jersey Right-To-Know Chemical List

Zinc alkyl dithiophosphate (68649-42-3) Listed.

16. OTHER INFORMATION

NFPA Rating (Health, Fire, Reactivity) : 0, 1, 0

MSDS Version Number : 1.0

MSDS Effective Date : 08/07/2009

MSDS Revisions : A vertical bar (|) in the left margin indicates an amendment from the previous version.

MSDS Regulation : The content and format of this MSDS is in accordance with the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

MSDS Distribution : The information in this document should be made available to all who may handle the product.

Disclaimer : The information contained herein is based on our current knowledge of the underlying data and is intended to describe the product for the purpose of health, safety and environmental requirements only. No warranty or guarantee is expressed or implied regarding the accuracy of these data or the results to be obtained from the use of the product.

Shell Rotella T3 15W-40

MSDS# 10996

Version 1.0

Effective Date 08/07/2009

According to OSHA Hazard Communication Standard, 29 CFR

1910.1200

Material Safety Data Sheet



MATERIAL SAFETY DATA SHEET

Conoco PowerTran® Fluid

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Conoco PowerTran® Fluid
Intended Use: Transmission Oil
Chemical Family: Petroleum Hydrocarbon

Responsible Party: ConocoPhillips Lubricants
600 N. Dairy Ashford
Houston, Texas 77079-1175

Customer Service: 800-822-6457
Technical Information: 800-766-0050

Emergency Overview

24 Hour Emergency Telephone Numbers:
Spill, Leak, Fire or Accident Call CHEMTREC:
North America: (800) 424-9300
Others: (703) 527-3887 (collect)

California Poison Control System: (800) 356-3129

NOT CLASSIFIED AS HAZARDOUS ACCORDING TO CRITERIA OF NOHSC

Health Hazards/Precautionary Measures: Avoid contact with eyes, skin and clothing. Wash thoroughly after handling.

Physical Hazards/Precautionary Measures: Keep away from all sources of ignition.

Appearance: Amber
Physical Form: Liquid
Odor: Characteristic petroleum

NFPA 704 Hazard Class

Health: 1 **Flammability:** 1 **Instability:** 0 **Legend:** 0 (Least), 1 (Slight), 2 (Moderate), 3 (High), 4 (Extreme)

2. COMPOSITION / INFORMATION ON INGREDIENTS

HAZARDOUS COMPONENTS					
Component	Concentration (wt %)	ACGIH:	OSHA:	NIOSH:	Other:
Zinc Compound(s) PROPRIETARY	1.0-2.0	NE	NE	NE	NE

NON-HAZARDOUS COMPONENTS					
Component	Concentration (wt %)	ACGIH:	OSHA:	NIOSH:	Other:
Lubricant Base Oil (Petroleum) VARIOUS	85-87	5mg/m ³ TWA 10 mg/m ³ STEL	5 mg/m ³ TWA	2500 mg/m ³ IDLH	as Oil Mist, if Generated 5 mg/m ³ NOHSC TWA
Additives PROPRIETARY	13-15	NE	NE	NE	NE

Note: State, local or other agencies or advisory groups may have established more stringent limits. Consult an industrial hygienist or similar professional, or your local agencies, for further information.

1%=10,000 PPM.
NE=Not Established

3. HAZARDS IDENTIFICATION

Potential Health Effects

Eye: Contact may cause mild eye irritation including stinging, watering, and redness.

Skin: Contact may cause mild skin irritation including redness, and a burning sensation. Prolonged or repeated contact can worsen irritation by causing drying and cracking of the skin leading to dermatitis (inflammation). No harmful effects from skin absorption are expected.

Inhalation (Breathing): No information available. Studies by other exposure routes suggest a low degree of toxicity by inhalation.

Ingestion (Swallowing): No harmful effects expected from ingestion.

Signs and Symptoms: Effects of overexposure may include irritation of the digestive tract nausea diarrhea Inhalation of oil mist or vapors at elevated temperatures may cause respiratory irritation.

Cancer: There is inadequate information to evaluate the cancer hazard of this material. See Section 11 for information on the individual components, if any.

Target Organs: No data available for this material.

Developmental: No data available for this material.

Pre-Existing Medical Conditions: Conditions aggravated by exposure may include skin disorders.

4. FIRST AID MEASURES

Eye: If irritation or redness develops, move victim away from exposure and into fresh air. Flush eyes with clean water. If symptoms persist, seek medical attention.

Skin: Wipe material from skin and remove contaminated shoes and clothing. Cleanse affected area(s) thoroughly by washing with mild soap and water and, if necessary, a waterless skin cleanser. If irritation or redness develops and persists, seek medical attention.

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

Ingestion (Swallowing): First aid is not normally required; however, if swallowed and symptoms develop, seek medical attention.

Notes to Physician: Acute aspirations of large amounts of oil-laden material may produce a serious aspiration pneumonia. Patients who aspirate these oils should be followed for the development of long-term sequelae. Inhalation exposure to oil mists below current workplace exposure limits is unlikely to cause pulmonary abnormalities.

5. FIRE-FIGHTING MEASURES

Flammable Properties:

Flash Point:	356°F / 180°C (minimum)
Test Method:	Cleveland Open Cup (COC), ASTM D92
OSHA Flammability Class:	Not applicable
LEL (vol % in air):	No data
UEL (vol % in air):	No data
Autoignition Temperature:	No data

Unusual Fire & Explosion Hazards: This material may burn, but will not ignite readily. If container is not properly cooled, it can rupture in the heat of a fire. Vapors are heavier than air and can accumulate in low areas.

Extinguishing Media: Dry chemical, carbon dioxide, foam, or water spray is recommended. Water or foam may cause frothing of materials heated above 212°F. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces.

Fire Fighting Instructions: For fires beyond the incipient stage, emergency responders in the immediate hazard area should wear bunker gear. When the potential chemical hazard is unknown, in enclosed or confined spaces, or when explicitly required by DOT, a self contained breathing apparatus should be worn. In addition, wear other appropriate protective equipment as conditions warrant (see Section 8).

Isolate immediate hazard area, keep unauthorized personnel out. Stop spill/release if it can be done with minimal risk. Move undamaged containers from immediate hazard area if it can be done with minimal risk.

Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Cool equipment exposed to fire with water, if it can be done with minimal risk. Avoid spreading burning liquid with water used for cooling purposes.

6. ACCIDENTAL RELEASE MEASURES

This material may burn, but will not ignite readily. Keep all sources of ignition away from spill/release.

Stay upwind and away from spill/release. Notify persons down wind of the spill/release, isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done with minimal risk. Wear appropriate protective equipment including respiratory protection as conditions warrant (see Section 8).

Prevent spilled material from entering sewers, storm drains, other unauthorized drainage systems, and natural waterways. Dike far ahead of spill for later recovery or disposal. Spilled material may be absorbed into an appropriate absorbent material. Notify fire authorities and appropriate federal, state, and local agencies. Immediate cleanup of any spill is recommended. If spill of any amount is made into or upon navigable waters, the contiguous zone, or adjoining shorelines, notify the National Response Center (phone number 800-424-8802).

7. HANDLING AND STORAGE

Handling: Do not enter confined spaces such as tanks or pits without following proper entry procedures such as ASTM D-4276 and 29CFR 1910.146. The use of appropriate respiratory protection is advised when concentrations exceed any established exposure limits (see Sections 2 and 8).

Do not wear contaminated clothing or shoes. Use good personal hygiene practices.

"Empty" containers retain residue and may be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury or death. "Empty" drums should be completely drained, properly bunged, and promptly shipped to the supplier or a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

Before working on or in tanks which contain or have contained this material, refer to OSHA regulations, ANSI Z49.1, and other references pertaining to cleaning, repairing, welding, or other contemplated operations.

Storage: Keep container(s) tightly closed. Store only in approved containers. Use and store this material in cool, dry, well-ventilated areas away from heat and all sources of ignition. Storage temperatures above 113°F may lead to thermal decomposition, resulting in the generation of hydrogen sulfide and other sulfur containing gases. Keep away from any incompatible material (see Section 10). Protect container(s) against physical damage.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering controls: If current ventilation practices are not adequate to maintain airborne concentrations below the established exposure limits (see Section 2), additional engineering controls may be required.

Personal Protective Equipment (PPE):

Respiratory: A NIOSH certified air purifying respirator with a Type 95 (R or P) particulate filter may be used under conditions where airborne concentrations are expected to exceed exposure limits (see Section 2).

Protection provided by air purifying respirators is limited (see manufacturer's respirator selection guide). Use a NIOSH approved self-contained breathing apparatus (SCBA) or equivalent operated in a pressure demand or other positive pressure mode if there is potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.

A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use.

Skin: The use of gloves impervious to the specific material handled is advised to prevent skin contact and possible irritation (see manufacturers literature for information on permeability).

Eye/Face: Approved eye protection to safeguard against potential eye contact, irritation, or injury is recommended. Depending on conditions of use, a face shield may be necessary.

Other Protective Equipment: A source of clean water should be available in the work area for flushing eyes and skin. Impervious clothing should be worn as needed.

Suggestions for the use of specific protective materials are based on readily available published data. Users should check with specific manufacturers to confirm the performance of their products.

9. PHYSICAL AND CHEMICAL PROPERTIES

Note: Unless otherwise stated, values are determined at 20°C (68°F) and 760 mm Hg (1 atm).

Appearance:	Amber
Physical Form:	Liquid
Odor:	Characteristic petroleum
Odor Threshold:	No data
pH:	Not applicable
Vapor Pressure (mm Hg):	<1
Vapor Density (air=1):	>1

9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point/Range:	No data
Melting/Freezing Point:	No data
Solubility in Water:	Negligible
Partition Coefficient (n-octanol/water) (Kow):	No data
Specific Gravity:	0.86-0.88
Bulk Density:	7.16-7.33 lbs/gal
Viscosity:	8.8 - 9.9 cSt @ 100°C; 55 - 64 cSt @ 40°C
Percent Volatile:	Negligible
Evaporation Rate (nBuAc=1):	<1
Flash Point:	356°F / 180°C (minimum)
Test Method:	Cleveland Open Cup (COC), ASTM D92
LEL (vol % in air):	No data
UEL (vol % in air):	No data
Autoignition Temperature:	No data
Decomposition Temperature:	No data

10. STABILITY AND REACTIVITY

Stability: Stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

Conditions to Avoid: Extended exposure to high temperatures can cause decomposition.

Materials to Avoid (Incompatible Materials): Avoid contact with strong oxidizing agents strong reducing agents

Hazardous Decomposition Products: Combustion can yield carbon, nitrogen, sulfur, phosphorus, and zinc oxides. Hydrogen sulfide and alkyl mercaptans may also be released. Thermal decomposition may produce hydrogen sulfide and other sulfur-containing gases at temperatures greater than 113°F.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Chronic Data:

Lubricant Base Oil (Petroleum) VARIOUS

Carcinogenicity: The petroleum base oils contained in this product have been highly refined by a variety of processes including solvent extraction, hydrotreating, and/or dewaxing to remove aromatics and improve performance characteristics. All of the oils meet the IP-346 criteria of less than 3 percent PAH's and are not considered carcinogens by NTP, IARC, or OSHA.

Acute Data:

Lubricant Base Oil (Petroleum) VARIOUS

Dermal LD50= >2 g/kg

Inhalation LC50= No information available

Oral LD50= >5 g/kg

12. ECOLOGICAL INFORMATION

Lubricant oil basestocks are complex mixtures of hydrocarbons (primarily branched chain alkanes and cycloalkanes) ranging in carbon number from C15 to C50. The aromatic hydrocarbon content of these mixtures varies with the severity of the refining process. White oils have negligible levels of aromatic hydrocarbons, whereas significant proportions are found in unrefined basestocks. Olefins are found only at very low concentrations. Volatilization is not significant after release of lubricating oil basestocks to the environment due to the very low vapor pressure of the hydrocarbon constituents. In water, lubricating oil basestocks will float and will spread at a rate that is viscosity dependent. Water solubilities are very low and dispersion occurs mainly from water movement with adsorption by sediment being the major fate process. In soil, lubricating oil basestocks show little mobility and adsorption is the predominant physical process.

Both acute and chronic ecotoxicity studies have been conducted on lubricant base oils. Results indicate that the acute aquatic toxicities to fish, Daphnia, Ceriodaphnia and algal species are above 1000 mg/l using either water accommodated fractions or oil in water dispersions. Since lubricant base oils mainly contain hydrocarbons having carbon numbers in the range C15 to C50, it is predicted that acute toxicity would not be observed with these substances due to low water solubility. Results from chronic toxicity tests show that the no observed effect level (NOEL) usually exceeds 1000 mg/l for lubricant base oils with the overall weight of experimental evidence leading to the conclusion that lubricant base oils do not cause chronic toxicity to fish and invertebrates.

Large volumes spills of lubricant base oils into water will produce a layer of undissolved oil on the water surface that will cause direct physical fouling of organisms and may interfere with surface air exchange resulting in lower levels of dissolved oxygen. Petroleum products have also been associated with causing taint in fish even when the latter are caught in lightly contaminated environments. Highly refined base oils sprayed onto the surface of eggs will result in a failure to hatch.

Extensive experience from laboratory and field trials in a wide range of crops has confirmed that little or no damage is produced as a result of either aerosol exposure or direct application of oil emulsion to the leaves of crop plants. Base oils incorporated into soil have resulted in little or no adverse effects on seed germination and plant growth at contamination rates up to 4%.

13. DISPOSAL CONSIDERATIONS

This material, because of its intended use, has become used oil due to contamination by physical or chemical impurities. RECYCLE ALL USED OIL. While being recycled, used oil is regulated by 40 CFR 279. Use resulting in chemical or physical change or contamination may also subject it to regulation as hazardous waste. Under federal regulations, used oil is a solid waste managed under 40 CFR 279. However, in California, used oil is managed as hazardous waste until tested to show it is not hazardous. Consult state and local regulations regarding the proper handling of used oil. In the case of used oil, the intent to discard it may cause the used oil to be regulated as hazardous waste. Contents should be completely used and containers emptied prior to discard. Rinsate may be considered a RCRA hazardous waste and must be disposed of with care and in compliance with federal, state and local regulations. Large empty containers, such as drums, should be returned to the distributor or a drum reconditioner. To assure proper disposal of small empty containers, consult with state and local regulations and disposal authorities.

14. TRANSPORTATION INFORMATION

DOT

Shipping Description: Not regulated

Note: Material is unregulated unless shipped by land in a packaging having a capacity of 3,500 gallons or more. Then the provisions of 49 CFR, Part 130 apply.

IMDG

Shipping Description: Not regulated

ICAO/IATA

Shipping Description: Not regulated

15. REGULATORY INFORMATION

U.S. Regulations:

CERCLA/SARA - Section 311/312 (Title III Hazard Categories)

Acute Health:	No
Chronic Health:	No
Fire Hazard:	No
Pressure Hazard:	No

Reactive Hazard: No

CERCLA/SARA - Section 313 and 40 CFR 372:

This material contains the following chemicals subject to the reporting requirements of SARA 313 and 40 CFR 372:
Zinc Compound(s).....PROPRIETARY.....1.0-2.0%

EPA (CERCLA) Reportable Quantity (in pounds):

--None Known--

CERCLA/SARA - Section 302 Extremely Hazardous Substances and TPQs (in pounds):

This material contains the following chemicals subject to the reporting requirements of SARA 302 and 40 CFR 372:
-- None Known --

California Proposition 65:

Warning: This material contains the following chemicals which are known to the State of California to cause cancer, birth defects or other reproductive harm, and are subject to the requirements of California Proposition 65 (CA Health & Safety Code Section 25249.5):
-- None Known --

Carcinogen Identification:

This material has not been identified as a carcinogen by NTP, IARC, or OSHA. See Section 11 for carcinogenicity information of individual components, if any.

TSCA:

All components are listed on the TSCA inventory.

International Regulations:

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

Domestic Substances List: Listed

WHMIS Hazard Class:

Not Regulated

Australian Regulations:

References:

Regulations Specifically Applicable to the Chemical Product:

Commonwealth of Australia: Respirators must follow AS1715/1716 standard for approved respirators.

New Zealand: Respirators must follow NZS 1715/1716 standard for approved respirators.

International (all countries): In the absence of local approved authorities, follow U.S. NIOSH/MSHA, U.K. BSI, Australian AS1715/1716, or new Zealand NZS 1715/1716 standards.

Australia Poison Schedule: Not applicable.

NZ Dangerous Goods Class: Not applicable.

Contact Point:

ConocoPhillips Lubricants Australia Pty. Ltd.

Emergency Telephone: 1-800-226626

Office Manager

Office Hours 8 a.m.-5 p.m. Monday-Friday (excluding holidays)

Tel: +61 (0) 7 5452.9900

Fax: +61 (0) 7 5452.9999

Website: www.aplubes.conocophillips.com

16. OTHER INFORMATION

Issue Date:	13-Jun-2006
Previous Issue Date:	05-Oct-2004
Revised Sections or Basis for Revision:	Periodic review and update
MSDS Code:	775091

Disclaimer of Expressed and implied Warranties:

The information presented in this Material Safety Data Sheet is based on data believed to be accurate as of the date this Material Safety Data Sheet was prepared. HOWEVER, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTY IS EXPRESSED OR IS TO BE IMPLIED REGARDING THE ACCURACY OR COMPLETENESS OF THE INFORMATION PROVIDED ABOVE, THE RESULTS TO BE OBTAINED FROM THE USE OF THIS INFORMATION OR THE PRODUCT, THE SAFETY OF THIS PRODUCT, OR THE HAZARDS RELATED TO ITS USE. No responsibility is assumed for any damage or injury resulting from abnormal use or from any failure to adhere to recommended practices. The information provided above, and the product, are furnished on the condition that the person receiving them shall make their own determination as to the suitability of the product for their particular purpose and on the condition that they assume the risk of their use. In addition, no authorization is given nor implied to practice any patented invention without a license.



MATERIAL SAFETY DATA SHEET

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.



MATERIAL SAFETY DATA SHEET

Gasoline, All Grades

MSDS No. 9950

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



MATERIAL SAFETY DATA SHEET

Gasoline, All Grades

MSDS No. 9950

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.



MATERIAL SAFETY DATA SHEET

Gasoline, All Grades

MSDS No. 9950

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

<u>ACUTE HEALTH</u>	<u>CHRONIC HEALTH</u>	<u>FIRE</u>	<u>SUDDEN RELEASE OF PRESSURE</u>	<u>REACTIVE</u>
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:

<u>INGREDIENT NAME (CAS NUMBER)</u>	<u>CONCENTRATION WT. PERCENT</u>
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

Gasoline, All Grades

MSDS No. 9950

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
ANSI	American National Standards Institute (212)642-4900		[General Info: (800)467-4922]
API	American Petroleum Institute (202)682-8000	EPA	U.S. Environmental Protection Agency
		HMIS	Hazardous Materials Information System



MATERIAL SAFETY DATA SHEET

Gasoline, All Grades

MSDS No. 9950

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.



MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Material name	DIESEL FUELS
Version #	02
Issue date	11-09-2010
Revision date	11-04-2012
Supersedes date	08-11-2011
MSDS Number	102
Product use	Refinery feedstock.
Synonym(s)	Diesel Fuels All Grades, Diesel Fuel No.2, Fuel Oil No.2, High Sulfur Diesel Fuel, Low Sulfur Diesel Fuel, Ultra Low Sulfur Diesel Fuel, CARB (California Air Resource Board) Diesel Fuel, Off-Road Diesel Fuel, Dyed Diesel Fuel, X Grade Diesel Fuel, X-1 Diesel Fuel, R5 ULSD, B5 ULSD See section 16 for complete information.
Manufacturer/Supplier	Valero Marketing & Supply Company and Affiliates P.O. Box 696000 San Antonio, TX 78269-6000
General Assistance	210-345-4593
Emergency	24 Hour Emergency 866-565-5220 1-800-424-9300 (CHEMTREC USA)

2. Hazards Identification

Physical state	Liquid.
Appearance	Liquid (may be dyed red).
Emergency overview	<p>WARNING! Combustible liquid and vapor. May be ignited by heat, sparks or flames. Heat may cause the containers to explode.</p> <p>Harmful if inhaled or swallowed. May be harmful if absorbed through skin. Aspiration may cause lung damage. Irritating to eyes, respiratory system and skin. In high concentrations, vapors and spray mists are narcotic and may cause headache, fatigue, dizziness and nausea. Suspect cancer hazard - may cause cancer. Prolonged exposure may cause chronic effects. Diesel exhaust has been reported to be an occupational hazard due to NIOSH-reported potential carcinogenic properties. Hydrogen sulfide, a highly toxic gas, may be present or released. Signs and symptoms of overexposure to hydrogen sulfide include respiratory and eye irritation, dizziness, nausea, coughing, a sensation of dryness and pain in the nose, and loss of consciousness. Odor does not provide a reliable indicator of the presence of hazardous levels in the atmosphere. Toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment. The toxicological properties of this material have not been fully investigated. Static accumulating flammable materials can become electrostatically charged even in bonded and grounded equipment. Sparks may ignite material and vapor may cause flash fire (or explosion).</p>
OSHA regulatory status	This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).
Potential health effects	
Routes of exposure	Inhalation. Ingestion. Skin contact. Eye contact.
Eyes	Contact may irritate or burn eyes. Eye contact may result in corneal injury.
Skin	May be harmful if absorbed through skin. Irritating to skin. Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis.
Inhalation	Harmful if inhaled. Irritating to respiratory system. In high concentrations, vapors and spray mists are narcotic and may cause headache, fatigue, dizziness and nausea. May cause breathing disorders and lung damage. May cause cancer by inhalation. Prolonged inhalation may be harmful.
Ingestion	Harmful if swallowed. Ingestion may result in vomiting; aspiration (breathing) of vomitus into lungs must be avoided as even small quantities may result in aspiration pneumonitis. Irritating to mouth, throat, and stomach.
Target organs	Blood. Eyes. Liver. Respiratory system. Skin. Kidneys. Central nervous system.

Chronic effects	Suspect cancer hazard - may cause cancer. Liver injury may occur. Kidney injury may occur. Exposure may cause lung cancer and also noted a positive association with an increased risk of bladder cancer. May cause central nervous system disorder (e.g., narcosis involving a loss of coordination, weakness, fatigue, mental confusion and blurred vision) and/or damage. Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis.
Signs and symptoms	Irritation of nose and throat. Irritation of eyes and mucous membranes. Skin irritation. Unconsciousness. Corneal damage. Narcosis. Decrease in motor functions. Behavioral changes. Edema. Liver enlargement. Jaundice. Conjunctivitis. Proteinuria. Defatting of the skin. Rash. The toxicological properties of this product have not been thoroughly investigated. Use appropriate precautions.
Potential environmental effects	Toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

3. Composition / Information on Ingredients

Components	CAS #	Percent
Fuels, diesel, no. 2	68476-34-6	85 - 100
Biodiesel - Fatty acid methyl esters	67762-38-3	0 - 10
n-Nonane	111-84-2	1 - 3
Octane (All isomers)	111-65-9	1 - 2
Hexane (Other isomers)	96-14-0	0 - 1
Naphthalene	91-20-3	0 - 1
n-Heptane	142-82-5	0 - 1
n-Hexane	110-54-3	0 - 1

4. First Aid Measures

First aid procedures

Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention.
Skin contact	Remove contaminated clothing and shoes. Wash off immediately with soap and plenty of water. Get medical attention if irritation develops or persists. Wash clothing separately before reuse. Destroy or thoroughly clean contaminated shoes. If high pressure injection under the skin occurs, always seek medical attention.
Inhalation	Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.
Ingestion	Rinse mouth thoroughly. Do not induce vomiting without advice from poison control center. Do not give mouth-to-mouth resuscitation. If vomiting occurs, keep head low so that stomach content does not get into the lungs. Get medical attention immediately.

Notes to physician In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed. The toxicological properties of this material have not been fully investigated.

General advice If exposed or concerned: get medical attention/advice. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before re-use.

5. Fire Fighting Measures

Flammable properties Combustible liquid and vapor. Containers may explode when heated.

Extinguishing media

Suitable extinguishing media	Water spray. Water fog. Foam. Dry chemical powder. Carbon dioxide (CO ₂).
Unsuitable extinguishing media	Do not use a solid water stream as it may scatter and spread fire.

Protection of firefighters

Protective equipment and precautions for firefighters Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.

**Fire fighting
equipment/instructions**

Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask. Withdraw immediately in case of rising sound from venting safety devices or any discoloration of tanks due to fire. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Move containers from fire area if you can do it without risk. In the event of fire, cool tanks with water spray. Cool containers exposed to flames with water until well after the fire is out. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn. Water runoff can cause environmental damage. Use compatible foam to minimize vapor generation as needed.

Specific methods

In the event of fire and/or explosion do not breathe fumes.

**Hazardous combustion
products**

Carbon monoxide. Carbon Dioxide. Sulfur oxides. Nitrogen oxides (NOx). Hydrocarbons. Hydrogen sulfide.

6. Accidental Release Measures

Personal precautions

Keep unnecessary personnel away. Local authorities should be advised if significant spills cannot be contained. Keep upwind. Keep out of low areas. Ventilate closed spaces before entering. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. See Section 8 of the MSDS for Personal Protective Equipment.

Environmental precautions

If facility or operation has an "oil or hazardous substance contingency plan", activate its procedures. Stay upwind and away from spill. Wear appropriate protective equipment including respiratory protection as conditions warrant. Do not enter or stay in area unless monitoring indicates that it is safe to do so. Isolate hazard area and restrict entry to emergency crew. Flammable. Review Firefighting Measures, Section 5, before proceeding with clean up. Keep all sources of ignition (flames, smoking, flares, etc.) and hot surfaces away from release. Contain spill in smallest possible area. Recover as much product as possible (e.g. by vacuuming). Stop leak if it can be done without risk. Use water spray to disperse vapors. Use compatible foam to minimize vapor generation as needed. Spilled material may be absorbed by an appropriate absorbent, and then handled in accordance with environmental regulations. Prevent spilled material from entering sewers, storm drains, other unauthorized treatment or drainage systems and natural waterways. Contact fire authorities and appropriate federal, state and local agencies. If spill of any amount is made into or upon navigable waters, the contiguous zone, or adjoining shorelines, contact the National Response Center at 1-800-424-8802. For highway or railways spills, contact Chemtrec at 1-800-424-9300.

Methods for containment

Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Local authorities should be advised if significant spillages cannot be contained. Stop leak if you can do so without risk. This material is a water pollutant and should be prevented from contaminating soil or from entering sewage and drainage systems and bodies of water. Dike the spilled material, where this is possible. Prevent entry into waterways, sewers, basements or confined areas.

Methods for cleaning up

Use non-sparking tools and explosion-proof equipment.

Small Spills: Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Clean surface thoroughly to remove residual contamination. This material and its container must be disposed of as hazardous waste.

Large Spills: Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Prevent product from entering drains. Do not allow material to contaminate ground water system. Should not be released into the environment.

Other information

Clean up in accordance with all applicable regulations.

7. Handling and Storage

Handling

Eliminate sources of ignition. Avoid spark promoters. Ground/bond container and equipment. These alone may be insufficient to remove static electricity.

Wear personal protective equipment. Avoid breathing dust/fume/gas/mist/vapors/spray. Avoid contact with eyes, skin, and clothing. Do not taste or swallow. Avoid prolonged exposure. Use only with adequate ventilation. Wash thoroughly after handling. The product is combustible, and heating may generate vapors which may form explosive vapor/air mixtures. DO NOT handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. When using, do not eat, drink or smoke. Avoid release to the environment.

Storage

Flammable liquid storage. Do not handle or store near an open flame, heat or other sources of ignition. This material can accumulate static charge which may cause spark and become an ignition source. The pressure in sealed containers can increase under the influence of heat. Keep container tightly closed in a cool, well-ventilated place. Keep away from food, drink and animal feedingstuffs. Keep out of the reach of children.

8. Exposure Controls / Personal Protection

Occupational exposure limits

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Fuels, diesel, no. 2 (CAS 68476-34-6)	TWA	100 mg/m3	Inhalable fraction and vapor.
Hexane (Other isomers) (CAS 96-14-0)	STEL	1000 ppm	
Naphthalene (CAS 91-20-3)	TWA	500 ppm	
	STEL	15 ppm	
n-Heptane (CAS 142-82-5)	TWA	10 ppm	
	STEL	500 ppm	
n-Hexane (CAS 110-54-3)	TWA	400 ppm	
	STEL	50 ppm	
n-Nonane (CAS 111-84-2)	TWA	200 ppm	
Octane (All isomers) (CAS 111-65-9)	TWA	300 ppm	

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

Components	Type	Value
Naphthalene (CAS 91-20-3)	PEL	50 mg/m3
		10 ppm
n-Heptane (CAS 142-82-5)	PEL	2000 mg/m3
		500 ppm
n-Hexane (CAS 110-54-3)	PEL	1800 mg/m3
		500 ppm
Octane (All isomers) (CAS 111-65-9)	PEL	2350 mg/m3
		500 ppm

Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2)

Components	Type	Value
Fuels, diesel, no. 2 (CAS 68476-34-6)	TWA	100 mg/m3
Hexane (Other isomers) (CAS 96-14-0)	STEL	3500 mg/m3
		1000 ppm
	TWA	1760 mg/m3
		500 ppm
Naphthalene (CAS 91-20-3)	STEL	79 mg/m3
		15 ppm
	TWA	52 mg/m3
		10 ppm
n-Heptane (CAS 142-82-5)	STEL	2050 mg/m3
		500 ppm
	TWA	1640 mg/m3
		400 ppm
n-Hexane (CAS 110-54-3)	TWA	176 mg/m3
		50 ppm
n-Nonane (CAS 111-84-2)	TWA	1050 mg/m3
		200 ppm
Octane (All isomers) (CAS 111-65-9)	TWA	1400 mg/m3
		300 ppm

Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)

Components	Type	Value	Form
Fuels, diesel, no. 2 (CAS 68476-34-6)	TWA	100 mg/m3	Vapor and aerosol.

Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)

Components	Type	Value	Form
Hexane (Other isomers) (CAS 96-14-0)	TWA	200 ppm	
Naphthalene (CAS 91-20-3)	STEL	15 ppm	
	TWA	10 ppm	
n-Heptane (CAS 142-82-5)	STEL	500 ppm	
	TWA	400 ppm	
n-Hexane (CAS 110-54-3)	TWA	20 ppm	
n-Nonane (CAS 111-84-2)	TWA	200 ppm	
Octane (All isomers) (CAS 111-65-9)	TWA	300 ppm	

Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents)

Components	Type	Value	Form
Fuels, diesel, no. 2 (CAS 68476-34-6)	TWA	100 mg/m3	Inhalable fraction and vapor.
Hexane (Other isomers) (CAS 96-14-0)	STEL	1000 ppm	
	TWA	500 ppm	
Naphthalene (CAS 91-20-3)	STEL	15 ppm	
	TWA	10 ppm	
n-Heptane (CAS 142-82-5)	STEL	500 ppm	
	TWA	400 ppm	
n-Hexane (CAS 110-54-3)	TWA	50 ppm	
n-Nonane (CAS 111-84-2)	TWA	200 ppm	
Octane (All isomers) (CAS 111-65-9)	TWA	300 ppm	

Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment)

Components	Type	Value
Hexane (Other isomers) (CAS 96-14-0)	STEL	3500 mg/m3
	TWA	1000 ppm 1760 mg/m3
Naphthalene (CAS 91-20-3)	STEL	500 ppm 79 mg/m3
	TWA	15 ppm 52 mg/m3
n-Heptane (CAS 142-82-5)	STEL	10 ppm 2050 mg/m3
	TWA	500 ppm 1640 mg/m3
n-Hexane (CAS 110-54-3)	TWA	400 ppm 176 mg/m3
n-Nonane (CAS 111-84-2)	TWA	50 ppm 1050 mg/m3
Octane (All isomers) (CAS 111-65-9)	STEL	200 ppm 1750 mg/m3
	TWA	375 ppm 1400 mg/m3
		300 ppm

Mexico. Occupational Exposure Limit Values

Components	Type	Value
Hexane (Other isomers) (CAS 96-14-0)	STEL	3500 mg/m3
	TWA	1000 ppm 1760 mg/m3

Mexico. Occupational Exposure Limit Values

Components	Type	Value
Naphthalene (CAS 91-20-3)	STEL	500 ppm
		75 mg/m3
	TWA	15 ppm
		50 mg/m3
n-Heptane (CAS 142-82-5)	STEL	10 ppm
		2000 mg/m3
	TWA	500 ppm
		1600 mg/m3
n-Hexane (CAS 110-54-3)	TWA	400 ppm
		176 mg/m3
n-Nonane (CAS 111-84-2)	STEL	50 ppm
		1300 mg/m3
	TWA	250 ppm
		1050 mg/m3
Octane (All isomers) (CAS 111-65-9)	STEL	200 ppm
		1800 mg/m3
	TWA	375 ppm
		1450 mg/m3
		300 ppm
Engineering controls	Provide adequate general and local exhaust ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Use explosion-proof equipment.	
Personal protective equipment		
Eye / face protection	Wear safety glasses. If splash potential exists, wear full face shield or chemical goggles.	
Skin protection	Wear chemical-resistant, impervious gloves. Full body suit and boots are recommended when handling large volumes or in emergency situations. Flame retardant protective clothing is recommended.	
Respiratory protection	Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. If workplace exposure limits for product or components are exceeded, NIOSH approved equipment should be worn. Proper respirator selection should be determined by adequately trained personnel, based on the contaminants, the degree of potential exposure and published respiratory protection factors. This equipment should be available for nonroutine and emergency use.	
General hygiene considerations	Consult supervisor for special handling instructions. Avoid contact with eyes. Avoid contact with skin. Keep away from food and drink. Wash hands before breaks and immediately after handling the product. Provide eyewash station and safety shower. Handle in accordance with good industrial hygiene and safety practice.	

9. Physical & Chemical Properties

Appearance	Liquid (may be dyed red).
Physical state	Liquid.
Form	Liquid.
Color	Clear. Straw.
Odor	Kerosene (strong).
Odor threshold	Not available.
pH	Not available.
Vapor pressure	< 1 mm Hg (20°C)
Vapor density	3 (Air = 1)
Boiling point	325 - 700 °F (162.78 - 371.11 °C)
Melting point/Freezing point	-60.1 °F (-51.15 °C) Estimated
Solubility (water)	Not available.
Specific gravity	0.82 - 0.87 (60°F)

Flash point	> 100 °F (> 37.8 °C) Closed Cup
Flammability limits in air, upper, % by volume	8 %
Flammability limits in air, lower, % by volume	0.4 %
Auto-ignition temperature	494.96 °F (257.2 °C)
Evaporation rate	0.02
Viscosity	2 - 4.5 mm ² /s
Other data	
Flash point class	Combustible II

10. Chemical Stability & Reactivity Information

Chemical stability	Stable under normal temperature conditions and recommended use.
Conditions to avoid	Heat, flames and sparks. Ignition sources. Contact with incompatible materials. Do not pressurize, cut, weld, braze, solder, drill, grind or expose empty containers to heat, flame, sparks, static electricity, or other sources of ignition; they may explode and cause injury or death.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	Carbon oxides. Sulfur oxides. Nitrogen oxides (NOx). Hydrocarbons. Hydrogen sulfide.
Possibility of hazardous reactions	Hazardous polymerization does not occur.

11. Toxicological Information

Toxicological data

Components	Species	Test Results
Naphthalene (CAS 91-20-3)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	> 2 g/kg
<i>Oral</i>		
LD50	Rat	490 mg/kg
n-Heptane (CAS 142-82-5)		
Acute		
<i>Inhalation</i>		
LC50	Rat	103 mg/l, 4 Hours
n-Nonane (CAS 111-84-2)		
Acute		
<i>Inhalation</i>		
LC50	Rat	3200 mg/l, 4 Hours
Octane (All isomers) (CAS 111-65-9)		
Acute		
<i>Inhalation</i>		
LC50	Rat	118 mg/l, 4 Hours
Sensitization	This substance may have a potential for sensitization which may provoke an allergic reaction among sensitive individuals.	
Acute effects	Harmful if inhaled, absorbed through skin, or swallowed. Harmful: may cause lung damage if swallowed. Irritating to eyes, respiratory system and skin. In high concentrations, vapors and spray mists are narcotic and may cause headache, fatigue, dizziness and nausea. Hydrogen sulfide, a highly toxic gas, may be present. Signs and symptoms of overexposure to hydrogen sulfide include respiratory and eye irritation, dizziness, nausea, coughing, a sensation of dryness and pain in the nose, and loss of consciousness. Odor does not provide a reliable indicator of the presence of hazardous levels in the atmosphere. The toxicological properties of this material have not been fully investigated.	

Local effects

US. ACGIH Threshold Limit Values

Fuels, diesel, no. 2 (CAS 68476-34-6)	Can be absorbed through the skin.
Naphthalene (CAS 91-20-3)	Can be absorbed through the skin.
n-Hexane (CAS 110-54-3)	Can be absorbed through the skin.

Chronic effects

Contains organic solvents which in case of overexposure may depress the central nervous system causing dizziness and intoxication. Repeated exposure to naphthalene may cause cataracts, allergic skin rashes, destruction of red blood cells, and anemia, jaundice, kidney and liver damage. Danger of serious damage to health by prolonged exposure. Prolonged or repeated overexposure may cause central nervous system, kidney, liver, and lung damage.

Subchronic effects

Liver and kidney damage may occur after prolonged and repeated exposure.

Carcinogenicity

International Agency for Research on Cancer (IARC): Whole diesel engine exhaust – IARC Group 1. Exposure may cause lung cancer and also noted a positive association with an increased risk of bladder cancer.

Diesel exhaust has been reported to be an occupational hazard due to NIOSH-reported potential carcinogenic properties.

ACGIH Carcinogens

Fuels, diesel, no. 2 (CAS 68476-34-6)	A3 Confirmed animal carcinogen with unknown relevance to humans.
Naphthalene (CAS 91-20-3)	A4 Not classifiable as a human carcinogen.

IARC Monographs. Overall Evaluation of Carcinogenicity

Fuels, diesel, no. 2 (CAS 68476-34-6)	3 Not classifiable as to carcinogenicity to humans.
Naphthalene (CAS 91-20-3)	2B Possibly carcinogenic to humans.

US NTP Report on Carcinogens: Anticipated carcinogen

Naphthalene (CAS 91-20-3)	Reasonably Anticipated to be a Human Carcinogen.
---------------------------	--

Epidemiology

Studies have shown a risk of spontaneous abortions in women exposed to high concentrations of organic solvents during pregnancy. Pre-existing skin conditions including dermatitis might be aggravated by exposure to this product.

Mutagenicity

No component of this product present at levels greater than or equal to 0.1% is identified as a mutagen by OSHA.

Neurological effects

Chronic exposure to high concentrations of various hydrocarbon blends may lead to polyneuropathy (peripheral nerve damage), characterized by progressive weakness and numbness in the extremities, loss of deep tendon reflexes and reduction of motor nerve conduction velocity. Numerous cases of polyneuritis have been reported following prolonged exposures to a petroleum fraction containing various isomers of heptane as major ingredients. May cause central nervous system disorder (e.g., narcosis involving a loss of coordination, weakness, fatigue) and/or damage.

Reproductive effects

Naphthalene interferes with embryo development in experimental animals at dose levels that cause maternal toxicity. In humans, excessive exposure to this agent may cause hemolytic anemia in the mother and fetus.

Teratogenicity

The components of this product are not reported to cause teratogenic effects in humans. Based on best current information, there is no known teratogenicity associated with this product.

Further information

Symptoms may be delayed. Toxicological properties of this material have not been fully investigated.

12. Ecological Information

Ecotoxicological data

Components		Species	Test Results
Naphthalene (CAS 91-20-3)			
Aquatic			
Crustacea	EC50	Water flea (Daphnia magna)	1.09 - 3.4 mg/l, 48 hours
Fish	LC50	Rainbow trout,donaldson trout (Oncorhynchus mykiss)	0.91 - 2.82 mg/l, 96 hours
n-Hexane (CAS 110-54-3)			
Aquatic			
Fish	LC50	Fathead minnow (Pimephales promelas)	2.101 - 2.981 mg/l, 96 hours
Ecotoxicity		Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.	
Aquatic toxicity		Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.	

Persistence and degradability Not available.

Bioaccumulation / Accumulation Not available.

Partition coefficient

Hexane (Other isomers)	3.6
n-Hexane	3.9
n-Heptane	4.66
Octane (All isomers)	5.18
n-Nonane	5.46

Mobility in environmental media No data available.

13. Disposal Considerations

Waste codes D001: Waste Flammable material with a flash point <140 °F

Disposal instructions Dispose in accordance with all applicable regulations. Dispose of this material and its container to hazardous or special waste collection point. Incinerate the material under controlled conditions in an approved incinerator. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container.

14. Transport Information

DOT

Basic shipping requirements:

UN number UN1202
Proper shipping name Diesel fuel, MARINE POLLUTANT
Hazard class Combustible Liquid
Packing group III

Environmental hazards

Marine pollutant Yes

Additional information:

Special provisions 144, B1, IB3, T2, TP1
Packaging exceptions 150
Packaging non bulk 203
Packaging bulk 242

IATA

UN number UN1202
UN proper shipping name Gas oil
Transport hazard class(es) 3
Packing group III
Environmental hazards Yes
ERG code 3L

IMDG

UN number UN1202
UN proper shipping name DIESEL FUEL, MARINE POLLUTANT
Transport hazard class(es) 3
Packing group III
Environmental hazards
Marine pollutant Yes
EmS F-E, S-E

TDG

Proper shipping name DIESEL FUEL, MARINE POLLUTANT
Hazard class Combustible Liquid
UN number UN1202
Packing group III
Marine pollutant Yes
Special provisions 82, 88

15. Regulatory Information

US federal regulations

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

n-Nonane (CAS 111-84-2) 1.0 % One-Time Export Notification only.

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

Naphthalene (CAS 91-20-3)

n-Hexane (CAS 110-54-3)

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: De minimis concentration

Naphthalene (CAS 91-20-3) 0.1 %

n-Hexane (CAS 110-54-3) 1.0 %

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

Naphthalene (CAS 91-20-3) Listed.

n-Hexane (CAS 110-54-3) Listed.

CERCLA (Superfund) reportable quantity (lbs) (40 CFR 302.4)

n-Nonane: 100

Octane (All isomers): 100

Hexane (Other isomers): 100

Naphthalene: 100

n-Hexane: 5000

Superfund Amendments and Reauthorization Act of 1986 (SARA)

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

Section 302 extremely hazardous substance (40 CFR 355, Appendix A)
No

Section 311/312 (40 CFR 370)
Yes

Drug Enforcement Administration (DEA) (21 CFR 1308.11-15)
Not controlled

WHMIS status
Controlled

WHMIS classification
B3 - Combustible Liquids
D2A - Other Toxic Effects-VERY TOXIC
D2B - Other Toxic Effects-TOXIC

WHMIS labeling



Inventory status

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)	No
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes

Country(s) or region	Inventory name	On inventory (yes/no)*
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s)

State regulations

US - California Hazardous Substances (Director's): Listed substance

Hexane (Other isomers) (CAS 96-14-0)	Listed.
Naphthalene (CAS 91-20-3)	Listed.
n-Heptane (CAS 142-82-5)	Listed.
n-Hexane (CAS 110-54-3)	Listed.
n-Nonane (CAS 111-84-2)	Listed.
Octane (All isomers) (CAS 111-65-9)	Listed.

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

Benzene (CAS 71-43-2)	Listed.
Toluene (CAS 108-88-3)	Listed.

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

Benzene (CAS 71-43-2)	Listed: February 27, 1987 Carcinogenic.
-----------------------	---

US - California Proposition 65 - CRT: Listed date/Developmental toxin

Benzene (CAS 71-43-2)	Listed: December 26, 1997 Developmental toxin.
Toluene (CAS 108-88-3)	Listed: January 1, 1991 Developmental toxin.

US - California Proposition 65 - CRT: Listed date/Female reproductive toxin

Toluene (CAS 108-88-3)	Listed: August 7, 2009 Female reproductive toxin.
------------------------	---

US - California Proposition 65 - CRT: Listed date/Male reproductive toxin

Benzene (CAS 71-43-2)	Listed: December 26, 1997 Male reproductive toxin.
-----------------------	--

US - New Jersey RTK - Substances: Listed substance

Naphthalene (CAS 91-20-3)	Listed.
n-Heptane (CAS 142-82-5)	Listed.
n-Hexane (CAS 110-54-3)	Listed.
n-Nonane (CAS 111-84-2)	Listed.
Octane (All isomers) (CAS 111-65-9)	Listed.

US. Massachusetts RTK - Substance List

Hexane (Other isomers) (CAS 96-14-0)	Listed.
Naphthalene (CAS 91-20-3)	Listed.
n-Heptane (CAS 142-82-5)	Listed.
n-Hexane (CAS 110-54-3)	Listed.
n-Nonane (CAS 111-84-2)	Listed.
Octane (All isomers) (CAS 111-65-9)	Listed.

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

Fuels, diesel, no. 2 (CAS 68476-34-6)	10000 LBS
Naphthalene (CAS 91-20-3)	500 LBS
n-Hexane (CAS 110-54-3)	500 LBS

US. Pennsylvania RTK - Hazardous Substances

Fuels, diesel, no. 2 (CAS 68476-34-6)	Listed.
Hexane (Other isomers) (CAS 96-14-0)	Listed.
Naphthalene (CAS 91-20-3)	Listed.
n-Heptane (CAS 142-82-5)	Listed.
n-Hexane (CAS 110-54-3)	Listed.
n-Nonane (CAS 111-84-2)	Listed.
Octane (All isomers) (CAS 111-65-9)	Listed.

16. Other Information

Further information

HMIS® is a registered trade and service mark of the NPCA.

Other information

Note: This Material Safety Data Sheet applies to the listed products and synonym descriptions for Hazard Communication purposes only. Technical Specifications vary greatly depending on the products and are not reflected in this document. Consult specification sheets for technical information.

HMIS® ratings

Health: 2*
Flammability: 2
Physical hazard: 0

NFPA ratings

Health: 2
Flammability: 2
Instability: 0

Disclaimer

This Material Safety Data Sheet (MSDS) was prepared in accordance with 29 CFR 1910.1200 by Valero Marketing & Supply Co., ("VALERO"). VALERO does not assume any liability arising out of product use by others. The information, recommendations, and suggestions presented in this MSDS are based upon test results and data believed to be reliable. The end user of the product has the responsibility for evaluating the adequacy of the data under the conditions of use, determining the safety, toxicity and suitability of the product under these conditions, and obtaining additional or clarifying information where uncertainty exists. No guarantee expressed or implied is made as to the effects of such use, the results to be obtained, or the safety and toxicity of the product in any specific application. Furthermore, the information herein is not represented as absolutely complete, since it is not practicable to provide all the scientific and study information in the format of this document, plus additional information may be necessary under exceptional conditions of use, or because of applicable laws or government regulations.



MATERIAL SAFETY DATA SHEET
UNIVERSAL FOREST PRODUCTS®, INC.
2801 East Beltline NE, Grand Rapids, Michigan 49525
(616) 364-6161
www.ufpi.com



SECTION 1 – PRODUCT IDENTIFICATION

PRODUCT NAME:	Wood Dust
SYNONYMS:	Sawdust, sander dust
DESCRIPTION:	Wood dust includes dust from all hard and soft woods. Consists of particles generated by any manual or mechanical cutting or abrasion process performed on wood. Also includes wood dust from formaldehyde bonded wood products.
PREPARED BY:	Legal Compliance Department

SECTION 2 – HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

CAS #	Component	Percent
N/A	Wood/Wood dust	92-100%
50-00-0	Formaldehyde	0-8%

SECTION 3 – PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Light to dark colored granular solid	Specific Gravity:	Not Available
Odor:	Wood odor—dependant on species	Vapor Pressure:	Not Available
Boiling Point:	Not Applicable	Vapor Density:	Not Applicable
Melting Point:	Not Applicable	Density:	Not Applicable
Freezing Point:	Not Applicable	% Volatile by Volume:	Not Applicable
Weight per Gallon:	Not Applicable	Solubility (H2O):	Not Applicable
Evaporation Rate:	Not Applicable	Reactivity (H2O):	Not Applicable

SECTION 4 – FIRE AND EXPLOSION HAZARD

Flash Point	Method	Upper/Lower Flammable Limit	Auto-ignition	Rate of Burn
Not Applicable	Not Applicable	Lower: 40.0 g/m ³	400–500 deg. F	Not Available

Unusual Fire and Explosion Hazards: Wood is combustible when exposed to heat or flame. Wood dusts may form explosive mixtures with air in the presence of an ignition source.

Fire Fighting Equipment and Extinguishing Media: Use water to wet down wood to reduce the likelihood of ignition. Remove burned or wet dust to open area after fire is extinguished. Fire fighters should use full protective clothing including self-contained breathing apparatus.

SECTION 5 – HEALTH HAZARDS AND FIRST AID

WARNING! Wood dust may form an explosive mixture with air. Use exhaust ventilation when cutting, sawing or grinding in an enclosed area. Wood dust may cause irritation to eyes, skin, and upper respiratory tract. When cutting, sanding, or grinding avoid inhalation and wear safety glasses. Handling may cause splinters, use puncture resistant gloves.

	Signs and symptoms of acute overexposure	First Aid Measures
Eyes:	Wood dust may cause irritation to the eyes. Symptoms can include irritation, redness, scratching of the cornea, and tearing	Immediately flush eyes with water for at least 15 minutes. Seek medical attention if symptoms persist
Skin:	Wood dust may cause irritation to the skin. Mechanical rubbing may increase skin irritation. Some wood species and their dusts may contain natural toxins, which may cause dermatitis or allergic reactions in sensitized individuals.	For skin contact flush immediately with soap and water, continue at least 15 minutes. If irritation persists, get medical attention immediately. If wood splinters are injected under the skin, get medical attention immediately.
Ingestion:	Ingestion of wood dusts is unlikely. If ingestion does occur, slight gastrointestinal irritation may result. Certain species of wood and their dusts may contain natural toxins, which can have adverse effects on humans.	If the material is swallowed, get medical attention or advice. Do not induce vomiting.
Inhalation:	Wood dust is irritating to the nose throat and lungs. Symptoms may include nasal dryness, deposits or obstructions in the nasal passages, coughing, sneezing, dryness and soreness of the throat and sinuses, hoarseness, and wheezing. Some species may cause allergic respiratory reactions with asthma-like symptoms in sensitized individuals.	If dusts are inhaled, remove person to fresh air. If symptoms persist, seek medical attention.

Note to Physician: Respiratory ailments and pre-existing skin conditions may be aggravated by exposure to wood dust

Medical Conditions Generally Aggravated by Exposure to Wood Dust: Pre-existing eye, respiratory system and skin conditions.

Chronic Overexposure: Wood dusts may be irritating to the eyes, skin and respiratory tract. Prolonged or repeated inhalation of wood dust may cause respiratory irritation, recurrent bronchitis, and prolonged colds. Depending on the species of wood, recurrent exposure may cause allergic skin and respiratory reactions in some individuals.

Carcinogenicity: Prolonged exposure to wood dust by inhalation has been reported to be associated with nasal and paranasal cancer. Wood dust is classified as a carcinogen by ACGIH, NIOSH, and IARC. This classification is based on an increased incidence of nasal and paranasal cancer in people exposed to wood dusts. Carcinogenicity of wood dust: ACGIH – A1 Confirmed Human Carcinogen (related to wood dusts-hard wood; NIOSH – Occupational carcinogen (related to wood dust); IARC -- Monograph 62, 1995 (related to wood dust)(Group 1 (carcinogenic to humans)). IARC has listed formaldehyde as a probable human carcinogen.

SECTION 6 – EXPOSURE CONTROL MEASURES/PERSONAL PROTECTION

Personal Protective Equipment

- Eyes/Face: Wear Safety glasses with side shields when handling, cutting, sanding, or grinding this material. Use a face shield for processes that may generate excessive dusts and splinters.
- Skin: Wear puncture resistant work gloves, such as leather when handling.
- Respiratory: Respirators must be worn if the ambient concentration of airborne contaminants exceeds prescribed exposure limits. Dust masks may be worn to avoid inhalation of nuisance dust. Dust masks are not adequate protection in environments above the occupational exposure limit.
- Ventilation: Cutting, grinding or sanding should be done outdoors or in a well ventilated area.

Component Exposure Limits

Component		OSHA		ACGIH	
		PEL	STEL	TLV	TLV STEL
*Wood/Wood dust	Softwoods	15 mg/m ³ total dust 5 mg/m ³ respirable fraction (as a nuisance dust)	N/A	1 mg/m ³ TWA	10 mg/m ³ TWA
	Hardwoods	15 mg/m ³ total dust 5 mg/m ³ respirable fraction (as a nuisance dust)	6 mg/m ³ TWA	1 mg/m ³ TWA	N/A
	Western Red Cedar	15 mg/m ³ total dust 5 mg/m ³ respirable fraction (as a nuisance dust)	N/A	0.5 mg/m ³ TWA	10 mg/m ³ TWA
Formaldehyde		0.75 ppm	2 ppm	0.3 ppm	N/A

*A state run OSHA program may have more stringent limits for wood dust and/or Particulates Not Otherwise Regulated.

SECTION 7 – SAFE HANDLING, STORAGE, DISPOSAL, AND ACCIDENTAL RELEASE MEASURES

Handling Procedures:

- Do not generate airborne dusts in the presence of an ignition source when sawing, cutting or grinding wood.
- Practice good personal hygiene procedures.
- Avoid contact of wood dusts with skin and eyes. Avoid breathing wood dusts.
- Do not eat, drink, or smoke when handling this product or in areas where dusts of this product are present.

Storage Procedures

- Maintain good housekeeping procedures, such as sweeping regularly to avoid accumulation of dusts
- Store in a cool, dry area away from excessive heat, sparks, and open flame.

Disposal Procedures

- Dispose of waste material according to local, State, and Federal Regulations.

Accidental Releases

- No containment measures are necessary

SECTION 8 – REGULATORY INFORMATION

OSHA: Untreated wood and wood products are considered manufactured articles and are exempt under OSHA's Hazard Communication Standard 29 CFR 1910.1200. Wood dust, a by-product generated from sawing, sanding or machining wood and wood products, is considered hazardous and is regulated under the Hazard Communication Standard 29 CFR 1910.1200.

SARA: Not Regulated.

DOT: Not Regulated.

STATE: California Proposition 65 Warning: This product contains a chemical (wood dust) known to the State of California to cause cancer.

NOTICE: THE INFORMATION AND RECOMMENDATIONS SET FORTH ARE BELIEVED TO BE ACCURATE. HOWEVER, UNIVERSAL FOREST PRODUCTS®, INC. MAKES NO WARRANTY WITH RESPECT TO AND DISCLAIMS ALL LIABILITY FROM RELIANCE ON THE INFORMATION.



**Universal
Forest
Products**

TO: Railroad Tie Purchaser

FROM: Legal Compliance Department DATE: March 15, 2011

SUBJECT: Creosote Treated Wood Railroad Tie MSDS

Purchaser:

Used railroad ties are not manufactured by Universal Forest Products, Inc. or its operating affiliates and subsidiaries ("UFP"); consequently, UFP does not produce and maintain an MSDS. Instead UFP relies on receiving MSDS's from its suppliers. Attached is an MSDS from one manufacturer of creosote railroad ties.

In addition, end users can refer to the Creosote Treated Wood Consumer Information Sheet for use and handling information. This Consumer Information Sheet contains language approved by the U.S. Environmental Protection Agency. You can find it by going to www.ufpi.com and typing "creosote consumer information sheet" in the search box at the top of the page.



Safety Data Sheet

Material Name: CREOSOTE PRESSURE TREATED WOOD

SDS ID: 00228327

*** Section 1 - PRODUCT AND COMPANY IDENTIFICATION ***

Manufacturer Information

KOPPERS INC.
436 Seventh Avenue
Pittsburgh, PA 15219-1800
Mfg Contact: 412-227-2001 (SDS Requests: 866-852-5239)

CHEMTREC: 800-424-9300 (Outside USA: +1 703-527-3887)
Emergencies (Medical in USA): 877-737-9047
Emergencies (Medical Outside of USA): 651-632-9269
Email: naorgmsds@koppers.com

Material Name: CREOSOTE PRESSURE TREATED WOOD

Product Use

Industrial wood products; specifically railroad ties, utility poles, and marine pilings.

*** Section 2 - HAZARDS IDENTIFICATION ***

EMERGENCY OVERVIEW

Physical Form: Pressure treated poles and crossties - treated at a retention level of 7-9 lbs/ft³ with a wood density of 45-55 lbs/ft³. Pressure treated piling - treated at a retention level of 12-20 lbs/ft³ with a wood density of 45 lbs/ft³. Actual retention level dependent on wood stock, moisture levels, and customer specifications.

Color: dark, brown to black

Odor: tar odor

Signal Word: WARNING!

Major Health Hazards: harmful if inhaled, harmful on contact with the skin, respiratory tract irritation, skin irritation, eye irritation, allergic reactions, nasal/sinus cancer, lung cancer, skin cancer

Physical Hazards: Dust/air mixtures may ignite or explode.

Precautionary Statements: Avoid breathing dust. Avoid contact with eyes, skin and clothing. Use only with adequate ventilation. Wash thoroughly after handling. Protective clothing must be changed when it shows signs of contamination. Observe good hygiene and safety practices when handling this product. There is an EPA approved Consumer Information Sheet (CIS) available for this product, do not use this product until the CIS and MSDS have been read and understood.

POTENTIAL HEALTH EFFECTS

Inhalation

Short Term: Creosote may cause irritation. Wood dust may cause irritation and allergic reactions.

Long Term: Creosote may cause nausea, vomiting, and headache. Wood dust may cause irritation, allergic reactions, nosebleed, nausea, vomiting, loss of appetite, chest pain, difficulty breathing, headache, drowsiness, dilated pupils, visual disturbances, irregular heartbeat, lung damage, liver damage, kidney damage, and nasal/sinus cancer.

Skin

Short Term: Creosote may cause irritation, skin discoloration, skin disorders, sensitivity to sunlight, changes in body temperature, nausea, vomiting, headache, difficulty breathing, irregular heartbeat, bluish skin color, and convulsions. Wood dust may cause irritation, allergic reactions, skin disorders, difficulty breathing, irregular heartbeat, headache, visual disturbances and kidney damage.

Long Term: Creosote may cause dermatitis, skin discoloration, skin disorders, sensitivity to sunlight, changes in body temperature, nausea, vomiting, headache, difficulty breathing, irregular heartbeat, bluish skin color, lung cancer, and skin cancer. Wood dust may cause irritation, allergic reactions, and skin disorders.

Eye

Short Term: Creosote may cause irritation and sensitivity to sunlight. Wood dust may cause irritation and eye damage.

Long Term: Creosote may cause irritation and sensitivity to sunlight. Wood dust may cause irritation and eye damage.

Ingestion

Safety Data Sheet

Material Name: CREOSOTE PRESSURE TREATED WOOD

SDS ID: 00228327

Short Term: Creosote may cause irritation, nausea, vomiting, changes in body temperature, difficulty breathing, irregular heartbeat, headache, dizziness, bluish skin color, cardiovascular collapse, and convulsions. Wood dust may cause nausea, vomiting, loss of appetite, difficulty breathing, irregular heartbeat, and drowsiness.

Long Term: Creosote may cause irritation, nausea, vomiting, headache, gastrointestinal effects, dizziness, changes in body temperature, visual disturbances, difficulty breathing, irregular heartbeat, bluish skin color, and cardiovascular collapse. No information is available for wood dust.

*** Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS ***

CAS	Component	Percent
Not Available	WOOD DUST, SOFTWOODS	<85
Not Available	WOOD DUST, HARDWOODS	<85
8001-58-9	COAL TAR CREOSOTE	<15

Component Related Regulatory Information

This product may be regulated, have exposure limits or other information identified as the following: Wood dust, all soft and hard woods, Wood dusts-hard wood, Wood dusts (all other wood dusts), Wood dusts (birch, mahogany, teak, walnut), Wood dust, western red cedar, Creosotes.

*** Section 4 - FIRST AID MEASURES ***

Inhalation

If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. Get immediate medical attention.

Skin

Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. DO NOT rub until skin is free of sawdust and preservative material. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.

Eyes

Flush eyes with plenty of water for at least 15 minutes. DO NOT rub eyes. Then get immediate medical attention.

Ingestion

If a large amount is swallowed, get medical attention.

*** Section 5 - FIRE FIGHTING MEASURES ***

See Section 9 for Flammability Properties

NFPA Ratings: Health= 2 Fire= 1 Reactivity= 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

Flammable Properties

Dust/air mixtures may ignite or explode. During fire conditions, vapors and decomposition products may be released, forming flammable/explosive mixtures in air. Contact with heat may generate toxic and/or flammable gases.

Sensitivity to Mechanical Impact

Not available

Sensitivity to Static Discharge

Not available

Extinguishing Media

carbon dioxide, regular dry chemical, regular foam, water spray

Protective Equipment and Precautions for Firefighters

Full fire fighting turn-out gear (bunker gear).

Fire Fighting Measures

Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas. Use extinguishing agents appropriate for surrounding fire.

Safety Data Sheet

Material Name: CREOSOTE PRESSURE TREATED WOOD

SDS ID: 00228327

*** Section 6 - ACCIDENTAL RELEASE MEASURES ***

Water Release

Subject to California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65).

Occupational Spill / Release

Collect debris and used material in appropriate container for disposal. Due to the concentration of Creosote and the CERCLA (40 CFR 302.4) reportable quantity of 1 pound, the release of 6 pounds of this product requires National Response Center notification.

*** Section 7 - HANDLING AND STORAGE ***

Handling Procedures

Use methods to minimize dust. Avoid frequent or prolonged inhalation of sawdust from treated wood. When sawing and machining treated wood, wear a dust mask. When power-sawing and machining, wear goggles to protect eyes from flying particles. Whenever possible, these operations should be performed outdoors to avoid indoor accumulations of airborne sawdust from treated wood. Avoid frequent or prolonged skin contact with creosote-treated wood; when handling the treated wood, wear long-sleeved shirts and long pants and use gloves impervious to the chemicals (for example, gloves that are vinyl-coated). Use protective skin cream on exposed skin before and during work shift. To reduce sun sensitivity a sun-blocking lotion (SPF 15+) can also be applied prior to application of a protective cream. After working with the wood, and before eating, drinking and use of tobacco products, wash exposed areas thoroughly. If oily preservative or sawdust accumulate on clothes, launder before reuse. Wash work clothes separately from other household clothing.

Storage Procedures

No special requirements.

*** Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION ***

Exposure Guidelines

Creosote is a complex mixture of variable composition, and while no odor threshold for creosote has been established, work done at the University of California has measured the odor thresholds for one of the more volatile components in creosote and determined that the involved odor threshold is in the part per billion range, and well below applicable exposure limits. On the basis of these data the perception of creosote odor in and of itself should not be taken as an indication of exposure in excess of accepted exposure limits.

Exposure to wood dust would not be expected under normal use conditions. If handling or use patterns associated with creosote treated wood involve the use of a power saw, sander, drill or any tool or activity resulting in the generation of airborne particulate the following wood dust exposure limits should be observed and appropriate steps taken to minimize exposure.

Component Exposure Limits

WOOD DUST, HARDWOODS (Not Available)

ACGIH: 1 mg/m³ TWA (inhalable fraction)

NIOSH: 1 mg/m³ TWA

Mexico: 1 mg/m³ TWA

WOOD DUST, SOFTWOODS (Not Available)

ACGIH: 0.5 mg/m³ TWA (inhalable fraction)
Sensitizer

NIOSH: 1 mg/m³ TWA

COAL TAR PITCH VOLATILES (65996-93-2)

OSHA (US): 0.2 mg/m³ TWA (benzene soluble fraction)

ACGIH: 0.2 mg/m³ TWA (as benzene soluble aerosol)

NIOSH: 0.1 mg/m³ TWA (cyclohexane-extractable fraction)

Mexico: 0.002 mg/m³ TWA; 0.02 mg/m³ TWA (as Particulate polycyclic aromatic hydrocarbons)
0.015 ppm STEL; 0.03 mg/m³ STEL

Ventilation

Ensure adequate ventilation. Ensure compliance with applicable exposure limits.

Safety Data Sheet

Material Name: CREOSOTE PRESSURE TREATED WOOD

SDS ID: 00228327

PERSONAL PROTECTIVE EQUIPMENT

Eyes / Face

ANSI Z87.1-1989 approved safety glasses with side shields.

Protective Clothing

Wear tightly woven long-sleeved shirts and long pants. Remove and launder contaminated clothing separately from other laundry before reuse.

Glove Recommendations

Individuals must wear gloves impervious to the wood treatment formulations in all situations where dermal contact with creosote is expected.

Protective Material Types

Examples of impervious materials for protective clothing (e.g. overalls, jackets, gloves and boots) required during application and handling of creosote are polyvinyl acetate (PVA), polyvinyl chloride (PVC), Neoprene and NBR (Buna-N).

Respiratory Protection

If the applicable TLVs and/or PELs are exceeded, use canister or cartridge respirators, which are MSHA/NIOSH-approved, with high-efficiency particulate filters.

*** Section 9 - PHYSICAL AND CHEMICAL PROPERTIES ***

Physical State: Solid

Color: dark, brown to black

Physical Form: Pressure treated poles and crossties - treated at a retention level of 7-9 lbs/ft³ with a wood density of 45-55 lbs/ft³.
Pressure treated piling - treated at a retention level of 12-20 lbs/ft³ with a wood density of 45 lbs/ft³. Actual retention level dependent on wood stock, moisture levels, and customer specifications.

Odor: tar odor

pH: Not available

Freezing / Melting Point: Not available

Boiling Point: Not available

Flash Point: Not applicable

Decomposition Temperature: Not available

Evaporation Rate: Not available

Lower Explosive Limit: Not available

Upper Explosive Limit: Not available

Vapor Pressure: Not available

Vapor Density: Not available

Specific Gravity (water=1): Not available

Water Solubility: Not available

Coefficient of Water/Oil Dist: Not available

Autoignition: Not available

Viscosity: Not available

Volatility: Not available

*** Section 10 - STABILITY AND REACTIVITY ***

Chemical Stability

Stable at normal temperatures and pressure.

Conditions to Avoid

Avoid heat, flames, sparks and other sources of ignition. Avoid contact with incompatible materials.

Materials to Avoid (Incompatibilities)

oxidizing materials, acids

Decomposition Products

carbon monoxide, carbon dioxide, oxides of nitrogen

Possibility of Hazardous Reactions

Will not polymerize.

Safety Data Sheet

Material Name: CREOSOTE PRESSURE TREATED WOOD

SDS ID: 00228327

*** Section 11 - TOXICOLOGICAL INFORMATION ***

Irritation / Corrosive Information

RTECS Irritation

The components of this material have been reviewed and RTECS publishes no applicable data as of the date on this document.

Local Effects

WOOD DUST, HARDWOODS (Not Available)

Irritant: inhalation, skin, eye.

WOOD DUST, SOFTWOODS (Not Available)

Irritant: inhalation, skin, eye.

COAL TAR CREOSOTE (8001-58-9)

Irritant: inhalation, skin, eye.

Acute and Chronic Toxicity

Component Analysis - LD50/LC50

The components of this material have been reviewed in various sources and the following selected endpoints are published:

COAL TAR CREOSOTE (8001-58-9)

Oral LD50 Rat 2524 mg/kg

RTECS Acute Toxicity (selected)

The components of this material have been reviewed, and RTECS publishes the following endpoints:

COAL TAR CREOSOTE (8001-58-9)

Oral: 725 mg/kg Oral Rat LD50

Acute Toxicity Level

COAL TAR CREOSOTE (8001-58-9)

Moderately Toxic: ingestion.

Carcinogenicity (Product)

OSHA: No

NTP: Yes

IARC: Yes

(See below for additional information on component carcinogen status)

Component Carcinogenicity

WOOD DUST, HARDWOODS (Not Available)

ACGIH: A1 - Confirmed Human Carcinogen

NIOSH: potential occupational carcinogen

NTP: Known Human Carcinogen (Select Carcinogen)

IARC: Monograph 100C [in preparation]; Monograph 62 [1995] (Group 1 (carcinogenic to humans))

WOOD DUST, SOFTWOODS (Not Available)

ACGIH: A4 - Not Classifiable as a Human Carcinogen

NIOSH: potential occupational carcinogen

NTP: Known Human Carcinogen (Select Carcinogen)

IARC: Monograph 100C [in preparation]; Monograph 62 [1995] (Group 1 (carcinogenic to humans))

COAL TAR CREOSOTE (8001-58-9)

NIOSH: potential occupational carcinogen

IARC: Monograph 92 [2010]; Supplement 7 [1987]; Monograph 35 [1985] (Group 2A (probably carcinogenic to humans))

RTECS Tumorigenic

The components of this material have been reviewed, and RTECS publishes data for one or more components.

RTECS Mutagenic

The components of this material have been reviewed, and RTECS publishes data for one or more components.

RTECS Reproductive Effects

The components of this material have been reviewed, and RTECS publishes data for one or more components.

Safety Data Sheet

Material Name: CREOSOTE PRESSURE TREATED WOOD

SDS ID: 00228327

Target Organs (Product)

respiratory system, skin, eyes, immune system (sensitizer)

Target Organs (Components)

WOOD DUST, HARDWOODS (Not Available)

immune system (sensitizer).

WOOD DUST, SOFTWOODS (Not Available)

immune system (sensitizer).

Medical Conditions Aggravated by Exposure Based on Product and Component Information

respiratory disorders, skin disorders and allergies

Additional Information (Product)

This product contains coal tar creosote. Volume 35 of the IARC monograph states that there is limited evidence that coal tar derived creosotes are carcinogenic in humans and sufficient evidence for the carcinogenicity of creosote in experimental animals. Limitations in the human exposure studies reviewed by IARC (including the presence of other chemicals, small study populations and not well documented exposure levels) contributed to IARC's conclusions regarding human exposure to creosote. When applied to the skin of mice in experimental studies, creosote produced skin tumors and in one study produced lung tumors.

Most available information on the effects of coal tar creosote in humans comes from older occupational studies in the wood-preserving and construction industries. Today, with the use of engineering controls and personal protective equipment, occupational exposure to creosote components is expected to be below permissible exposure limits (measured as CTPVs). Wood dust is particles of varying size produced from processing or handling wood. Cancer of the nasal cavities and sinuses is associated with exposure to hardwood dust. IARC concluded that there were too few studies to evaluate cancer risks attributable to exposure to softwood alone and to any particular species of wood. In view of the overall lack of consistent findings, IARC also concluded that there is no indication that occupational exposure to wood dust has a causal role in cancers of the throat, lung, lymphatic and blood systems, stomach, colon or rectum.

Different woods produce different health effects and there is evidence that wood from different trees of the same species can produce varying health effects. Woods other than Western Red Cedar (WRC) seem unlikely to be responsible for large numbers of cases of respiratory allergies. Other common wood dusts produce asthma/pulmonary effects that are less well described than the responses to WRC. These other wood species (e.g., oak and pine) are considered somewhat allergenic.

*** Section 12 - ECOLOGICAL INFORMATION ***

Component Analysis - Aquatic Toxicity

COAL TAR CREOSOTE (8001-58-9)

Fish: 96 Hr LC50 Brachydanio rerio: 2.6 - 6.6 mg/L [static]; 96 Hr LC50 Oncorhynchus mykiss: 0.57 mg/L [static]

Invertebrate: 48 Hr EC50 Daphnia magna: 1.04 mg/L; 48 Hr EC50 Daphnia magna: 0.065 - 0.082 mg/L [Static]

*** Section 13 - DISPOSAL CONSIDERATIONS ***

Disposal Methods

Dispose in accordance with all applicable regulations. Treated wood should not be burned in open fires or in stoves, fireplaces or residential boilers, because toxic chemicals may be produced as part of the smoke and ashes. Treated wood from commercial or industrial use (e.g., construction sites) may be burned only in commercial or industrial incinerators or boilers in accordance with state and federal regulations. For more information please see Koppers Consumer Information Sheet for this product.

Component Waste Numbers

COAL TAR CREOSOTE (8001-58-9)

RCRA: waste_number U051

Safety Data Sheet

Material Name: CREOSOTE PRESSURE TREATED WOOD

SDS ID: 00228327

*** Section 14 - TRANSPORT INFORMATION ***

US DOT Information

No Classification assigned.

TDG Information

No Classification assigned.

*** Section 15 - REGULATORY INFORMATION ***

U.S. Federal Regulations

This material contains one or more of the following chemicals required to be identified under SARA Sections 302/304 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), TSCA 12(b), and/or require an OSHA process safety plan.

COAL TAR CREOSOTE (8001-58-9)

SARA 313: 0.1 % de minimis concentration

SARA 311/312 Hazardous Categories (40 CFR 370 Subparts B and C)

Acute Health: Yes Chronic Health: Yes Fire: No Pressure: No Reactive: No

U.S. State Regulations

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

Component	CAS#	CA	MA	MN	NJ	PA	RI
WOOD DUST, HARDWOODS (*related to: Wood dust, all soft and hard woods) (*related to: Wood dusts-hard wood)	Not Available	No	No	Yes ¹	No	Yes ²	Yes ¹
WOOD DUST, SOFTWOODS (*related to: Wood dust, all soft and hard woods)	Not Available	No	No	Yes ¹	No	No	Yes ¹
COAL TAR CREOSOTE (*related to: Creosotes)	8001-58-9	Yes	Yes	Yes ¹	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.

Canadian Regulations

WHMIS Classification

Not a Controlled Product under Canada's Workplace Hazardous Material Information System.

WHMIS Ingredient Disclosure List

There are no components listed on the Ingredient Disclosure List.

Canada Inventory Information (Product)

This product is exempt.

U.S. Inventory (TSCA) Information (Product)

This product is exempt.

Inventory Status (Components)

Component Analysis - Inventory

Component	CAS#	US	CA
COAL TAR CREOSOTE	8001-58-9	Yes	DSL

Safety Data Sheet

Material Name: CREOSOTE PRESSURE TREATED WOOD

SDS ID: 00228327

*** Section 16 - OTHER INFORMATION ***

Key / Legend

ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSL - Domestic Substances List; EEC - European Economic Community; EINECS - European Inventory of Existing Commercial Chemical Substances; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; JP - Japan; Kow - Octanol/water partition coefficient; KR - Korea; LEL - Lower Explosive Limit; LOLI - List Of Lists™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PH - Philippines; RCRA - Resource Conservation and Recovery Act; RID - European Rail Transport; RTECS - Registry of Toxic Effects of Chemical Substances®; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act; TWA - Time Weighted Average; UEL - Upper Explosive Limit; US - United States

Other Information

The information set forth in this Safety Data Sheet does not purport to be all-inclusive and should be used only as a guide. While the information and recommendations set forth herein are believed to be accurate, the company makes no warranty regarding such information and recommendations and disclaims all liability from reliance thereon.

"RTECS®" is a United States trademark owned and licensed under authority of the U.S. Government, by and through Symyx Software, Inc. Portions ©Copyright 2010, U.S. Government. All rights reserved.

End of Sheet 00228327



MATERIAL SAFETY DATA SHEET
UNIVERSAL FOREST PRODUCTS®, INC.
2801 East Beltline NE, Grand Rapids, Michigan 49525
(616) 364-6161
www.ufpi.com



SECTION 1 – PRODUCT IDENTIFICATION

PRODUCT NAME:	ProWood [®] CCA
SYNONYMS:	CCA treated wood; Pressure treated wood with chromated copper arsenate (CCA); CCA with water repellent; CCA treated wood products with mold inhibitor; CCA treated formaldehyde bonded products.
DESCRIPTION:	Wood, often green colored.
PURPOSE:	For use where wood is subject to decay or termite attack.
PREPARED BY:	Legal Compliance Department

SECTION 2 – HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

CAS NUMBER	HAZARDOUS INGREDIENT	PERCENT ⁴	OSHA		ACGIH	
			PEL	STEL	TLV	STEL
7440-50-8	Copper Oxide (dusts/mists)	<5	1.0 mg/cu. m	none	1.0 mg/cu. m	none
7440-47-3	Trivalent Chromium	<5	0.5 mg/cu. m (as Cr)	none	0.5 mg/ cu. m	none
7440-38-2	Arsenic Pentoxide ¹	<5	0.01 mg/cu. m	none	0.01 mg/ cu. m	none
N/A	Wood Dust ²	90-99.5	5 mg/cu. m	none	1 mg/ cu. m	10 mg/cu. m
50-00-0	Formaldehyde ³	0-8	0.75 ppm	2 ppm	0.3 ppm	none

¹ The arsenic pentoxide present in this product is not subject to OSHA arsenic standard 29 CFR 1910.1801

² Some states may have more restrictive PEL's for wood Dust. Consult your individual state offices for details.

³ Formaldehyde is present only in products bonded with formaldehyde-based glues.

⁴ Due to the natural variability in wood and the variability in treatment, actual values may vary.

SECTION 3 – PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Solid wood, light brown to green color	Specific Gravity:	same as species treated
Odor:	wood odor	Vapor Pressure:	Not Available
Boiling Point:	Not Applicable	Vapor Density:	Not Applicable
Melting Point:	Not Applicable	Density:	Not Applicable
Freezing Point:	Not Applicable	% Volatile by volume:	Not Applicable
Weight per Gallon:	Not Applicable	Solubility (H ₂ O):	Not Applicable
Evaporation Rate:	Not Applicable	Reactivity (H ₂ O):	Not Applicable

SECTION 4 – FIRE AND EXPLOSION HAZARD

Flash Point	Method	Upper/Lower Flammable Limit	Auto-ignition	Rate of Burn
273 °C	Not Applicable	Not Available	273 °C	Not Available

Unusual Fire and Explosion Hazards: Wood is combustible when exposed to heat or flame. Wood dusts may form explosive mixtures with air in the presence of an ignition source. Wear self-contained breathing apparatus. Smoke from wood and chemicals within may contain toxic vapors. Ashes may contain toxic compounds. Wear full protective equipment and air supply.

Fire Fighting Equipment and Extinguishing Media: Use water to wet down wood to reduce the likelihood of ignition. Fire fighters should use full protective clothing including self-contained breathing apparatus. Use water spray, foam, carbon dioxide, dry chemical fog.

Hazardous Decomposition Products: Product is stable and non-reactive under normal conditions. Ash resulting from combustion contains arsenic, chromium, and copper. Combustion products may include smoke, oxides of carbon, nitrogen, chrome, and arsenic. Contact with strong acid may release metals.

NFPA Codes: Health 1
 Flammability 1
 Reactivity 0
 Other N/A

HMIS Codes: Health 1
 Flammability 1
 Reactivity 0
 Protection B

SECTION 5 – HEALTH HAZARDS AND FIRST AID

WARNING! DO NOT BURN CCA PRESSURE-TREATED WOOD. Wood dust may form an explosive mixture with air, use exhaust ventilation when cutting, sawing or grinding in an enclosed area. Wood dust may cause irritation to eyes, skin, and upper respiratory tract. When cutting, sanding, or grinding avoid inhalation and wear safety glasses. Handling may cause splinters, use puncture resistant gloves. Observe good hygiene and safety practices when handling this product.

	Signs and symptoms of acute overexposure	First Aid Measures
Eyes:	Wood dust may cause irritation to the eyes. Symptoms can include irritation, redness, scratching of the cornea, and tearing	Immediately flush eyes with water for at least 15 minutes. Seek medical attention if symptoms persist
Skin:	Wood dust may cause irritation to the skin. Mechanical rubbing may increase skin irritation. Some wood species and their dusts may contain natural toxins, which may cause dermatitis or allergic reactions in sensitized individuals.	For skin irritation flush immediately with soap and water, continue at least 15 minutes. If irritation persists, get medical attention immediately. If wood splinters are injected under the skin, get medical attention immediately.
Ingestion:	Ingestion of wood dusts is unlikely. If ingestion does occur, slight gastrointestinal irritation may result. Certain species of wood and their dusts may contain natural toxins, which can have adverse effects on humans. A single ingestion by a small child of a large amount (approx. 2.5 oz.) of treated wood dust may require immediate medical attention. See NOTES TO PHYSICIAN and SECTION 8.	If the material is swallowed, get medical attention or advice. Rinse the victim's mouth out with water. Induce vomiting if directed by a physician or Poison Control Center.
Inhalation:	Wood dust is irritating to the nose throat and lungs. Symptoms may include nasal dryness, deposits or obstructions in the nasal passages, coughing, sneezing, dryness and soreness of the throat and sinuses, hoarseness, and wheezing. Prolonged or repeated inhalation of wood dusts may cause respiratory irritation, recurrent bronchitis, and prolonged colds. Some species may cause allergic respiratory reactions with asthma-like symptoms in sensitized individuals. Prolonged exposure to wood dust by inhalation has been reported to be associated with nasal and paranasal cancer.	If dusts are inhaled, remove person to fresh air. If symptoms persist, seek medical attention.

Note to Physician: If one ounce of treated wood dust per ten pounds of body weight is ingested, acute arsenic intoxication is a possibility. See COMMENTS. Respiratory ailments and pre-existing skin conditions may be aggravated by exposure to wood dust

Medical Conditions Generally Aggravated by Exposure to Wood Dust: Individuals with a pre-existing disease or a history of ailments involving the skin, kidney, liver, respiratory tract, eyes, or nervous system are at a greater than normal risk of developing adverse effects from woodworking operations with this product. Pre-existing eye, respiratory system and skin conditions also may be aggravated.

Chronic Overexposure: Wood dusts may be irritating to the eyes, skin and respiratory tract. Prolonged or repeated inhalation of wood dust may cause respiratory irritation, recurrent bronchitis, and prolonged colds. Depending on the species of wood, recurrent exposure may cause allergic skin and respiratory reactions in some individuals. The principal health effects reported from occupational exposure to sawdust or wood dust generated from untreated wood are dermatitis, rhinitis, conjunctivitis, reduced or suppressed mucociliary clearance

rates, chronic obstructive lung changes, and nasal sinus cancer. Skin and respiratory sensitization have been reported from exposure to hardwood dust.

Carcinogenicity. Wood dust is classified as a carcinogen by ACGIH, NIOSH, and IARC. This classification is based on an increased incidence of nasal and paranasal cancer in people exposed to wood dusts. Carcinogenicity of wood dust: ACGIH – A1 Confirmed Human Carcinogen (related to wood dusts-hard wood; NIOSH – Occupational carcinogen (related to wood dust); IARC -- Monograph 62, 1995 (related to wood dust)(Group 1 (carcinogenic to humans)). IARC has listed formaldehyde as a probable human carcinogen. This product may contain mold inhibitors or water repellants, neither of which are carcinogenic and are <1% of the finished product.

Ingestion of components (arsenic and chromium) of the liquid preservative has caused toxicity to pregnant laboratory animals and their fetuses. Reproductive performance in laboratory animals was not affected by feeding diets containing arsenic. IARC, the NTP, OSHA and California Proposition 65 do not consistently distinguish among arsenic or chrome species but list inorganic arsenic and chromium and certain chromium compounds as human carcinogens. Cancers in humans have followed from long term: 1)consumption of Fowler's Solution, a medicinal trivalent arsenical; 2)inhalations and skin contact with inorganic trivalent arsenical sheep-dust; 3)the combined inhalation of arsenic trioxide (trivalent arsenical), sulfur dioxide, and other particulates from ore smelting in arsenic trioxide production; and 4)occupational exposure to nonwater-soluble hexavalent chromium. . This product is not manufactured with trivalent arsenic or non-water-soluble hexavalent chromium compounds but may contain some trivalent arsenic as a result of reactions occurring after wood treatment.

SECTION 6 – EXPOSURE CONTROL MEASURES/PERSONAL PROTECTION

Personal Protective Equipment

Eyes/Face:	Wear safety glasses with side shields when handling, cutting, sanding, or grinding this material. Use a face shield for processes that may generate excessive dusts and splinters
Skin:	Wear puncture resistant work gloves, such as leather when handling. Wash exposed areas promptly and thoroughly after skin contact from working with this product and before eating, drinking, using tobacco products or the restroom.
Respiratory:	Respirators must be worn if the ambient concentration of airborne contaminants exceeds prescribed exposure limits. Dust masks may be worn to avoid inhalation of nuisance dust. Dust masks are not adequate protection in environments above the occupational exposure limit.
Ventilation:	Cutting, grinding or sanding should be done outdoors or in a well ventilated area.

SECTION 7 – SAFE HANDLING, STORAGE, DISPOSAL, AND ACCIDENTAL RELEASE MEASURES

Handling Procedures:

- Do not generate airborne dusts in the presence of an ignition source when sawing, cutting or grinding wood.
- Wash hands after handling and before eating
- Avoid contact of wood dusts with skin and eyes. Avoid breathing wood dusts.
- Do not eat, drink, or smoke when handling this product or in areas where dusts of this product are present.

Storage Procedures

- Maintain good housekeeping procedures, such as sweeping regularly to avoid accumulation of dusts
- Store away from excessive heat, sparks, and open flame.
- When storing wood, the material should be kept off the ground. Protect from physical damage.

Disposal Procedures

- DO NOT BURN CCA PRESSURE TREATED LUMBER
- Dispose of waste material according to local, State, and Federal Regulations.
- This product is not defined as a U.S. EPA hazardous waste

Accidental Release Measures

- No containment procedures are needed as this product cannot spill or leak the preservative.

Section 8 -- Toxicological Information

CCA Treated Wood: Sawdust from CCA treated wood has been shown not to cause chromosome changes in mice fed sawdust or birth defects in mice or rabbits receiving sawdust in their feed or applied to their skin. Recreational exposure to children using CCA treated wood playground equipment has been evaluated. The results of this study indicated that the amount of arsenic transferred from the wood surface to the child is within the normal variation of total arsenic exposure to children and that the maximum risks of skin cancer associated with the exposure approximates the skin cancer risk from the sunlight experienced during play periods.

Leaf, stem, and fruit of grape plants grown adjacent to CCA treated wood poles did not take up preservative components from the poles above background levels (limits of detection 0.2 and 0.05 ppm for chrome and arsenic, respectively).

This product must not come in contact with food or feed.

No known ingredients which occur at greater than 0.1%, other than those listed above, are listed as carcinogens in the IARC Monographs on the Evaluation of the Carcinogenic Risks of Chemicals to Humans, the National Toxicology Program (NTP) Annual Report on Carcinogens or OSHA 29 CFR 1910.1001-1047 Subpart Z Toxic and Hazardous Substances (Specifically Regulated Substances).

Do not use until a Consumer Information Sheet is read and understood. Wash exposed areas promptly and thoroughly after skin contact from working with this product and before eating or drinking and before using tobacco products or restrooms.

Do not wear contact lenses without proper eye protection when sawing or cutting treated or untreated wood.

CCA Preservative: The effects of industrial exposure to the chrome-copper-arsenic preservative used to treat CCA wood has been evaluated in three independent epidemiology studies. In each case, the authors concluded that workers exposed on a daily basis to the preservatives were at no increased risk of death or disease as a result of their exposure.

California's Proposition 65: This product contains a chemical known to the State of California to cause cancer and reproductive toxicity.

NOTICE: THE INFORMATION AND RECOMMENDATIONS SET FORTH ARE BELIEVED TO BE ACCURATE. HOWEVER, UNIVERSAL FOREST PRODUCTS[®], INC., MAKES NO WARRANTY WITH RESPECT TO AND DISCLAIMS ALL LIABILITY FROM RELIANCE ON THE INFORMATION.

Nevada Wood Preserving, Inc.
P.O. Box 350, Silver Springs, NV 89429

MATERIAL SAFETY DATA SHEET

1. PRODUCT IDENTIFICATION

Trade Name:
Pentachlorophenol Treated Wood

Chemical Class:
Treated Wood

Manufacturer:
Nevada Wood Preserving, Inc.
1680 Spruce Avenue, Silver Springs, NV 89429
775-577-2000

Emergency Phone Number:
CHEMTREC 1-800-424-9300

Date Prepared:
March 1, 1996

Hazard Rating		
	NFPA	HMIS
Health	1	1
Flammability	2	1
Reactivity	0	0
Special	None	None

2. COMPOSITION, INFORMATION ON INGREDIENTS

Chemical Name	CAS#	% by Weight	Exposure Limits in air					
			ACGIH		OSHA			
			TLV mg/m3	STEL mg/m3	PEL mg/m3	STEL mg/m3	IDLH	OTHER
Pentachlorophenol	87-86-5	<0.01	0.5 Skin	NE	0.5 Skin	NE	NE	ACGIH BEI: 2 mg/g creatinine in urine: DFG MAK: 0.05 ppm
Fuel Oil	68476-34-6	<0.02	NE	NE	NE	NE	NE	NE
Wood	N/A	>99	1(hard wood) 5 (soft wood)	10 (soft wood)	2.5 (Western Red Cedar) 5 (all other)	10 (All woods except Western Red Cedar)	NE	NE

NE = Not Established

C = Ceiling Level

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

This product consists of light tan to brown lumber or wood poles. It presents limited hazards in an emergency. Dusts from this product can be irritating to exposed tissue. It is a combustible material, which will decompose to produce acrid smoke and toxic gases (i.e., carbon monoxide and carbon dioxide).

POTENTIAL HEALTH EFFECTS BY ROUTE OF EXPOSURE

INHALATION: Inhalation of finely divided dusts of this product may cause irritation of the nose, throat, and other tissues of the respiratory system.

CONTACT WITH SKIN: Prolonged and/or repeated skin contact can cause mild irritation that disappears after exposure ends. If irritation persists, contact a physician.

EYE CONTACT: Dusts which may contaminate the eyes can cause irritation and scratching of eye tissues.

SKIN ABSORPTION: One component of this product, pentachlorophenol, is known to be a skin absorbing compound. Symptoms of such exposure can include redness, irritation, changes in respiration, and dizziness.

INGESTION: Ingestion of this product can irritate the mouth, throat, stomach, and other tissues of the digestive system. Symptoms of ingestion may include nausea, vomiting, and irritation.

INJECTION: The only way injection of this material could occur is by wood splinters puncturing the skin. The main symptoms associated with such an exposure would be redness and irritation at the point of injection.

Note: If any signs or symptoms of exposure persists, seek medical help immediately

HEALTH EFFECTS OR RISKS FROM EXPOSURE

ACUTE: The main health hazard presented by this product would be irritation of contaminated tissues - especially the skin and eyes.

CHRONIC: The symptoms of long-term exposure would be similar to those for acute exposure, described above. Additionally, some individuals can become sensitized to wood dusts and develop allergy like symptoms upon repeat exposures.

Studies have been conducted focusing on employees who routinely work with wood products. The International Agency for Research on Cancer reports that there is sufficient evidence that exposure to wood dusts from hardwood species may lead to an increased risk of nasal/paranasal sinus cancer.

4. FIRST AID MEASURES

SKIN EXPOSURE: Immediately begin cleansing effected area with running water. Remove exposed or contaminated clothing, taking care not to irritate the eyes.

EYE EXPOSURE: Open victim's eyes while under gentle running water. Use sufficient force to open eye lids. Have victim "roll" eyes. Minimum flushing is for 15 minutes. Victims with wood splinters in the eye must receive medical attention.

INHALATION: Remove victim to fresh air. If necessary, use artificial respiration to support vital functions. Remove or cover gross contamination to avoid exposure to rescuers.

INGESTION: Call physician or poison control center for most current information. If professional advice is not available, do not induce vomiting.

Victims of chemical exposure must seek medical attention if signs of irritation or other symptoms develop. Take a copy of the product label and MSDS to physician or health professional along with the victim.

5. FIREFIGHTING MEASURES

FLASH POINT: Not applicable

AUTO IGNITION TEMPERATURE: 200 - 270 degrees C

FLAMMABLE LIMITS (in air by volume)	Lower:	Upper:
	Not available	Not available

FIRE EXTINGUISHING MATERIALS:

Water spray: yes	Carbon dioxide: yes	Foam: yes	Dry chemical: yes	Halon: no
-------------------------	----------------------------	------------------	--------------------------	------------------

Other: Any other Class A fire extinguishing agent.

UNUSUAL FIRE AND EXPLOSION HAZARDS: This product is combustible. When involved in a fire, this material may decompose and produce irritating fumes and toxic gases (carbon monoxide and carbon dioxide).

EXPLOSION SENSITIVITY TO MECHANICAL IMPACT: N / A

EXPLOSION SENSITIVITY TO STATIC DISCHARGE: N / A

SPECIAL FIREFIGHTING PROCEDURES: Incipient fire responders should wear eye protection. Structural firefighters must wear self-contained breathing apparatus and full protective equipment.

6. ACCIDENTAL RELEASE MEASURES

SPILL AND LEAK RESPONSE: This product cannot spill or leak because the chemicals are fixed in the wood. In the event of a release of dust or chips of this product, safety goggles, mechanically resistant gloves, and coveralls should be worn by cleanup personnel. In particularly dusty areas, use a MSHA/NIOSH approved dust mask. Sweep up or vacuum dust and chips. If necessary, rinse the area with soap and water.

7. HANDLING AND STORAGE

WORK PRACTICES AND HYGIENE PRACTICES: Avoid getting dusts on you or in you. Wash hands after handling this product. Do not eat or drink in areas where there are dusts of this material.

STORAGE AND HANDLING PRACTICES: Keep in cool, dry place away from open flame. Avoid contaminating food, feed, and water with dusts of this product. Always use this product in areas where adequate ventilation is provided.

PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT: Follow the practices indicated in Section 6 - Accidental Release Measures.

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

VENTILATION AND ENGINEERING CONTROLS: Use with adequate ventilation. Use mechanical fan or vent area to outside.

RESPIRATORY PROTECTION: If it is anticipated that the exposure limits for dust may be exceeded during work with this product, wear a MSHA/NIOSH approved dust mask.

EYE PROTECTION: Splash goggles or safety goggles.

HAND PROTECTION: Mechanically resistant gloves.

BODY PROTECTION: Use body protection appropriate for task (i.e., coveralls).

9. PHYSICAL AND CHEMICAL PROPERTIES

VAPOR DENSITY: N / A

EVAPORATION RATE: N / A

SPECIFIC GRAVITY: N / A

MELTING POINT OR RANGE: N / A

SOLUBILITY IN WATER: Insoluble

BOILING POINT: N / A

VAPOR PRESSURE (mm Hg @ 20 degrees C): N / A

pH: N / A

APPEARANCE AND COLOR: light tan to brown lumber or wood poles with a fuel-like odor.

HOW TO DETECT THIS SUBSTANCE: There are no unusual warning properties associated with this product besides the fuel-like odor.

10. STABILITY AND REACTIVITY

STABILITY:

Stable

DECOMPOSITION PRODUCTS:

Carbon Monoxide, Carbon Dioxide, Chlorinated Dibenzodioxins, dibenzofurans, and other toxic compounds will be released upon combustion of this product.

MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE: This material is incompatible with strong oxidizing agents.

HAZARDOUS POLYMERIZATION:

Will not occur.

CONDITIONS TO AVOID:

Avoid contact with open flame and other sources of extreme high temperatures. Avoid contact with incompatible materials.

11. TOXICOLOGICAL INFORMATION

TOXICITY DATA:

There is currently no toxicological information available on this product or for components greater than 1 percent in concentration.

SUSPECTED CANCER AGENTS:

This product's ingredients are not found on the following lists - Federal OSHA Z List, NTP, Cal/OSHA. Pentachlorophenol is on the IARC Cancer Review as having Human Limited Evidence and Animal Inadequate Evidence.

IRRITANCY OF PRODUCT:

This product is slightly irritating to contaminated tissue.

REPRODUCTIVE TOXICITY INFORMATION

Listed below is information concerning the effects of this product and its components on the human reproductive system.

Mutagenicity:

While no data exists for the product, it is not expected to cause fetal toxicity problems related to mutagenicity. Animal studies show some experimental mutagenic effects for pentachlorophenol at relatively high doses.

Teratogenicity:

While no data exists for the product, it is not expected to cause fetal toxicity problems related to teratogenicity. Animal studies show some experimental teratogenic effects for pentachlorophenol at relatively high doses.

Reproductive Toxicity:

While no data exists for the product, it is not expected to affect the male or female reproductive system or to cause any fetal toxicity problems. Animal studies show some experimental reproductive effects for pentachlorophenol at relatively high doses.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Disorders involving the skin, eyes, liver, or respiratory tract may be aggravated by occupational exposures to dusts of this product.

RECOMMENDATIONS TO PHYSICIANS: Treat symptoms.

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL STABILITY:

This product is treated so it will not decompose. Pentachlorophenol will slowly be released into the environment and will slowly degrade into tetra- and trichlorophenol derivatives and carbon dioxide.

EFFECT OF MATERIAL ON PLANTS AND ANIMALS:

Do not use treated wood under any circumstances where the preservatives may become a component of food or animal feed. Examples of such sites would be structures or containers for storing silage or food.

EFFECT OF MATERIAL ON AQUATIC LIFE:

There is currently no information available on this product's effects on aquatic life; however, it is anticipated that if large enough quantity of product dusts contaminate a water system, exposed aquatic life may experience adverse health effects.

13. DISPOSAL CONSIDERATIONS

PREPARING WASTES FOR DISPOSAL:

Waste disposal must be according to appropriate Federal, State, and local regulations.

EPA WASTE NUMBER:

N / A

14. TRANSPORTATION INFORMATION

This material is not hazardous as defined by 49 CFR 172.101 by the U.S. Department of Transportation.

PROPER SHIPPING NAME: N / A
HAZARD CLASS NUMBER AND DESCRIPTION: N / A
UN IDENTIFICATION NUMBER: N / A
PACKAGING GROUP: N / A
DOT LABEL(S) REQUIRED: N / A
EMERGENCY RESPONSE GUIDE NUMBER: N / A
MARINE POLLUTANT: The treated wood is not defined as a marine pollutant under 49 CFR 172.101, Appendix B.
CTC DANGEROUS GOODS SHIPPING REGULATIONS: N / A

15. REGULATORY INFORMATION**NOTE:**

The regulatory information is provided on this sheet for the pentachlorophenol component contained in the treated wood. Chemical components of the treated wood are fixed into the wood and are not reportable under SARA or CERCLA.

SARA REPORTING REQUIREMENTS: The treated wood is not required to be reported under SARA.
TSCA INVENTORY STATUS: The chemicals in this product are listed on the TSCA inventory.
CERCLA REPORTABLE QUANTITY (RQ): Pentachlorophenol = 10 pounds
STATE REGULATORY INFORMATION: Chemicals in this product are covered under specific state regulations as denoted below.

Alaska - Designated Toxic and Hazardous Substances: Pentachlorophenol
California - Permissible Exposure Limits for Chemical Contaminants: Pentachlorophenol
Florida - Substance List: Pentachlorophenol
Illinois - Toxic Substances List: Pentachlorophenol
Kansas - Section 302/303 List: Pentachlorophenol
Massachusetts - Substance List: Pentachlorophenol
Minnesota - List of Hazardous Substances: Pentachlorophenol
Missouri - Employer Information/Toxic Substances List: Pentachlorophenol
New Jersey - Right to Know Hazardous Substance List: Pentachlorophenol
North Dakota - List of Hazardous Chemicals, Reportable Quantities: Pentachlorophenol
Pennsylvania - Hazardous Substances List: None
Rhode Island - Hazardous Substances List: Pentachlorophenol
Texas - Hazardous Substances List: Pentachlorophenol
West Virginia - Hazardous Substances List: Pentachlorophenol
Wisconsin - Toxic and Hazardous Substances List: Pentachlorophenol

CALIFORNIA PROPOSITION 65: Pentachlorophenol is on the California Proposition 65 list as a chemical known to the State of California to cause cancer.

LABELING (precautionary statements): CAUTION! Dusts of this product can irritate the skin, eyes, nose, throat, and other tissues of the respiratory system. Dusts can also scratch the eyes, and splinters of this product can puncture the skin. Avoid contact with skin and eyes. Avoid breathing dust.

TARGET ORGANS: (For dusts of product) Skin, Eyes, Respiratory System

WHIMS SYMBOL: N / A

16. OTHER INFORMATION

PREPARED BY: Arizona Pacific Wood Preserving, Inc.
P.O. Box 968
Eloy, AZ 85231
520-466-7801

INFORMATION CONTAINED IN THIS MSDS REFERS ONLY TO THE SPECIFIC MATERIAL DESIGNED AND DOES NOT RELATE TO ANY PROCESS OR TO USE WITH OTHER MATERIALS. THIS INFORMATION IS FURNISHED FREE OF CHARGE AND IS BASED ON DATA BELIEVED TO BE RELIABLE AS OF THE DATE HEREOF. IT IS INTENDED FOR THE USE BY THE PERSONS POSSESSING TECHNICAL KNOWLEDGE AT THEIR OWN DISCRETION AND RISK. SINCE ACTUAL USE IS BEYOND OUR CONTROL, NO GUARANTEE, EXPRESSED OR IMPLIED, AND NO LIABILITY IS ASSUMED BY NEVADA WOOD PRESERVING, INC. IN CONJUNCTION WITH THE USE OF THIS INFORMATION. NOTHING HEREIN IS TO BE CONSTRUED AS RECOMMENDATION TO INFRINGE ON ANY PATENTS.

Material Safety Data Sheet

Section 1: PRODUCT AND COMPANY INFORMATION

Product Name(s): Lafarge Masonry and Mortar Cement

Product Identifiers: Cement, Masonry Cement, Mortar Cement, Mortar Mix, Parging Mix, U.S. Cement[®] Custom Color Masonry Cement, Eaglebond[™], Superbond, Types N, S, or M, MCN or MCS Cement, Trinity[®] White, Magnolia[®] Mason's Mix, Magnolia[®] Buff, Dark and Ultra Dark Masonry Cement, and Premium Stucco Mix

Manufacturer:
Lafarge North America Inc.
12018 Sunrise Valley Drive, Suite 500
Reston, VA 20191

Information Telephone Number:
703-480-3600 (9am to 5pm EST)

Emergency Telephone Number:
1-800-451-8346 (3E Hotline)

Product Use: Cement is used as a binder in concrete and mortars that are widely used in construction.

Note: This MSDS covers many types of Masonry and Mortar Cement. Individual composition of hazardous constituents will vary between types of cement.






Section 2: COMPOSITION/INFORMATION ON INGREDIENTS

Component	Percent (By Weight)	CAS Number	OSHA PEL -TWA (mg/m ³)	ACGIH TLV-TWA (mg/m ³)	LD ₅₀ (mouse, intraperitoneal)	LC ₅₀
Portland Cement*	30-75	65997-15-1	15 (T); 5 (R)	1 (R)	NA	NA
Calcium Carbonate*	20-50	1317-65-3	15 (T); 5 (R)	3 (R), 10 (T)	NA	NA
Calcium Hydroxide	0-20	1305-62-0	15 (T)	5 (T)	NA	NA
Crystalline Silica	< 10	14808-60-7	[(10) / (%SiO ₂ +2)] (R); [(30) / (%SiO ₂ +2)] (T)	0.025 (R)	NA	NA
Calcium Sulfate*	5-10	13397-24-5	15 (T); 5 (R)	10 (T)	NA	NA
Magnesium Oxide	0-4	1309-48-4	15 (T)	10 (T)	NA	NA
Calcium Oxide	0-1	1305-78-8	5 (T)	2 (T)	3059 mg/kg	NA

Note: Exposure limits for components noted with an * contain no asbestos and <1% crystalline silica

Cement is made from materials mined from the earth and is processed using energy provided by fuels. Trace amounts of chemicals may be detected during chemical analysis. For example, cement may contain trace amounts magnesium hydroxide, potassium and sodium sulfate compounds, chromium compounds, nickel compounds, and other trace compounds.

Section 3: HAZARD IDENTIFICATION

WARNING			
	Corrosive - Causes severe burns. Toxic - Harmful by inhalation. (Contains crystalline silica)	 Respiratory Protection	 Eye Protection
	Use proper engineering controls, work practices, and personal protective equipment to prevent exposure to wet or dry product. Read MSDS for details.	 Waterproof Gloves	 Waterproof Boots

Section 3: HAZARD IDENTIFICATION (continued)

Emergency Overview: Cement is a solid, grey, buff, or white odorless powder. It is not combustible or explosive. A single, short-term exposure to the dry powder presents little or no hazard. Exposure of sufficient duration to wet cement, or to dry cement on moist areas of the body, can cause serious, potentially irreversible tissue (skin, eye, respiratory tract) damage due to chemical (caustic) burns, including third degree burns.

Potential Health Effects:

Eye Contact: Airborne dust may cause immediate or delayed irritation or inflammation. Eye contact with large amounts of dry powder or with wet cement can cause moderate eye irritation, chemical burns and blindness. Eye exposures require immediate first aid and medical attention to prevent significant damage to the eye.

Skin Contact: Cement may cause dry skin, discomfort, irritation, severe burns, and dermatitis.

Burns: Exposure of sufficient duration to wet cement, or to dry cement on moist areas of the body, can cause serious, potentially irreversible damage to skin, eye, respiratory and digestive tracts due to chemical (caustic) burns, including third degree burns. A skin exposure may be hazardous even if there is no pain or discomfort.

Dermatitis: Cement is capable of causing dermatitis by irritation and allergy. Skin affected by dermatitis may include symptoms such as, redness, itching, rash, scaling, and cracking.

Irritant dermatitis is caused by the physical properties of cement including alkalinity and abrasion.

Allergic contact dermatitis is caused by sensitization to hexavalent chromium (chromate) present in cement. The reaction can range from a mild rash to severe skin ulcers. Persons already sensitized may react to the first contact with cement. Others may develop allergic dermatitis after years of repeated contact with cement.

Inhalation (acute): Breathing dust may cause nose, throat or lung irritation, including choking, depending on the degree of exposure. Inhalation of high levels of dust can cause chemical burns to the nose, throat and lungs.

Inhalation (chronic): Risk of injury depends on duration and level of exposure.

Silicosis: This product contains crystalline silica. Prolonged or repeated inhalation of respirable crystalline silica from this product can cause silicosis, a seriously disabling and fatal lung disease. See Note to Physicians in Section 4 for further information.

Carcinogenicity: Cement is not listed as a carcinogen by IARC or NTP; however, cement contains trace amounts of crystalline silica and hexavalent chromium which are classified by IARC and NTP as known human carcinogens.

Autoimmune Disease: Some studies show that exposure to respirable crystalline silica (without silicosis) or that the disease silicosis may be associated with the increased incidence of several autoimmune disorders such as scleroderma (thickening of the skin), systemic lupus erythematosus, rheumatoid arthritis and diseases affecting the kidneys.

Tuberculosis: Silicosis increases the risk of tuberculosis.

Renal Disease: Some studies show an increased incidence of chronic kidney disease and end-stage renal disease in workers exposed to respirable crystalline silica.

Section 3: HAZARD IDENTIFICATION (continued)

Ingestion: Do not ingest cement. Although ingestion of small quantities of cement is not known to be harmful, large quantities can cause chemical burns in the mouth, throat, stomach, and digestive tract.

Medical Conditions Aggravated by Exposure: Individuals with lung disease (e.g. bronchitis, emphysema, COPD, pulmonary disease) or sensitivity to hexavalent chromium can be aggravated by exposure.

Section 4: FIRST AID MEASURES

Eye Contact: Rinse eyes thoroughly with water for at least 15 minutes, including under lids, to remove all particles. Seek medical attention for abrasions and burns.

Skin Contact: Wash with cool water and a pH neutral soap or a mild skin detergent. Seek medical attention for rash, burns, irritation, dermatitis, and prolonged unprotected exposures to wet cement, cement mixtures or liquids from wet cement.

Inhalation: Move person to fresh air. Seek medical attention for discomfort or if coughing or other symptoms do not subside.

Ingestion: Do not induce vomiting. If conscious, have person drink plenty of water. Seek medical attention or contact poison control center immediately.

Note to Physician: The three types of silicosis include:

- Simple chronic silicosis – which results from long-term exposure (more than 20 years) to low amounts of respirable crystalline silica. Nodules of chronic inflammation and scarring provoked by the respirable crystalline silica form in the lungs and chest lymph nodes. This disease may feature breathlessness and may resemble chronic obstructive pulmonary disease (COPD).
- Accelerated silicosis – occurs after exposure to larger amounts of respirable crystalline silica over a shorter period of time (5-15 years). Inflammation, scarring, and symptoms progress faster in accelerated silicosis than in simple silicosis.
- Acute silicosis – results from short-term exposure to very large amounts of respirable crystalline silica. The lungs become very inflamed and may fill with fluid, causing severe shortness of breath and low blood oxygen levels.

Progressive massive fibrosis may occur in simple or accelerated silicosis, but is more common in the accelerated form. Progressive massive fibrosis results from severe scarring and leads to the destruction of normal lung structures.

Section 5: FIREFIGHTING MEASURES

Flashpoint & Method:	Non-combustible	Firefighting Equipment:	Cement poses no fire-related hazard. A SCBA is recommended to limit exposures to combustion products when fighting any fire.
General Hazard:	Avoid breathing dust. Wet cement is caustic.		
Extinguishing Media:	Use extinguishing media appropriate for surrounding fire.	Combustion Products:	None.

Section 6: ACCIDENTAL RELEASE MEASURES

General: Place spilled material into a container. Avoid actions that cause the cement to become airborne. Avoid inhalation of cement and contact with skin. Wear appropriate protective equipment as described in Section 8. Scrape wet cement and place in container. Allow material to dry or solidify before disposal. Do not wash cement down sewage and drainage systems or into bodies of water (e.g. streams).

Waste Disposal Method: Dispose of cement according to Federal, State, Provincial and Local regulations.

Section 7: HANDLING AND STORAGE

General: Keep bulk and bagged cement dry until used. Stack bagged material in a secure manner to prevent falling. Bagged cement is heavy and poses risks such as sprains and strains to the back, arms, shoulders and legs during lifting and mixing. Handle with care and use appropriate control measures.

Engulfment hazard. To prevent burial or suffocation, do not enter a confined space, such as a silo, bin, bulk truck, or other storage container or vessel that stores or contains cement. Cement can buildup or adhere to the walls of a confined space. The cement can release, collapse or fall unexpectedly.

Properly ground all pneumatic conveyance systems. The potential exists for static build-up and static discharge when moving cement powders through a plastic, non-conductive, or non-grounded pneumatic conveyance system. The static discharge may result in damage to equipment and injury to workers.

Usage: Cutting, crushing or grinding hardened cement, concrete or other crystalline silica-bearing materials will release respirable crystalline silica. Use all appropriate measures of dust control or suppression, and Personal Protective Equipment (PPE) described in Section 8 below.

Housekeeping: Avoid actions that cause the cement to become airborne during clean-up such as dry sweeping or using compressed air. Use HEPA vacuum or thoroughly wet with water to clean-up dust. Use PPE described in Section 8 below.

Storage Temperature: Unlimited. **Storage Pressure:** Unlimited.

Clothing: Promptly remove and launder clothing that is dusty or wet with cement. Thoroughly wash skin after exposure to dust or wet cement.

Section 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

Engineering Controls: Use local exhaust or general dilution ventilation or other suppression methods to maintain dust levels below exposure limits.

Personal Protective Equipment (PPE):

Respiratory Protection: Under ordinary conditions no respiratory protection is required. Wear a NIOSH approved respirator that is properly fitted and is in good condition when exposed to dust above exposure limits.

Eye Protection: Wear ANSI approved glasses or safety goggles when handling dust or wet cement to prevent contact with eyes. Wearing contact lenses when using cement, under dusty conditions, is not recommended.

Skin Protection: Wear gloves, boot covers and protective clothing impervious to water to prevent skin contact. Do not rely on barrier creams, in place of impervious gloves. Remove clothing and protective equipment that becomes saturated with wet cement and immediately wash exposed areas.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Solid (powder).	Evaporation Rate:	NA.
Appearance:	Gray, buff, or white powder.	pH (in water):	12 – 13
Odor:	None.	Boiling Point:	>1000° C
Vapor Pressure:	NA.	Freezing Point:	None, solid.
Vapor Density:	NA.	Viscosity:	None, solid.
Specific Gravity:	2.65 to 3.15	Solubility in Water:	Slightly (0.1 - 1.0%)

Section 10: STABILITY AND REACTIVITY

Stability:	Stable. Keep dry until use. Cement reacts with water, resulting in a slight release of heat, depending on the amount of lime (Calcium oxide) present. Avoid contact with incompatible materials.		
Incompatibility:	Wet cement is alkaline and is incompatible with acids, ammonium salts and aluminum metal. Cement dissolves in hydrofluoric acid, producing corrosive silicon tetrafluoride gas. Cement reacts with water to form silicates and calcium hydroxide. Silicates react with powerful oxidizers such as fluorine, boron trifluoride, chlorine trifluoride, manganese trifluoride, and oxygen difluoride.		
Hazardous Polymerization:	None.	Hazardous Decomposition:	None.

Section 11 and 12: TOXICOLOGICAL AND ECOLOGICAL INFORMATION

For questions regarding toxicological and ecological information refer to contact information in Section 1.

Section 13: DISPOSAL CONSIDERATIONS

Dispose of waste and containers in compliance with applicable Federal, State, Provincial and Local regulations.



Section 14: TRANSPORT INFORMATION

This product is not classified as a Hazardous Material under U.S. DOT or Canadian TDG regulations.

Section 15: REGULATORY INFORMATION

OSHA/MSHA Hazard Communication:	This product is considered by OSHA/MSHA to be a hazardous chemical and should be included in the employer's hazard communication program.
CERCLA/SUPERFUND:	This product is not listed as a CERCLA hazardous substance.
EPCRA SARA Title III:	This product has been reviewed according to the EPA Hazard Categories promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 and is considered a hazardous chemical and a delayed health hazard.
EPCRA SARA Section 313:	This product contains none of the substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.
RCRA:	If discarded in its purchased form, this product would not be a hazardous waste either by listing or characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste.
TSCA:	Masonry and Mortar cement and crystalline silica are exempt from reporting under the inventory update rule.

Section 15: REGULATORY INFORMATION (continued)

California Proposition 65:	Crystalline silica (airborne particulates of respirable size) and Chromium (hexavalent compounds) are substances known by the State of California to cause cancer.
WHMIS/DSL:	Products containing crystalline silica and calcium carbonate are classified as D2A, E and are subject to WHMIS requirements.
 	

Section 16: OTHER INFORMATION

Abbreviations:

>	Greater than	NA	Not Applicable
ACGIH	American Conference of Governmental Industrial Hygienists	NFPA	National Fire Protection Association
CAS No	Chemical Abstract Service number	NIOSH	National Institute for Occupational Safety and Health
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act	NTP	National Toxicology Program
		OSHA	Occupational Safety and Health Administration
CFR	Code for Federal Regulations	PEL	Permissible Exposure Limit
CL	Ceiling Limit	pH	Negative log of hydrogen ion
DOT	U.S. Department of Transportation	PPE	Personal Protective Equipment
EST	Eastern Standard Time	R	Respirable Particulate
HEPA	High-Efficiency Particulate Air	RCRA	Resource Conservation and Recovery Act
HMIS	Hazardous Materials Identification System	SARA	Superfund Amendments and Reauthorization Act
IARC	International Agency for Research on Cancer	T	Total Particulate
		TDG	Transportation of Dangerous Goods
LC ₅₀	Lethal Concentration	TLV	Threshold Limit Value
LD ₅₀	Lethal Dose	TWA	Time Weighted Average (8 hour)
mg/m ³	Milligrams per cubic meter	WHMIS	Workplace Hazardous Materials Information System
MSHA	Mine Safety and Health Administration		

This MSDS (Sections 1-16) was revised on March 1, 2011.

An electronic version of this MSDS is available at: www.lafarge-na.com under the Sustainability section.

Lafarge North America Inc. (LNA) believes the information contained herein is accurate; however, LNA makes no guarantees with respect to such accuracy and assumes no liability in connection with the use of the information contained herein which is not intended to be and should not be construed as legal advice or as insuring compliance with any federal, state or local laws or regulations. Any party using this product should review all such laws, rules, or regulations prior to use, including but not limited to US and Canada Federal, Provincial and State regulations.

NO WARRANTY IS MADE, EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR OTHERWISE.

**NORCHEM, INC.**www.norchem.com

985 Seaway Drive, Suite A • Ft. Pierce, Florida 34949-2744

Tel (772) 468-6110 • Fax (772) 468-8702

P.O. Box 5537 • Hauppauge, New York 11788-0132

Tel (631) 724-8639 • Fax (631) 724-8645

MATERIAL SAFETY DATA SHEET***Norchem Silica Fume (Dry Powder-S)*****SECTION I - PRODUCT INFORMATION**

Product Name:	Silica Fume, Amorphous	CAS No.	69012-64-2
Manufacturer:	Norchem, Inc. 985 Seaway Drive, Suite A Fort Pierce, Florida 34949		Globe Metallurgical, Inc. P.O. Box 157, County Rd. 32 Beverly, Ohio 45715
Telephone:	772-468-6110		740-984-2361

EMERGENCY TELEPHONE: CHEMTREC 1-800-424-9300**Synonyms:** Amorphous Silica, Silicon Dioxide, Microsilica, Corrochem, Micropoz.**SECTION II - INGREDIENT INFORMATION & EXPOSURE LIMITS**

COMPONENTS:	CAS Registry #	Wt. %	OSHA-PEL	ACGIH-TLV
Silicon Dioxide (SiO ₂) – Amorphous	69012-64-2	> 85.0 ¹	N. E.	TLV-withdrawn
Silicon Dioxide (SiO ₂) – Amorphous	69012-64-2	< 85.0 ²	N. E.	TLV-withdrawn
Silicon Dioxide (SiO ₂) - Crystalline	14808-60-7	< 0.05	$\frac{10 \text{ mg/m}^3}{\% \text{ SiO}_2 + 2}$ **	0.025 mg/m ^a

^a Measured as respirable fraction of the aerosol.¹ Silica Fume produced from silicon metal alloys.² Silica Fume produced from ferro silicon metal alloys.

**Respirable Dust

N.E. Not Established

Other Constituent Materials³:

COMPONENTS:	CAS Registry #	Wt. %
Carbon (C)	7440-44-0	< 6
Iron Oxide (Fe ₂ O ₃)	1309-37-1	< 2
Aluminum Oxide (Al ₂ O ₃)	1344-28-1	< 2
Sodium Oxide (Na ₂ O)	1313-59-3	< 2
Potassium Oxide (K ₂ O)	12136-45-7	< 2
Magnesium Oxide (MgO)	1309-48-4	< 2
Calcium Oxide (CaO)	1305-78-8	< 2

³ Manufacturer can provide a detailed elemental analysis including other trace elements. The (wt %) values will change if silica fume is from ferro silicon production.

MATERIAL SAFETY DATA SHEET

Norchem Silica Fume (Dry Powder-S)

SECTION III - PHYSICAL DATA

Physical State:	Amorphous sub-micron powder – dust has a tendency to agglomerate		
Color:	Light gray to medium gray	Odor:	None
Melting Point:	1200°C - 1300°C*	Specific Gravity:	2.2 – 2.50
pH:	6.0 to 9.0		Water = 1.0
Solubility in Water:	Insoluble	Particle Size:	Approx. 0.4 µm
Bulk Density:	Approx. 8 to 45 lb/ft ³ or 128-720 kg/m ³		
Solubility Solvents:	Insoluble to slightly soluble in organic solvents		

*The melting point temperature is dependent on the type of amorphous silica as well as the source.

SECTION IV – STABILITY AND REACTIVITY DATA

Chemical Stability:	Stable will not react with water.
Incompatibility:	Silica fume is soluble in hydrofluoric acid (HF).
Decomposition:	Heating at temperatures above 500°C (930°F) for prolonged time periods will convert amorphous silica to crystalline phases.

SECTION V - FIRE AND EXPLOSION HAZARD DATA

Silica Fume is non-combustible even when in a dust cloud and presents no danger of explosion.				
Flash Point:	N/A	Method Used:	N/A	
Extinguishing Media:	N/A	Explosion Potential:	None	
Special Fire Fighting Procedures:	None	Flammable Limits:	None	

SECTION VI – HEALTH HAZARD IDENTIFICATION DATA

Silica Fume is generally considered a nuisance dust of low toxicity. Use and handling of Silica Fume does not represent a health risk when normal safety rules are observed. Silica Fume when handled and stored in accordance with this document is unlikely to cause harmful effects. It is possible for Silica Fume to contain trace amounts (<0.05%) of crystalline silica, which has been shown to cause silicosis, and has been identified by IARC and NTP as a possible human carcinogen.

Route(s) of Entry:	Inhalation:	Yes	Skin:	No	Ingestion:	N/A	Eyes:	Yes
Acute and Chronic Toxicity:								
Inhalation:	May cause coughing and shortness of breathe.							
Ingestion:	Not recommended. No known adverse effects.							
Eye:	May irritate eyes.							
Skin:	Not absorbed through skin. Prolonged skin exposure may cause irritation, drying or abrasions, especially when wet.							

MATERIAL SAFETY DATA SHEET

Norchem Silica Fume (Dry Powder-S)

SECTION VII – FIRST AID MEASURES

Inhalation:	If inhaled to excess remove exposed person to a ventilated area or fresh air.
Skin Contact:	Wash skin with water and mild soap.
Ingestion:	Obtain first aid or medical assistance immediately.
Eye Contact:	Flush eyes with water and carefully rinse under the eyelids. Obtain medical assistance, if needed.

SECTION VIII – SAFE HANDLING AND STORAGE

Normal Storage:	General storage, best in closed containers, ambient air temperature, keep dry.
Handling Precautions:	Avoid generating dust. Handle with adequate ventilation for dust. See OSHA 29 CFR 1910-94 (Ventilation)

SECTION IX – EXPOSURE CONTROL & PERSONAL PROTECTION

Engineering Control:	Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposures below PELs or TLVs in processing areas.
Respiratory Protection:	Use 42 CFR 84 NIOSH/MSHA approved respirators when airborne concentrations equal or exceed the Permissible Exposure Limit.
Skin Protection:	Gloves are recommended.
Eye Protection:	Use safety glasses with side shields. If the potential for exposure to particles (airborne dust) which could cause mechanical injury to the eye wear safety goggles.

SECTION X – TOXICOLOGICAL INFORMATION

A. Acute Effects: No data available

Inhalation:	Airborne Silica Fume dust generated by the use or handling of this product may result in respiratory irritation.
Ingestion:	Silica Fume dust may irritate and dehydrate throat and mouth.
Eye Contact:	Silica Fume dust may cause eye irritation and dryness.
Skin Contact:	Silica Fume dust may cause exposed skin irritation and dryness.

B. Chronic Effects:

Silica Fume is generally considered a nuisance dust of low toxicity consequently it is considered to pose minimal risk of pulmonary fibrosis (silicosis). Avoid prolonged exposure to silica fume dust concentrations above the recommended exposure limits, unless the protective equipment is used.

It is possible for Silica Fume to contain trace amounts (<0.05%) of crystalline silica, which has been shown to cause silicosis, and has been identified by IARC and NTP as a possible human carcinogen.

MATERIAL SAFETY DATA SHEET

Norchem Silica Fume (Dry Powder-S)

SECTION X – TOXICOLOGICAL INFORMATION (Con't.)

B. Chronic Effects (Con't.):

Heating Silica Fume at temperatures above 500°C (930°F) for prolonged time periods will convert amorphous silica to the crystalline phases Cristobalite and Tridymite that may cause silicosis. Increased temperatures will increase the formation rate of these phases.

SECTION XI – ECOLOGICAL INFORMATION

No adverse effects are expected. Silica Fume is not considered dangerous to the environment.

SECTION XII – ACCIDENTAL RELEASE & DISPOSAL CONSIDERATIONS

If Spilled:	Collect using methods that minimize creation of airborne dust. High efficiency vacuum cleaning is recommended to recover spilled material. Place in suitable container for recycling or disposal.
Personal Safety:	Observe health and safety precautions. Refer to Section IX.
Waste Disposal:	Dispose of in accordance with applicable Federal, State and Local regulations.

SECTION XIII – TRANSPORTATION INFORMATION

USDOT:	Not regulated as a hazardous material.
Identification:	N/A
Classification:	National Motor Freight Classification (NMFC): 50

SECTION XIV – REGULATORY INFORMATION

SARA 311/312 (RTK):	
This product has been reviewed according to the EPA “Hazard Categories” promulgated under Sections 311 and 312 of the Superfund Amendments and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:	
Not Applicable	
SARA 313:	
This product contains the following substance subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and CFR Part 372:	
This product contains no chemicals subject to the SARA 313 supplier notification requirements.	

MATERIAL SAFETY DATA SHEET

Norchem Silica Fume (Dry Powder-S)

SECTION XIV – REGULATORY INFORMATION (Con't.)

CERCLA:	
CERCLA section 103a specifically requires the person in charge of a vessel or facility to report immediately to the National Response Center (NRC) a release of hazardous substance whose amount equals or exceeds the assigned RQ.	
No CERCLA chemicals exist in this product above reportable concentrations.	
TSCA Section 12(b) Export Notification:	
This product contains the following chemical substances subject to the reporting requirements of TSCA 12(b) if exported from the United States.	
There are no TSCA 12(b) Chemicals in this product.	
California Proposition 65:	
This product may contain (crystalline silica) a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.	
It is possible for Silica Fume to contain trace amounts < 0.05% of crystalline silica.	
HAZARD RATING SYSTEM:	
Hazardous Material Identification System (HMIS)	
HEALTH =	1
FLAMMABILITY =	0
REACTIVITY =	0
PERSONAL PROTECTION =	E – (see section IX)

SECTION XV – ADDITIONAL INFORMATION

All information, recommendations, and suggestions in this MSDS, concerning our products are based on tests and data believed to be reliable, it cannot be guaranteed. Since the actual use by others is beyond our control it is the user's responsibility to determine the safety, toxicity and suitability for their own use of the product described herein.



Material Safety Data Sheet For Masonry Cement

Section I - Identity

Manufacturer's name and address: Ash Grove Cement Company 11011 Cody Overland Park, KS 66210

Emergency Telephone Number: (913) 451-8900

Chemical Name and Synonyms: Masonry Cement

Trade Name and Synonyms: Masonry Cement, Masonry Cement Type N, Masonry Cement Type N White, Masonry Cement Type S

Revision Date: May 2009 (This revision supercedes all previous versions)

Chemical Family: Calcium Salts

Formula: Masonry cement consists of finely ground portland cement clinker mixed with a small amount of calcium sulfate (gypsum) to control set. No specific formula applies to masonry cement.

Section II - Hazardous Ingredients

Ingredients: Substances similar to the following are known to be present in masonry cement:

3CaO.SiO ₂	(CAS # 12168-85-3)
2CaO.SiO ₂	(CAS # 10034-77-2)
3CaO.Al ₂ O ₃	(CAS # 12042-78-3)
4CaO.Al ₂ O ₃ .Fe ₂ O ₃	(CAS # 12068-35-8)
CaSO ₄ .XH ₂ O	(CAS # 13397-24-5)
Calcium Carbonate	(CAS # 1317-65-3)

Small amounts of CaO, MgO, K₂SO₄, Na₂SO₄ may also be present.

Hazardous Components(s):

Substance	CAS Number	OSHA PEL	ACGIH TLV-TWA	MSHA Exposure Limits
Portland Cement – total dust	65997-15-1	15 mg/m ³	10 mg/m ³ (1986) *	10 mg/m ³
Portland Cement - respirable dust	65997-15-1	5 mg/m ³	Not Applicable	Not Applicable
Calcium Carbonate	1317-65-3	15 mg/m ³	10 mg/m ³	10 mg/m ³
Quartz	14808-60-7	10 mg/m ³ (% silica + 2)	0.025 mg/m ³ (respirable fraction)	10 mg/m ³ (% silica + 2)

Note: Masonry Cement contains greater than 0.1% of quartz crystalline silica.

* Applicable if <1% crystalline silica is present.

Section III - Physical Data

Boiling Point: Not applicable.

Vapor Pressure: Not applicable.

Vapor Density: Not applicable.

Solubility in Water: Slight (0.1-1.0%)

pH (in water) (ASTM D 1293-95): 12 - 13

Specific Gravity: (H₂O=1) 2.8 – 3.0

Evaporation Rate: Not applicable.

Appearance and Odor: Gray powder; no odor.

Melting Point: Not applicable

Section IV - Fire and Explosion Hazard Data

Flash Point: Masonry cement is noncombustible and not explosive.

Flammable or Explosive Limits: Not applicable.

Extinguishing Media: Not applicable

Special Firefighting Procedures: Not applicable. (Although masonry cement poses no fire-related hazards, a self-contained breathing apparatus is recommended to limit exposure to combustion products when fighting any fire.)

Unusual Fire and Explosion Hazards: Not applicable.

Lower Explosive Limit: Not applicable.

Upper Explosive Limit: Not applicable.

Section V - Health Hazard Data

Acute Effects: Wet cement on unprotected skin, whether direct or through saturated clothing, can cause severe, third degree caustic burns. **NOTE: Masonry cement burns skin with little warning; discomfort or pain cannot be relied upon to alert a person to a hazardous skin exposure. The severity of the burn may not be detected until several hours after the damage begins.** Dry masonry cement can produce mild irritation to severe burns of the eye; it can irritate the upper respiratory system.

Chronic Effects: Dry masonry cement can cause inflammation of the lining of the nose and the cornea. Repeated exposure to masonry cement may result in drying of the skin and may lead to thickening, cracking, or fissuring of the skin. Hypersensitive individuals may develop an allergic dermatitis (possibly due to trace amounts of hexavalent chromium at less than 0.005%). This reaction may appear in several forms including a mild rash to severe skin ulcers. Persons already sensitized may react to their first contact with the product. Other persons may experience this effect after years of exposure to masonry cement products.

Exposure to respirable crystalline silica without the use of a respirator can cause silicosis and may aggravate other lung conditions.

Signs and Symptoms of Exposure: Burning sensation around moist tissue areas (i.e., eyes, nose, upper respiratory system); painful burning on exposed skin that can develop with little warning. **Exposure of sufficient duration to wet masonry cement can cause serious, potentially irreversible tissue (skin or eye) destruction in the form of chemical (caustic) burns, including third degree burns.** The same kind of destruction can occur if wet or moist areas of the body are exposed for sufficient duration to dry masonry cement. **DO NOT ALLOW WET MASONRY CEMENT TO GET INSIDE BOOTS, SHOES, OR GLOVES AND DO NOT ALLOW WET, SATURATED CLOTHING TO REMAIN AGAINST THE SKIN.**

Medical Conditions Generally Aggravated by Exposure: Pre-existing skin conditions may be worsened. Silicosis may aggravate other chronic pulmonary conditions and may increase the risk of pulmonary tuberculosis infection.

Chemical Listed as Carcinogenic or Potential Carcinogen: Masonry cements are not considered carcinogenic.

However, the International Agency for Research on Cancer (IARC) has determined, primarily through animal studies, that silica is a known human carcinogen. The National Toxicology Program (NTP) has characterized respirable quartz silica as reasonably anticipated to be a carcinogen. OSHA does not regulate silica as a carcinogen.

Emergency and First Aid Procedures: Irrigate eyes immediately and repeatedly with large amount of clean water for at least 15 minutes and get prompt medical attention. Wash exposed skin areas with pH-neutral soap and clean water. Apply sterile dressings; seek medical treatment in all cases of prolonged exposure to wet masonry cement, masonry cement mixtures, liquids from fresh masonry cement products, or prolonged wet skin exposure to dry masonry cement. If ingested, consult a physician immediately. Do not induce vomiting. If conscious, have the victim drink plenty of water and call a physician immediately. In the event of inhalation, remove to fresh air. Seek medical attention if coughing and other symptoms do not subside. Inhalation of gross amounts of masonry cement requires immediate medical attention.

Section VII-Reactivity Data

Stability: Product is stable. Keep dry until used.

Incompatibility: Aluminum powder and other alkali and alkaline earth elements will react in wet mortar, liberating hydrogen gas. Masonry cement is highly alkaline and will react with acids to produce a violent, heat-generating reaction. Toxic gases or vapors may be given off depending on the acid involved.

Hazardous Decomposition Products: None

Hazardous Polymerization: Will not occur.

Section VII - Spill Procedures

Steps to be taken in case material is spilled: Use dry cleanup methods that do not disperse the dust into the air. Avoid breathing the dust. Emergency procedures are not required.

Disposal Method: Small amounts of material can be returned to the container for later use if it is not contaminated. Dispose of waste material in accordance with Federal, State and local requirements. Masonry cement is not a hazardous waste as defined by the Resource Conservation and Recovery Act (40 CFR 261).

Section VIII - Special Protection Information

Respiratory Protection: Avoid actions that cause dust to become airborne. Use local or general ventilation to control exposures below applicable exposure limits.

Use NIOSH/MSHA-approved (under 30 CFR 11) or NIOSH-approved (under 42 CFR 84) respirators in poorly ventilated areas, if an applicable exposure limit is exceeded, or when dust causes discomfort or irritation. (Advisory: Respirators and filters purchased after July 10, 1998 must be certified under 42 CFR 84.)

Ventilation: Local exhaust can be used to control airborne dust levels.

Eye Protection: When engaged in activities where masonry cement dust or wet masonry cement could contact the eye, wear goggles or safety glasses with sideshields. In extremely dusty environments and unpredictable environments, wear unvented or indirectly vented goggles to avoid eye irritation or injury. Contact lenses should not be worn when working with masonry cement or wet masonry cement products.

Skin Protection: Prevention is essential to avoiding potentially severe skin injury. Avoid contact with unhardened (wet) masonry cement products. If contact occurs, promptly wash affected area with soap and water. **DO NOT ALLOW WET MASONRY CEMENT TO GET INSIDE BOOTS, SHOES, OR GLOVES AND DO NOT ALLOW WET, SATURATED CLOTHING TO REMAIN AGAINST THE SKIN.**

Do not rely on barrier creams; barrier creams should not be used in place of gloves. Use impervious, abrasion- and alkali-resistant gloves, boots and protective clothing to protect the skin from prolonged contact with wet masonry cement in plastic mortar or slurries.

Work/Hygienic Practices: Periodically wash areas contacted by dry masonry cement or by wet masonry cement fluids with a pH neutral soap and clean, uncontaminated water. Wash again at the end of the work. If irritation occurs, immediately wash the affected area and seek treatment. If clothing becomes saturated with wet masonry cement, it should be removed and replaced with clean dry clothing. Follow listed precautions as appropriate during repair or maintenance work on contaminated equipment.

Section IX – Transportation Information

Hazardous materials/proper shipping name description:

Masonry cement is not hazardous under U.S. Department of Transportation (DOT) regulations.

Hazard class:

Not applicable

Identification number:

Not applicable

Required label text:

Not applicable

Hazardous substances / reportable quantities (RQ)

Not applicable

Section X – Other Regulatory Information

Status under USDOL-OSHA Hazard Communication Standard (29 CFR 1910.1200)

Masonry cement is considered a “hazardous chemical” under this regulation and should be a part of any Hazard Communication Program.

Status under CERCLA / Superfund 40 CFR 117 and 302

Not listed.

Status under SARA (Title III), Sections 311 and 312

The portland cement component of masonry cement qualifies as a “hazardous substance” with delayed health effects.

Status under SARA (Title III), Section 313

This product may contain constituents listed under SARA (Title III) Section 313, but not in amounts requiring supplier notification under 40 CFR Part 372 Subpart C.

Status under TSCA (as of May 1997)

The portland cement component of masonry cement and some of the substances in masonry cement are on the TSCA inventory list.

Status under the Federal Hazardous Substances Act

The portland cement component of masonry cement is a “hazardous substance” subject to statutes promulgated under the subject act.

Status under California Proposition 65

This product contains crystalline silica and chemicals (trace metals) known to the State of California to cause cancer, birth defects or other reproductive harm. California law requires the above warning in the absence of definitive testing to prove the defined risks do not exist.

Status under the Canadian Environmental Protection Act

Not listed.

Status under WHMIS

The portland cement component of masonry cement is considered to be a hazardous material under the Hazardous Products Act as defined by the Controlled Products Regulations (Class E – Corrosive Material) and is therefore subject to the labeling and MSDS requirements of the Workplace Hazardous Materials Information System (WHMIS).

Other Important Information

Masonry cement should only be used by knowledgeable persons. A key to using the product safely requires the user to recognize that masonry cement reacts with water, and that some of the intermediate products of this reaction (that is, those present while masonry cement is “setting”) pose a far more severe hazard than does masonry cement itself.

While the information provided in this material safety data sheet is thought to provide a useful summary of the hazards of masonry cement as it is commonly used, the sheet cannot anticipate and provide all the information that might be needed in every situation. Inexperienced product users should obtain training before using this product.

In particular, the data provided in this sheet do not address hazards that may be posed by other materials that may be added to masonry cement to produce masonry cement products. Users should review other relevant material safety data sheets before working with this masonry cement or on masonry cement products.

SELLER MAKES NO WARRANTY, EXPRESS OR IMPLIED, CONCERNING THE PRODUCT OR THE MERCHANTABILITY OR FITNESS THEREOF FOR ANY PURPOSE OR CONCERNING THE ACCURACY OF ANY INFORMATION PROVIDED BY ASH GROVE CEMENT COMPANY,

except that the product shall conform to contracted specifications. The information provided herein was believed by Ash Grove Cement Company to be accurate at the time of preparation or prepared by sources by believed to be reliable, but it is the responsibility of the user to investigate and understand other pertinent sources of information to comply with all laws and procedures applicable to the safe use and handling of product and to determine the suitability of the product for its intended use.

This product neither contains nor is directly manufactured with any controlled ozone depleting substances, Class I and II.



Material Safety Data Sheet For Portland Cement

Section I - Identity

Manufacturer's name and address: Ash Grove Cement Company 11011 Cody Overland Park, KS 66210

Emergency Telephone Number: (913) 451-8900

Chemical Name and Synonyms: Portland Cement (CAS #65997-15-1)

Trade Name and Synonyms: Type I, IA, II, III, V

Revision Date: March 2010 (This revision supercedes all previous versions)

Chemical Family: Calcium Salts

Formula: Portland cement consists of finely ground portland cement clinker mixed with a small amount of calcium sulfate (gypsum) to control set. No specific formula applies to portland cement.

Section II - Hazardous Ingredients

Ingredients: Substances similar to the following are known to be present in portland cement:

3CaO.SiO ₂	(CAS # 12168-85-3)
2CaO.SiO ₂	(CAS # 10034-77-2)
3CaO.Al ₂ O ₃	(CAS # 12042-78-3)
4CaO.Al ₂ O ₃ .Fe ₂ O ₃	(CAS # 12068-35-8)
CaSO ₄ .XH ₂ O	(CAS # 13397-24-5)

Small amounts of CaO, MgO, K₂SO₄, Na₂SO₄ may also be present.

Hazardous Components(s):

Substance	CAS Number	OSHA PEL	ACGIH TLV-TWA	MSHA Exposure Limits
Portland Cement – total dust	65997-15-1	15 mg/m ³	1 mg/m ³ (2010) * (Respirable Dust)	10 mg/m ³
Portland Cement - respirable dust	65997-15-1	5 mg/m ³	Not Applicable	Not Applicable
Quartz	14808-60-7	<u>10 mg/m³</u> (% silica + 2)	0.025 mg/m ³ (2006) (respirable fraction)	<u>10 mg/m³</u> (% silica + 2)

Note: Some portland cements may contain small amounts of crystalline silica (slightly more than 0.1%).

* Applicable if <1% crystalline silica is present.

Section III - Physical Data

Boiling Point: Not applicable.

Vapor Pressure: Not applicable.

Vapor Density: Not applicable.

Solubility in Water: Slight (0.1-1.0%)

pH (in water) (ASTM D 1293-95): 12 - 13

Specific Gravity: (H₂O=1) 2.9 - 3.1

Evaporation Rate: Not applicable.

Appearance and Odor: Gray powder; no odor.

Melting Point: Not applicable

Section IV - Fire and Explosion Hazard Data

Flash Point: Portland cement is noncombustible and not explosive.

Flammable or Explosive Limits: Not applicable.

Extinguishing Media: Not applicable

Special Firefighting Procedures: Not applicable. (Although portland cement poses no fire-related hazards, a self-contained breathing apparatus is recommended to limit exposure to combustion products when fighting any fire.)

Unusual Fire and Explosion Hazards: Not applicable.

Lower Explosive Limit: Not applicable.

Upper Explosive Limit: Not applicable.

Section V - Health Hazard Data

Acute Effects: Wet cement on unprotected skin, whether direct or through saturated clothing, can cause severe, third degree caustic burns. **NOTE: Portland cement burns skin with little warning; discomfort or pain cannot be relied upon to alert a person to a hazardous skin exposure. The severity of the burn may not be detected until several hours after the damage begins.** Dry portland cement can produce mild irritation to severe burns of the eye; it can irritate the upper respiratory system.

Chronic Effects: Dry portland cement can cause inflammation of the lining of the nose and the cornea. Repeated exposure to portland cement may result in drying of the skin and may lead to thickening, cracking, or fissuring of the skin. Hypersensitive individuals may develop an allergic dermatitis (possibly due to trace amounts of hexavalent chromium at less than 0.005%). This reaction may appear in several forms including a mild rash to severe skin ulcers. Persons already sensitized may react to their first contact with the product. Other persons may experience this effect after years of exposure to portland cement products.

While portland cement typically has less than 0.2% crystalline silica, other additives to portland cement and those components (e.g. aggregates) added to produce portland cement concrete may significantly increase the amount of crystalline silica that is present. Exposure to respirable crystalline silica without the use of a respirator can cause silicosis and may aggravate other lung conditions.

Signs and Symptoms of Exposure: Burning sensation around moist tissue areas (i.e., eyes, nose, upper respiratory system); painful burning on exposed skin that can develop with little warning. **Exposure of sufficient duration to wet portland cement can cause serious, potentially irreversible tissue (skin or eye) destruction in the form of chemical (caustic) burns, including third degree burns.** The same kind of destruction can occur if wet or moist areas of the body are exposed for sufficient duration to dry portland cement. **DO NOT ALLOW WET PORTLAND CEMENT TO GET INSIDE BOOTS, SHOES, OR GLOVES AND DO NOT ALLOW WET, SATURATED CLOTHING TO REMAIN AGAINST THE SKIN.**

Medical Conditions Generally Aggravated by Exposure: Pre-existing skin conditions may be worsened. Silicosis may aggravate other chronic pulmonary conditions and may increase the risk of pulmonary tuberculosis infection.

Chemical Listed as Carcinogenic or Potential Carcinogen: Portland cements are not considered carcinogenic.

However, the International Agency for Research on Cancer (IARC) has determined, primarily through animal studies, that silica is a known human carcinogen. The National Toxicology Program (NTP) has characterized respirable quartz silica as reasonably anticipated to be a carcinogen. OSHA does not regulate silica as a carcinogen.

Emergency and First Aid Procedures: Irrigate eyes immediately and repeatedly with large amount of clean water for at least 15 minutes and get prompt medical attention. Wash exposed skin areas with pH-neutral soap and clean water. Apply sterile dressings; seek medical treatment in all cases of prolonged exposure to wet portland cement, portland cement mixtures, liquids from fresh portland cement products, or prolonged wet skin exposure to dry portland cement. If ingested, consult a physician immediately. Do not induce vomiting. If conscious, have the victim drink plenty of water and call a physician immediately. In the event of inhalation, remove to fresh air. Seek medical attention if coughing and other symptoms do not subside. Inhalation of gross amounts of portland cement requires immediate medical attention.

Section VII-Reactivity Data

Stability: Product is stable. Keep dry until used.

Incompatibility: Aluminum powder and other alkali and alkaline earth elements will react in wet mortar or concrete, liberating hydrogen gas. Portland cement is highly alkaline and will react with acids to produce a violent, heat-generating reaction. Toxic gases or vapors may be given off depending on the acid involved.

Hazardous Decomposition Products: None

Hazardous Polymerization: Will not occur.

Section VII - Spill Procedures

Steps to be taken in case material is spilled: Use dry cleanup methods that do not disperse the dust into the air. Avoid breathing the dust. Emergency procedures are not required.

Disposal Method: Small amounts of material can be returned to the container for later use if it is not contaminated. Dispose of waste material in accordance with Federal, State and local requirements. Portland cement is not a hazardous waste as defined by the Resource Conservation and Recovery Act (40 CFR 261).

Section VIII - Special Protection Information

Respiratory Protection: Avoid actions that cause dust to become airborne. Use local or general ventilation to control exposures below applicable exposure limits.

Use NIOSH/MSHA-approved (under 30 CFR 11) or NIOSH-approved (under 42 CFR 84) respirators in poorly ventilated areas, if an applicable exposure limit is exceeded, or when dust causes discomfort or irritation. (Advisory: Respirators and filters purchased after July 10, 1998 must be certified under 42 CFR 84.)

Ventilation: Local exhaust can be used to control airborne dust levels.

Eye Protection: When engaged in activities where portland cement dust or wet portland cement or concrete could contact the eye, wear goggles or safety glasses with sideshields. In extremely dusty environments and unpredictable environments, wear unvented or indirectly vented goggles to avoid eye irritation or injury. Contact lenses should not be worn when working with portland cement or wet portland cement products.

Skin Protection: Prevention is essential to avoiding potentially severe skin injury. Avoid contact with unhardened (wet) portland cement products. If contact occurs, promptly wash affected area with soap and water. **DO NOT ALLOW WET PORTLAND CEMENT TO GET INSIDE BOOTS, SHOES, OR GLOVES AND DO NOT ALLOW WET, SATURATED CLOTHING TO REMAIN AGAINST THE SKIN.**

Do not rely on barrier creams; barrier creams should not be used in place of gloves. Use impervious, abrasion- and alkali-resistant gloves, boots and protective clothing to protect the skin from prolonged contact with wet portland cement in plastic concrete, mortar or slurries.

Work/Hygienic Practices: Periodically wash areas contacted by dry portland cement or by wet portland cement or concrete fluids with a pH neutral soap and clean, uncontaminated water. Wash again at the end of the work. If irritation occurs, immediately wash the affected area and seek treatment. If clothing becomes saturated with wet portland cement or concrete, it should be removed and replaced with clean dry clothing. Follow listed precautions as appropriate during repair or maintenance work on contaminated equipment.

Section IX – Transportation Information

Hazardous materials/proper shipping name description:

Portland cement is not hazardous under U.S. Department of Transportation (DOT) regulations.

Hazard class:

Not applicable

Identification number:

Not applicable

Required label text:

Not applicable

Hazardous substances / reportable quantities (RQ)

Not applicable

Section X – Other Regulatory Information

Status under USDOL-OSHA Hazard Communication Standard (29 CFR 1910.1200)

Portland cement is considered a “hazardous chemical” under this regulation and should be a part of any Hazard Communication Program.

Status under CERCLA / Superfund 40 CFR 117 and 302

Not listed.

Status under SARA (Title III), Sections 311 and 312

Portland cement qualifies as a “hazardous substance” with delayed health effects.

Status under SARA (Title III), Section 313

This product may contain constituents listed under SARA (Title III) Section 313, but not in amounts requiring supplier notification under 40 CFR Part 372 Subpart C.

Status under TSCA (as of May 1997)

Portland cement and some of the substances in portland cement are on the TSCA inventory list.

Status under the Federal Hazardous Substances Act

Portland cement is a “hazardous substance” subject to statutes promulgated under the subject act.

Status under California Proposition 65

This product contains crystalline silica and chemicals (trace metals) known to the State of California to cause cancer, birth defects or other reproductive harm. California law requires the above warning in the absence of definitive testing to prove the defined risks do not exist.

Status under the Canadian Environmental Protection Act

Not listed.

Status under WHMIS

Portland cement is considered to be a hazardous material under the Hazardous Products Act as defined by the Controlled Products Regulations (Class E – Corrosive Material) and is therefore subject to the labeling and MSDS requirements of the Workplace Hazardous Materials Information System (WHMIS).

Other Important Information

Portland cement should only be used by knowledgeable persons. A key to using the product safely requires the user to recognize that portland cement reacts with water, and that some of the intermediate products of this reaction (that is, those present while portland cement is “setting”) pose a far more severe hazard than does portland cement itself.

While the information provided in this material safety data sheet is thought to provide a useful summary of the hazards of portland cement as it is commonly used, the sheet cannot anticipate and provide all the information that might be needed in every situation. Inexperienced product users should obtain training before using this product.

In particular, the data provided in this sheet do not address hazards that may be posed by other materials that may be added to portland cement to produce portland cement products. Users should review other relevant material safety data sheets before working with this portland cement or on portland cement products, for example portland cement concrete.

SELLER MAKES NO WARRANTY, EXPRESS OR IMPLIED, CONCERNING THE PRODUCT OR THE MERCHANTABILITY OR FITNESS THEREOF FOR ANY PURPOSE OR CONCERNING THE ACCURACY OF ANY INFORMATION PROVIDED BY ASH GROVE CEMENT COMPANY, except that the product shall conform to contracted specifications. The information provided herein was believed by Ash Grove Cement Company to be accurate at the time of preparation or prepared by sources by believed to be reliable, but it is the responsibility of the user to investigate and understand other pertinent sources of information to comply with all laws and procedures applicable to the safe use and handling of product and to determine the suitability of the product for its intended use.

This product neither contains nor is directly manufactured with any controlled ozone depleting substances, Class I and II.

Material Safety Data Sheet

(Natural Sand or Gravel)

1. IDENTIFICATION

Chemical Name:	Natural Sand or Gravel	Chemical Formula:	N/A
Trade Name:	Sand or Gravel	Molecular Weight:	N/A
Synonyms:	Construction Aggregate	DOT Identification No:	None

2. PRODUCT AND COMPONENT DATA

Component(s) Chemical Name	CAS Registry No.	% (Approx)	Exposure Limits
Natural Sand* or Gravel*	None	100	See section 6
*Composition varies naturally – typically contains quartz (crystalline silica).	14808-60-7	>1	

3. PHYSICAL DATA

Appearance and odor: Angular or round multicolored particles. No odor.

Specific Gravity: 2.55 – 2.80

Boiling point (At 1 Atm.): N/A

Vapor Density in Air (Air = 1): N/A

Vapor Pressure (mmHg @ 20°C): 0

% Volatile, By Volume: 0%

Evaporation Rate (at 1Atm, and 25°C; n-butyl acetate = 1): 0

Solubility in Water: Negligible

4. REACTIVITY DATA

Stability: Stable

Conditions to Avoid: Avoid contact with incompatible materials (see below).

Incompatibility (materials to avoid): Contact with powerful oxidizing agents such as fluorine, boron trifluoride, chlorine trifluoride, manganese trifluoride, and oxygen difluoride may cause fire and/or explosion. Silica dissolves readily in hydrofluoric acid producing a corrosive gas – silicon tetrafluoride.

Hazardous Decomposition Products: Silica-containing respirable dust particles may be generated by handling.

Hazardous Polymerization: Not known to polymerize

5. FIRE AND EXPLOSION HAZARD DATA

Flashpoint (Method used): Not flammable

Flammable Limits in Air: Not Flammable

Extinguishing Agents: None required

Unusual Fire and Explosion Hazards: Contact with powerful oxidizing agents may cause fire and/or explosions (see section 4 of this MSDS).

6. TOXICITY AND FIRST AID

EXPOSURE LIMITS (When exposure to this product and other chemicals is concurrent, the exposure limit must be defined in the workplace.)

Unless specified otherwise, limits are expressed as eight-hour time-weighted averages (TWA). Limits for cristobalite and tridymite (other forms of crystalline silica) are equal to one-half of the limits for quartz.

ABBREVIATIONS: TLV = threshold limit value of the American Conference of Governmental Industrial Hygienists (ACGIH); MSHA PEL = permissible exposure limit of the Mine Safety and Health Administration (MSHA); OSHA PEL = permissible exposure limit of the Occupational Safety and Health Administration (OSHA); mg/m³ = milligrams of substance per cubic meter of air.

Other Particulates: 2001 ACGIH TLV® = 10mg/m³ (inhalable/total particulate, not otherwise specified), 2001 ACGIH TLV® = 3mg/m³ (respirable particulate, not otherwise specified); OSHA PEL = 15mg/m³ (total particulate, not otherwise regulated), OSHA PEL = 5mg/m³ (respirable particulate, not otherwise regulated).

Respirable Crystalline Silica (SiO₂/quartz): ACGIH TLV® = 0.05mg/m³; MSHA and OSHA PEL = 10mg/m³ ÷ (%SiO₂ + 2) for respirable dust containing crystalline silica.

Total dust, respirable and nonrespirable: 1973 ACGIH TLV® = 30mg/m³ ÷ (%quartz + 3).

Total Dust: MSHA PEL = 10mg/m³ (for nuisance particulates listed in Appendix E of the 1973 ACGIH TLV® booklet).

Per ACGIH, adverse effects are not likely to occur in the workplace provided exposure levels do not exceed the appropriate TLVs/PELs. However, because of the wide variation in individual susceptibility, lower exposure limits may be appropriate for some individuals including persons with pre-existing medical conditions such as those described below.

Medical Conditions Aggravated By Exposure: Inhaling respirable dust and/or crystalline silica may aggravate existing respiratory system disease(s) and/or dysfunction. Exposure to dust may aggravate existing skin and/or eye conditions.

Primary Route(s) of Exposure

X Inhalation _Skin _Ingestion

Acute Toxicity

EYE CONTACT: Direct contact with dust may cause irritation by mechanical abrasion.

SKIN CONTACT: Direct contact may cause irritation by mechanical abrasion.

SKIN ABSORPTION: Not expected to be a significant exposure route.

INGESTION: Expected to be practically non-toxic. Ingestion of large amounts may cause gastrointestinal irritation and blockage.

INHALATION: Dusts may irritate the nose, throat, and respiratory tract by mechanical abrasion. Coughing, sneezing, and shortness of breath may occur following exposures in excess of appropriate exposure limits.

Use of natural sand and gravel for construction purposes is not believed to cause additional acute toxic effects. However, repeated overexposures to very high levels of respirable crystalline silica (quartz, cristobalite, tridymite) for periods as short as six months have caused acute silicosis. Acute silicosis is a rapidly progressive, incurable lung disease that is typically fatal. Symptoms include (but are not limited to): shortness of breath, cough, fever, weight loss, and chest pain.

First Aid

EYES: Immediately flush eye(s) with plenty of clean water for at least 15 minutes, while holding the eyelid(s) open. Occasionally lift the eyelid(s) to ensure thorough rinsing. Beyond flushing, do not attempt to remove material from the eye(s). Contact a physician if irritation persists or later develops.

SKIN: Wash with soap and water. Contact a physician if irritation persists or later develops.

INGESTION: If person is conscious, give large quantity of water and induce vomiting; however, never attempt to make an unconscious person drink or vomit. Get immediate medical attention.

INHALATION: Move to fresh air. Dust in throat and nasal passages should clear spontaneously. Contact a physician if irritation persists or later develops.

For emergencies, contact _____
(your company's designated emergency contact)

Chronic Toxicity

Prolonged and repeated inhalation of respirable crystalline silica-containing dust in excess of appropriate exposure limits has caused silicosis, a lung disease. Not all individuals with silicosis will exhibit symptoms (signs) of the disease. However, silicosis can be progressive, and symptoms can appear at any time, even years after exposure has ceased. Symptoms of silicosis may include, but are not limited to, the following: shortness of breath; difficulty breathing with or without exertion; coughing; diminished work capacity; diminished chest expansion; reduction of lung volume; right heart enlargement and/or failure. Smoking may increase the risk of developing lung disorders, including emphysema and lung cancer. Persons with silicosis have an increased risk of pulmonary tuberculosis infection. Respirable dust containing newly broken silica particles has been shown to be more hazardous to animals in laboratory tests than respirable dust containing older silica particles of similar size. Respirable silica particles which had aged for sixty days or more showed less lung injury in animals than equal exposures of respirable dust containing newly broken particles of silica. There are reports in the literature suggesting that excessive crystalline silica exposure may be associated with adverse health effects involving the kidney, scleroderma (thickening of the skin caused by swelling and thickening of fibrous tissue) and other autoimmune disorders. However, this evidence has been obtained primarily from case reports involving individuals working in high exposure situations or those who have already developed silicosis; and therefore, this evidence does not conclusively prove a causal relationship between silica or silicosis and these adverse health effects.

Several studies of persons with silicosis also indicate an increased risk of developing lung cancer, a risk that increases with the duration of exposure. Many of these studies of silicotics do not account for lung cancer confounders, especially smoking. Sand or gravel is not listed as a carcinogen by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP), or the Occupational Safety and Health Administration (OSHA). In October 1996, an IARC Working Group re-assessing crystalline silica, a component of this product, designated respirable crystalline silica as carcinogenic (Group 1). The NTP'S Report on Carcinogens, 9th edition, lists respirable crystalline silica as a "known human carcinogen." In year 2000, the American Conference of Governmental Industrial Hygienists (ACGIH) listed respirable crystalline silica (quartz) as a suspected human carcinogen (A-2). These classifications are based on sufficient evidence of carcinogenicity in certain experimental animals and on selected epidemiological studies of workers exposed to crystalline silica.

7. PERSONAL PROTECTION AND CONTROLS

Respiratory Protection

For respirable quartz levels that exceed or are likely to exceed an 8-hr TWA of $0.1\text{mg}/\text{m}^3$, a NIOSH approved dust respirator is recommended. For respirable quartz levels that exceed or are likely to exceed an 8-hr TWA of $0.5\text{mg}/\text{m}^3$, a NIOSH approved HEPA filter respirator is recommended. If respirable quartz levels exceed or are likely to exceed an 8-hr TWA of $5\text{mg}/\text{m}^3$, a NIOSH approved positive pressure, full face respirator or equivalent is recommended. Respirator use must comply with applicable MSHA or OSHA standards, which include provisions for a user training program, respirator repair and cleaning, respirator fit testing, and other requirements.

Ventilation

Local exhaust or general ventilation adequate to maintain exposures below appropriate exposure limits.

Skin Protection

See "Hygiene" section below.

Eye Protection

Safety glasses with side shields should be worn as minimum protection. Dust goggles should be worn when excessively (visible) dusty conditions are present or are anticipated.

Hygiene

Wash dust-exposed skin with soap and water before eating, drinking, smoking, and using toilet facilities. Wash work clothes after each use.

Other Control Measures

Respirable dust and quartz levels should be monitored regularly. Dust and quartz levels in excess of appropriate exposure limits should be reduced by all feasible engineering controls, including (but not limited to) wet suppression, ventilation, process enclosure, and enclosed employee work stations.

8. STORAGE AND HANDLING PRECAUTIONS

This product is not intended or designed for use as an abrasive blasting medium or for foundry applications, and should not be used for these purposes.

Follow the personal protection and controls set forth in Section 7 of this MSDS when handling this product. Respirable crystalline silica-containing dust may be generated during processing, handling, and storage.

Do not store near food and beverages or smoking materials.

9. SPILL, LEAK AND DISPOSAL PRACTICES**Steps to be Taken in Case Material is Released or Spilled**

The personal protection and controls identified in Section 7 of the MSDS should be used as appropriate. Spilled material, where dust can be generated, may overexpose cleanup personnel to respirable crystalline silica-containing dust. Wetting of spilled material and/or use of respiratory protective equipment may be necessary. Do not dry sweep spilled material.

Prevent spilled materials from inadvertently entering streams, drains, or sewers.

For emergencies, contact _____
(your company's designated emergency contact)

Waste Disposal Method

Pick up and reuse clean materials. Dispose of waste materials only in accordance with applicable federal, state, and local laws and regulations.

10. TRANSPORTATION

DOT Hazard Classification: None

Placard Required: None

Label Required: Label as required by the OSHA Hazard Communication Standard [29 CFR 1910.1200 (f) and applicable state and local laws and regulations.

For Further Information Contact: Place here the name, address, and telephone number of the operator or responsible party who can provide more info about the hazardous chemical.

Date of Preparation:

Emergency Information: Your company's designated emergency contact.

Notice: _____ believes the information contained herein is accurate; however, _____ makes no guarantees with respect to such accuracy and assumes no liability in connection with the use of the information contained herein by any party. The provision of the information contained herein is not intended to be and should not be construed as legal advice or as ensuring compliance with any federal, state or local laws and regulations. Any party using this product should review all such laws, rules or regulations prior to use.

NO WARRANTY IS MADE, EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE.



Material Safety Data Sheet
For
Duracem® F Portland Cement

Section I - Identity

Manufacturer's name and address: Ash Grove Cement Company 11011 Cody Overland Park, KS 66210

Emergency Telephone Number: (913) 451-8900

Chemical Name and Synonyms: Portland Cement (CAS #65997-15-1)

Trade Name and Synonyms: Duracem® F

Revision Date: May 2009

Chemical Family: Calcium Salts

Formula: Duracem® F portland cement consists of finely ground portland cement clinker mixed with a Class F fly ash and a small amount of calcium sulfate (gypsum) to control set. No specific formula applies to portland cement.

Section II - Hazardous Ingredients

Ingredients: Substances similar to the following are known to be present in portland cement:

3CaO.SiO ₂	(CAS # 12168-85-3)
2CaO.SiO ₂	(CAS # 10034-77-2)
3CaO.Al ₂ O ₃	(CAS # 12042-78-3)
4CaO.Al ₂ O ₃ .Fe ₂ O ₃	(CAS # 12068-35-8)
CaSO ₄ .XH ₂ O	(CAS # 13397-24-5)

Small amounts of CaO, MgO, K₂SO₄, Na₂SO₄ may also be present.

Hazardous Components(s):

Substance	CAS Number	OSHA PEL	ACGIH TLV-TWA	MSHA Exposure Limits
Portland Cement -- total dust	65997-15-1	15 mg/m ³	10 mg/m ³ (1986) *	10 mg/m ³
Portland Cement - respirable dust	65997-15-1	5 mg/m ³	Not Applicable	Not Applicable
Quartz	14808-60-7	<u>10 mg/m³</u> (% silica + 2)	0.025 mg/m ³ (respirable fraction)	<u>10 mg/m³</u> (% silica + 2)

Note: Duracem® F portland cement contains crystalline silica estimated to be between 1 to 5%.

* Applicable if <1% crystalline silica is present.

Section III - Physical Data

Boiling Point: Not applicable.

Vapor Pressure: Not applicable.

Vapor Density: Not applicable.

Solubility in Water: Slight (0.1-1.0%)

pH (in water) (ASTM D 1293-95): 12 - 13

Specific Gravity: ($H_2O=1$) 2.9 - 3.1

Evaporation Rate: Not applicable.

Appearance and Odor: Gray powder; no odor.

Melting Point: Not applicable

Section IV - Fire and Explosion Hazard Data

Flash Point: Portland cement is noncombustible and not explosive.

Flammable or Explosive Limits: Not applicable.

Extinguishing Media: Not applicable

Special Firefighting Procedures: Not applicable. (Although portland cement poses no fire-related hazards, a self-contained breathing apparatus is recommended to limit exposure to combustion products when fighting any fire.)

Unusual Fire and Explosion Hazards: Not applicable.

Lower Explosive Limit: Not applicable.

Upper Explosive Limit: Not applicable.

Section V - Health Hazard Data

Acute Effects: Wet cement on unprotected skin, whether direct or through saturated clothing, can cause severe, third degree caustic burns. **NOTE: Portland cement burns skin with little warning; discomfort or pain cannot be relied upon to alert a person to a hazardous skin exposure. The severity of the burn may not be detected until several hours after the damage begins.** Dry portland cement can produce mild irritation to severe burns of the eye; it can also irritate the upper respiratory system.

Chronic Effects: Dry portland cement can cause inflammation of the lining of the nose and the cornea. Repeated exposure to portland cement may result in drying of the skin and may lead to thickening, cracking, or fissuring of the skin. Hypersensitive individuals may develop an allergic dermatitis (possibly due to trace amounts of hexavalent chromium at less than 0.0002%). This reaction may appear in several forms including a mild rash to severe skin ulcers. Persons already sensitized may react to their first contact with the product. Other persons may experience this effect after years of exposure to portland cement products.

Additives to portland cement and those components (e.g. aggregates) added to produce portland cement concrete may significantly increase the amount of crystalline silica that is present. Exposure to respirable crystalline silica without the use of a respirator can cause silicosis and may aggravate other lung conditions.

Signs and Symptoms of Exposure: Burning sensation around moist tissue areas (i.e., eyes, nose, upper respiratory system); painful burning on exposed skin that can develop with little warning. **Exposure of sufficient duration to wet portland cement can cause serious, potentially irreversible tissue (skin or eye) destruction in the form of chemical (caustic) burns, including third degree burns.** The same kind of destruction can occur if wet or moist areas of the body are exposed for sufficient duration to dry portland cement. **DO NOT ALLOW WET PORTLAND CEMENT TO GET INSIDE BOOTS, SHOES, OR GLOVES AND DO NOT ALLOW WET, SATURATED CLOTHING TO REMAIN AGAINST THE SKIN.**

Medical Conditions Generally Aggravated by Exposure: Pre-existing skin conditions may be worsened. Silicosis may aggravate other chronic pulmonary conditions.

Chemical Listed as Carcinogenic or Potential Carcinogen: Portland cements are not considered carcinogenic.

However, the International Agency for Research on Cancer (IARC) has determined, primarily through animal studies, that silica is a known human carcinogen. The National Toxicology Program (NTP) has characterized respirable quartz silica as reasonably anticipated to be a carcinogen. OSHA does not regulate silica as a carcinogen.

Emergency and First Aid Procedures: Irrigate eyes immediately and repeatedly with large amount of clean water for at least 15 minutes and get prompt medical attention. Wash exposed skin areas with pH-neutral soap and clean water. Apply sterile dressings; seek medical treatment in all cases of prolonged exposure to wet portland cement, portland cement mixtures, liquids from fresh portland cement products, or prolonged wet skin exposure to dry portland cement. If ingested, consult a physician immediately. Do not induce vomiting. If conscious, have the victim drink plenty of water and call a physician immediately. In the event of inhalation, remove to fresh air. Seek medical attention if coughing and other symptoms do not subside. Inhalation of gross amounts of portland cement requires immediate medical attention.

Section VI-Reactivity Data

Stability: Product is stable. Keep dry until used.

Incompatibility: Aluminum powder and other alkali and alkaline earth elements will react in wet mortar or concrete, liberating hydrogen gas. Portland cement is highly alkaline and will react with acids to produce a violent, heat-generating reaction. Toxic gases or vapors may be given off depending on the acid involved.

Hazardous Decomposition Products: None

Hazardous Polymerization: Will not occur.

Section VII - Spill Procedures

Steps to be taken in case material is spilled: Use dry cleanup methods that do not disperse the dust into the air. Avoid breathing the dust. Emergency procedures are not required.

Disposal Method: Small amounts of material can be returned to the container for later use if it is not contaminated. Dispose of waste material in accordance with Federal, State and local requirements. Portland cement is not a hazardous waste as defined by the Resource Conservation and Recovery Act (40 CFR 261).

Section VIII - Special Protection Information

Respiratory Protection: AVOID BREATHING DUST. Avoid actions that cause dust to become airborne. Use local or general ventilation to control exposures below applicable exposure limits.

Use NIOSH/MSHA-approved (under 30 CFR 11) or NIOSH-approved (under 42 CFR 84) respirators in poorly ventilated areas, if an applicable exposure limit is exceeded, or when dust causes discomfort or irritation. (Advisory: Respirators and filters purchased after July 10, 1998 must be certified under 42 CFR 84.)

Ventilation: Local exhaust can be used to control airborne dust levels.

Eye Protection: When engaged in activities where portland cement dust or wet portland cement or concrete could contact the eye, wear goggles or safety glasses with sideshields. In extremely dusty environments and unpredictable environments, wear unvented or indirectly vented goggles to avoid eye irritation or injury. Contact lenses should not be worn when working with portland cement or wet portland cement products.

Skin Protection: Prevention is essential to avoiding potentially severe skin injury. Avoid contact with unhardened (wet) portland cement products. If contact occurs, promptly wash affected area with soap and water. **DO NOT ALLOW WET PORTLAND CEMENT TO GET INSIDE BOOTS, SHOES, OR GLOVES AND DO NOT ALLOW WET, SATURATED CLOTHING TO REMAIN AGAINST THE SKIN.**

Do not rely on barrier creams; barrier creams should not be used in place of gloves. Use impervious, abrasion- and alkali-resistant gloves, boots and protective clothing to protect the skin from prolonged contact with wet portland cement in plastic concrete, mortar or slurries.

Work/Hygienic Practices: Periodically wash areas contacted by dry portland cement or by wet portland cement or concrete fluids with a pH neutral soap and clean, uncontaminated water. Wash again at the end of the work. If irritation occurs, immediately wash the affected area and seek treatment. If clothing becomes saturated with wet portland cement or concrete, it should be removed and replaced with clean dry clothing. Follow listed precautions as appropriate during repair or maintenance work on contaminated equipment.

Section IX – Transportation Information

Hazardous materials/proper shipping name description:

Portland cement is not hazardous under U.S. Department of Transportation (DOT) regulations.

Hazard class:

Not applicable

Identification number:

Not applicable

Required label text:

Not applicable

Hazardous substances / reportable quantities (RQ)

Not applicable

Section X – Other Regulatory Information

Status under USDOL-OSHA Hazard Communication Standard (29 CFR 1910.1200)

Portland cement is considered a “hazardous chemical” under this regulation and should be a part of any Hazard Communication Program.

Status under CERCLA / Superfund 40 CFR 117 and 302

Not listed.

Status under SARA (Title III), Sections 311 and 312

Portland cement qualifies as a “hazardous substance” with delayed health effects.

Status under SARA (Title III), Section 313

This product may contain constituents listed under SARA (Title III) Section 313, but not in amounts requiring supplier notification under 40 CFR Part 372 Subpart C.

Status under TSCA (as of May 1997)

Portland cement and some of the substances in portland cement are on the TSCA inventory list.

Status under the Federal Hazardous Substances Act

Portland cement is a “hazardous substance” subject to statutes promulgated under the subject act.

Status under California Proposition 65

This product contains crystalline silica and chemicals (trace metals) known to the State of California to cause cancer, birth defects or other reproductive harm. California law requires the above warning in the absence of definitive testing to prove the defined risks do not exist.

Status under the Canadian Environmental Protection Act

Not listed.

Status under WHMIS

Portland cement is considered to be a hazardous material under the Hazardous Products Act as defined by the Controlled Products Regulations (Class E – Corrosive Material) and is therefore subject to the labeling and MSDS requirements of the Workplace Hazardous Materials Information System (WHMIS).

Other Important Information

Portland cement should only be used by knowledgeable persons. A key to using the product safely requires the user to recognize that portland cement reacts with water, and that some of the intermediate products of this reaction (that is, those present while portland cement is “setting”) pose a far more severe hazard than does portland cement itself.

While the information provided in this material safety data sheet is thought to provide a useful summary of the hazards of portland cement as it is commonly used, the sheet cannot anticipate and provide all the information that might be needed in every situation. Inexperienced product users should obtain training before using this product.

In particular, the data provided in this sheet do not address hazards that may be posed by other materials that may be added to portland cement to produce portland cement products. Users should review other relevant material safety data sheets before working with this portland cement or on portland cement products, for example portland cement concrete.

SELLER MAKES NO WARRANTY, EXPRESS OR IMPLIED, CONCERNING THE PRODUCT OR THE MERCHANTABILITY OR FITNESS THEREOF FOR ANY PURPOSE OR CONCERNING THE ACCURACY OF ANY INFORMATION PROVIDED BY ASH GROVE CEMENT COMPANY, except that the product shall conform to contracted specifications. The information provided herein was believed by Ash Grove Cement Company to be accurate at the time of preparation or prepared by sources by believed to be reliable, but it is the responsibility of the user to investigate and understand other pertinent sources of information to comply with all laws and procedures applicable to the safe use and handling of product and to determine the suitability of the product for its intended use.

This product neither contains nor is directly manufactured with any controlled ozone depleting substances, Class I and II.

Material Safety Data Sheet

acc. to ISO/DIS 11014

Printing date 10/25/2012

Reviewed on 10/25/2012

1 Identification of substance

- **Product details**
- **Trade name:** STRIP EEZ VOC
- **Article number:** 83-143773
- **Application of the substance / the preparation**
- **Manufacturer/Supplier:**
Carter Waters
2440 W. Pennway
Kansas City, MO 64141
- **Information department:** Environmental, Health, and Safety department.

Tel: (816) 471-2570

2 Composition/Data on components

- **Chemical characterization**
- **Description:** Mixture of the substances listed below with nonhazardous additions.

- **Dangerous components:**

64742-53-6	Distillates (petroleum), hydrotreated light naphthenic	50-75%
64742-65-0	Distillates (petroleum), solvent-dewaxed heavy paraffinic	10-25%
64742-62-7	Residual oils (petroleum), solvent-dewaxed	≤ 10%
64742-57-0	Residual oils (petroleum), hydrotreated	≤ 10%
61790-12-3	Distilled Tall Oil Fatty Acids	≤ 5%

- **Additional information:** For the wording of the listed risk phrases refer to section 16.

3 Hazards identification

- **Hazard description:** Not applicable.
- **Information pertaining to particular dangers for man and environment:**
The product has to be labelled due to internationally acknowledged calculation procedures using the latest valid versions.
- **Classification system:**
The classification was made according to the latest editions of international substances lists, and expanded upon from company and literature data.
- **NFPA ratings (scale 0 - 4)**



Health = 1
Fire = 1
Reactivity = 0

- **HMIS-ratings (scale 0 - 4)**

HEALTH	1	Health = 1
FIRE	1	Fire = 1
PHYSICAL HAZARD	0	Reactivity = 0

4 First aid measures

- **After inhalation:**
Supply fresh air and to be sure call for a doctor.
In case of unconsciousness place patient stably in side position for transportation.

(Contd. on page 2)

Material Safety Data Sheet

acc. to ISO/DIS 11014

Printing date 10/25/2012

Reviewed on 10/25/2012

Trade name: STRIP EEZ VOC

(Contd. of page 1)

- **After skin contact:**
Immediately wash with water and soap and rinse thoroughly.
If skin irritation continues, consult a doctor.
- **After eye contact:** Rinse opened eye for several minutes under running water.
- **After swallowing:** Seek medical treatment.

5 Fire fighting measures

- **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
- **Protective equipment:**
Because fire may produce thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full face piece operated in pressure-demand or positive-pressure mode.

6 Accidental release measures

- **Person-related safety precautions:** Wear protective equipment. Keep unprotected persons away.
- **Measures for environmental protection:**
Inform respective authorities in case of seepage into water course or sewage system.
- **Measures for cleaning/collecting:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

7 Handling and storage

- **Handling:**
- **Information for safe handling:**
Wear appropriate personal protective clothing to prevent eye and skin contact. Avoid breathing vapors or mists of this product. Use with adequate ventilation. Do not take internally.
- **Information about protection against explosions and fires:** No special measures required.
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** None.

8 Exposure controls and personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Components with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- **Additional information:** The lists that were valid during the creation were used as basis.
- **Personal protective equipment:**
- **General protective and hygienic measures:**
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
- **Breathing equipment:** Not required.

(Contd. on page 3)

Material Safety Data Sheet

acc. to ISO/DIS 11014

Printing date 10/25/2012

Reviewed on 10/25/2012

Trade name: STRIP EEZ VOC

(Contd. of page 2)

· **Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

· **Eye protection:** Wear appropriate eye protection to prevent eye contact.

9 Physical and chemical properties

· **General Information**

Form:	Liquid
Color:	According to product specification
Odor:	Characteristic

· **Change in condition**

Melting point/Melting range: Undetermined.
Boiling point/Boiling range: > 218°C (> 424°F)

· **Flash point:** 140°C (284°F)· **Auto igniting:** Product is not selfigniting.· **Danger of explosion:** Product does not present an explosion hazard.· **Density at 20°C (68°F):** 0.861 g/cm³· **Solubility in / Miscibility with Water:** Not miscible or difficult to mix.· **Solvent content:**

Organic solvents: 0.0 %

· **Solids content:** 72.5 %· **Volatile Organic Compounds:** Contains less than 250 g/L.

10 Stability and reactivity

· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.· **Dangerous reactions** No dangerous reactions known.· **Dangerous products of decomposition:** No dangerous decomposition products known.

11 Toxicological information

· **Acute toxicity:**· **Primary irritant effect:**· **on the skin:** No irritant effect known.· **on the eye:** No irritating effect known.· **Sensitization:** Sensitization possible through skin contact.· **Additional toxicological information:**

The product shows the following dangers according to internally approved calculation methods for preparations:

(Contd. on page 4)

Material Safety Data Sheet

acc. to ISO/DIS 11014

Printing date 10/25/2012

Reviewed on 10/25/2012

Trade name: STRIP EEZ VOC

Irritant

(Contd. of page 3)

12 Ecological information

- **General notes:** Water hazard class 1 (Self-assessment): slightly hazardous for water

13 Disposal considerations

- **Product:**
- **Recommendation:**
It is the generator's responsibility to determine if the waste meets applicable definitions of hazardous waste. State and local regulations may differ from federal disposal regulations. Dispose of waste material according to local, state, federal, and provincial environmental regulations.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to Federal, State, and Local regulations.

14 Transport information

- **DOT regulations:**
- **Hazard class:** N/A
- **Limited Quantity Exemption:** No Limited Quantity exemption applies for this shipping class.
- **U.S. Domestic Ground Shipments:** Not Regulated by D.O.T.
- **U.S. Domestic Ground Non-Bulk (119 gal or less per container) Shipments:** Same as listed for Standard Shipments above.
- **Emergency Response Guide (ERG) Number:** Not determine
- **Land transport ADR/RID (cross-border):**
- **ADR/RID class:** N/A
- **Maritime transport IMDG:**
- **IMDG Class:** N/A
- **Marine pollutant:** No
- **Air transport ICAO-TI and IATA-DGR:**
- **ICAO/IATA Class:** N/A

15 Regulations

- **Sara**

- **Section 355 (extremely hazardous substances):**

None of the ingredient is listed.

- **Section 313 (Specific toxic chemical listings):**

This product may contain 1 or more toxic chemicals subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR part 372. If so, the chemicals are listed below.

111-42-2	2,2'-iminodiethanol	≤0.1%
----------	---------------------	-------

- **TSCA (Toxic Substances Control Act):**

All ingredients are listed.

(Contd. on page 5)

USA

Material Safety Data Sheet

acc. to ISO/DIS 11014

Printing date 10/25/2012

Reviewed on 10/25/2012

Trade name: STRIP EEZ VOC

(Contd. of page 4)

· **Proposition 65**· **Chemicals known to the State of California (Prop. 65) to cause cancer:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients is listed.

· **Carcinogenicity categories**· **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

· **IARC (International Agency for Research on Cancer)**

111-42-2 2,2'-iminodiethanol

3

· **NTP (National Toxicology Program)**

None of the ingredients is listed.

· **TLV (Threshold Limit Value established by ACGIH)**

None of the ingredients is listed.

· **MAK (German Maximum Workplace Concentration)**

None of the ingredients is listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

· **Product related hazard informations:**

The product has been classified and marked in accordance with directives on hazardous materials.

· **Hazard symbols: Xi Irritant**· **Hazard-determining components of labelling:**

Distillates (petroleum), hydrotreated lightnaphthenic

Residual oils (petroleum), solvent-dewaxed

Residual oils (petroleum), hydrotreated

Distillates (petroleum), solvent-dewaxed heavy paraffinic

Distilled Tall Oil Fatty Acids

· **Risk phrases: 43** May cause sensitisation by skin contact.· **Safety phrases:**

24 Avoid contact with skin.

29 Do not empty into drains.

37/39 Wear suitable gloves and eye/face protection.

45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

· **National regulations:**· **Water hazard class:** Water hazard class 3 (Self-assessment): extremely hazardous for water.

USA

(Contd. on page 6)

Material Safety Data Sheet
acc. to ISO/DIS 11014

Printing date 10/25/2012

Reviewed on 10/25/2012

Trade name: STRIP EEZ VOC

(Contd. of page 5)

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Department issuing MSDS:** Environmental, Health & Safety Department
- **Contact:** Environmental, Health & Safety Manager

USA



MATERIAL SAFETY DATA SHEET

1 PRODUCT AND COMPANY IDENTIFICATION

Product Name: Boiled Linseed Oil

Manufacturer Name:
Industrial Oils & Lubricants
12201 Torrence Avenue
Chicago, Illinois 60617
IOLCustomerService@cargill.com

Emergency Telephone:
1-800-424-9300

Non-emergency Telephone:
1-800-842-3631

Intended Use: Paints and coatings

2 HAZARDS IDENTIFICATION

Emergency Overview

Physical State: Liquid

Color: Amber

Odor: Vegetable

CAUTION!

Prolonged or repeated skin contact may cause drying, cracking, or irritation.

Rags, steel wool, or waste soaked with linseed oil may spontaneously catch fire if improperly discarded.

Potential Health Effects

Inhalation: In high concentrations, vapors may be irritating to the respiratory system.

Eye Contact: May cause temporary eye irritation.

Skin Contact: Prolonged contact may cause dryness of the skin.

Ingestion: No harmful effects expected in amounts likely to be ingested by accident.

OSHA Regulatory Status: This product is hazardous according to OSHA 29CFR 1910.1200.

3 COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS-No.	Concentration*
†Linseed oil	8001-26-1	> 90%
†Cobalt driers	Mixture	< 0.2%

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

† This chemical is hazardous according to OSHA criteria.

4 FIRST AID MEASURES

Inhalation: If symptomatic, move to fresh air. Get medical attention if symptoms persist.

Eye Contact: Any material that contacts the eye should be washed out immediately with water. If easy to do, remove contact lenses. Get medical attention promptly if symptoms occur after washing.

Skin Contact: Wash skin with soap and water. Get medical attention promptly if symptoms occur after washing.

Ingestion: First aid is normally not required. However, if greater than 1/2 liter (pint) ingested, seek medical attention.

5 FIRE-FIGHTING MEASURES

Extinguishing Media: Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog.

Unsuitable Extinguishing Media: None.

Special Fire Fighting Procedures: Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Unusual Fire & Explosion Hazards: Rags, steel wool, or waste soaked with linseed oil may spontaneously catch fire if improperly discarded.

Hazardous Combustion Products: Carbon Oxides, Cobalt compounds

6 ACCIDENTAL RELEASE MEASURES

Personal Precautions: Wear appropriate personal protective equipment.

Spill Cleanup Methods: Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Large Spillages: Flush area with water. Prevent runoff from entering drains, sewers, or streams. Dike for later disposal. Used rags or other cleaning materials should be soaked with water and placed in a sealed container.

Environmental Precautions: Avoid discharge into drains, water courses or onto the ground.

7 HANDLING AND STORAGE

Handling: Immediately after use, place rags, steel wool, or waste in a sealed water-filled metal container. See Section 8 of the MSDS for additional personal protection advice when handling this product.

Storage: Keep container tightly closed. Store in a cool place but keep from freezing. Store away from incompatible materials.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION**Exposure Limits:**

Chemical Name	Source	Type	Exposure Limits	Notes
---------------	--------	------	-----------------	-------

Cobalt driers	CA. Alberta OELs	TWA	0.05 mg/m	as Co
Cobalt driers	CA. British Columbia OELs	TWA	0.02 mg/m	as Co
Cobalt driers	CA. Quebec OELs	TWA	0.02 mg/m	as Co
Cobalt driers	US. ACGIH TLV	TWA	0.02 mg/m	as Co
Linseed oil (Mist.)	CA. Alberta OELs	TWA	10 mg/m	
Linseed oil (Mist.)	CA. British Columbia OELs	TWA	10 mg/m	
Linseed oil (Respirable mist)	CA. British Columbia OELs	TWA	3 mg/m	
Linseed oil (Mist.)	CA. Ontario OELs	TWA	10 mg/m	
Linseed oil (Mist.)	CA. Quebec OELs	TWA	10 mg/m	
Linseed oil	US. NIOSH Guide	IDLH	-	
Linseed oil (Respirable fraction.)	US. OSHA Z-1 PEL	TWA	5 mg/m	
Linseed oil (Total dust.)	US. OSHA Z-1 PEL	TWA	15 mg/m	

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.

Respiratory Protection: If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. In the United States of America, if respirators are used, a program should be instituted to assure compliance with OSHA Standard 63 FR 1152, January 8, 1998. Respirator type: Air-purifying respirator with an appropriate, government approved (where applicable), air-purifying filter, cartridge or canister. Contact health and safety professional or manufacturer for specific information.

Eye Protection: Risk of contact: Wear approved safety goggles.

Hand Protection: It is a good industrial hygiene practice to minimize skin contact.

Skin Protection: Apron and long sleeves are recommended.

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.

Environmental Exposure Controls: Environmental manager must be informed of all major spillages.

9	PHYSICAL AND CHEMICAL PROPERTIES
----------	---

Color: Amber

Odor: Vegetable

Odor Threshold: Not applicable.

Physical State: Liquid

pH: Not applicable

Melting Point: No data available.

Freezing Point: No data available.

Boiling Point: >149°C (300°F)

Flash Point: >260°C (500°F) (Cleveland Open Cup)

Evaporation Rate: No data available.
Flammability (Solid): No data available.
Flammability Limit - Upper (%): No data available.
Flammability Limit - Lower (%): No data available.
Vapor Pressure: No data available.
Vapor Density (Air=1): No data available.
Specific Gravity: No data available.
Solubility in Water: No data available.
Solubility (Other): No data available.
Partition Coefficient (n-Octanol/water): No data available.
Autoignition Temperature: No data available.
Decomposition Temperature: No data available.
Viscosity: No data available.

10	STABILITY AND REACTIVITY
-----------	---------------------------------

Stability: Stable, but polymerizes gradually on exposure to air.

Conditions to Avoid: Excessive heat. Minimize exposure to air.

Incompatible Materials: Oxidizing materials. Acetaldehyde. Acids. Bases. Chlorine.

Hazardous Decomposition Products: No data available.

Possibility of Hazardous Reactions: Will not occur.

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

Specified Substance(s)

Acute Toxicity:

Test Results: No test data available for the ingredients.

Chronic Toxicity: Organic compounds of cobalt have not been assessed by either ACGIH or IARC. The assessments made in relation to inorganic and other specific cobalt compounds can not be extrapolated to draw definitive conclusions in relation to organic compounds of cobalt in general. Prolonged or repeated exposure to cobalt powder may cause allergic skin and respiratory reactions in sensitive individuals.

Listed Carcinogens:

Chemical Name	IARC	NTP	OSHA	ACGIH
Cobalt driers	2B	Not Listed	Not Listed	A3

IARC: 1 = Carcinogenic to Humans; 2A = Probably Carcinogenic to Humans; 2B = Possibly Carcinogenic to Humans; 3 = Not classifiable as to carcinogenicity to humans; 4 = Probably not carcinogenic to humans; Not listed = Not evaluated by IARC.

ACGIH: A1 = Confirmed Human Carcinogen; A2 = Suspected Human Carcinogen; A3 = Confirmed Animal Carcinogen; A4 = Not classifiable as a human carcinogen; A5 = Not suspected to be a human carcinogen; Not listed = Not evaluated by ACGIH.

Product Information

Acute Toxicity:

Test Results: No test data available for the product.

Other Acute: Prolonged or repeated contact may cause drying, cracking, or irritation.

Chronic Toxicity: No additional adverse health effects noted.

12	ECOLOGICAL INFORMATION
-----------	-------------------------------

Ecotoxicity: Not expected to be harmful to aquatic organisms. No data available.

Mobility: No data available.

Persistence and Degradability: No data available.

Other Adverse Effects: No data available.

13	DISPOSAL CONSIDERATIONS
-----------	--------------------------------

General Information: Do not discharge into drains, water courses or onto the ground. Discharge, treatment, or disposal may be subject to national, state, or local laws. Empty containers may contain product residues.

Disposal Methods: No specific disposal method required.

Container: Since emptied containers retain product residue, follow label warnings even after container is emptied.

14	TRANSPORT INFORMATION
-----------	------------------------------

DOT Not regulated.

TDG Not regulated.

IATA Not regulated.

IMDG Not regulated.

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

Canadian Controlled Products Regulations: This product has been classified according to the hazard criteria of the Canadian Controlled Products Regulations, Section 33, and the MSDS contains all required information.

WHMIS Classification: This is not a WHMIS controlled product.

Mexican Dangerous Statement: This product is not dangerous according to Mexican regulations.

Inventory Status

This product or all components are listed or exempt from listing on the following inventory: TSCA, DSL

US Regulations

CERCLA Hazardous Substance List (40 CFR 302.4):

Chemical Name	RQ
Cobalt driers	-

SARA Title III**Section 302 Extremely Hazardous Substances (40 CFR 355, Appendix A):** Not regulated.**Section 311/312 (40 CFR 370):**☒ Acute (Immediate) ☐ Chronic (Delayed) ☐ Fire ☐ Reactive ☐ Pressure Generating**Section 313 Toxic Release Inventory (40 CFR 372):** Not regulated.**Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):**
Not regulated.**Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3):** Not regulated.**Drug Enforcement Act:** Not regulated.**TSCA****TSCA Section 4(a) Final Test Rules & Testing Consent Orders:** Not regulated.**TSCA Section 5(a)(2) Final Significant New Use Rules (SNURs) (40CFR 721, Subpt. E):** Not regulated.**TSCA Section 5(e) PMN-Substance Consent Orders:** Not regulated.**TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D):** Not regulated.**State Regulations****California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):** Not regulated.**Massachusetts Right-To-Know List:** Linseed oil**Michigan Critical Materials List (Michigan Natural Resources and Environmental Protection Act (Act. 451 of 1994)):** Not regulated.**Minnesota Hazardous Substances List:** Linseed oil**New Jersey Right-To-Know List:** Not regulated.**Pennsylvania Right-To-Know List:** Linseed oil**Rhode Island Right-To-Know List:** Linseed oil

16	OTHER INFORMATION
----	-------------------

HAZARD RATINGS

	Health Hazard	Fire Hazard	Instability	Special Hazard
NFPA	1	1	0	NONE

Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe

NFPA Label colored diamond code: Blue - Health; Red - Flammability; Yellow - Instability; White - Special Hazards

	Health Hazard	Flammability	Physical Hazard	Personal Protection
HMIS	1	1	0	--

Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe

HMIS Label colored bar code: Blue - Health; Red - Flammability; Orange - Physical Hazards; White - Special

Issue Date: 09-Dec-2009

Supersedes Date: New

SDS No.: 1026783

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

MATERIAL SAFETY DATA SHEET



DATE PRINTED: MAR 03, 2010
MSDS NO. NFL000 OUTBOUND
Segmented Diamond Blades and Core Bits

SECTION 1. CHEMICAL PRODUCT AND COMPANY INFORMATION

PRODUCT NAME
Segmented Diamond Blades and Core Bits
TRADE NAME

MANUFACTURER(4)
Saint-Gobain Abrasives, Inc.
1345 S. Acacia Avenue
Fullerton, CA 92631 USA
(714) 776-0937

REVISION DATE
2/26/2010
MSDS PRINT FORMAT
NUSA

SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE DESCRIPTION	PERCENT	CAS#
Chromium(*)	1.000- 2.000	7440-47-3
Cobalt(*)	15.000- 20.000	7440-48-4
Copper(*)	15.000- 20.000	7440-50-8
Iron	70.000- 75.000	7439-89-6
Manganese(*)	0.200- 0.500	7439-96-5
Nickel(*)	8.000- 10.000	7440-02-0

OTHER

(*) This substance is regulated under section 313 of the Emergency Planning and Community Right - to - Know Act of 1986 and the Canadian National Pollution Reduction Initiative(NPRI).

SECTION 3. HAZARDS IDENTIFICATION

INHALATION ACUTE EXPOSURE EFFECTS

May cause coughing at high concentrations and shortness of breath.

INHALATION CHRONIC EXPOSURE EFFECTS

May affect breathing capacity.

EYE CONTACT ACUTE EXPOSURE EFFECTS

Dust may irritate eyes.

SKIN CONTACT ACUTE EXPOSURE EFFECTS

Some may experience skin irritation from dust.

INGESTION ACUTE EXPOSURE EFFECTS

No known adverse effects, but ingestion not recommended.

SECTION 4. FIRST AID MEASURES

INHALATION

Remove to fresh air. Artificial respiration as needed. Obtain medical assistance.

SKIN CONTACT

Wash affected areas with soap and water. Obtain medical assistance.

EYE CONTACT

Wash with large amounts of water. Obtain first aid and medical assistance, if needed .

INGESTION

Obtain medical assistance.

SECTION 5. FIRE FIGHTING MEASURES

FIRE FIGHTING PROCEDURES

Not Applicable

HAZARDOUS PRODUCTS/COMBUSTION

None.

HAZARD RATING SOURCE

HMIS

HEALTH

1

FLAMMABILITY

0

REACTIVITY

0

OTHER

SECTION 6. ACCIDENTAL RELEASE MEASURES

CLEAN-UP

Normal clean up procedures.

SECTION 7. HANDLING AND STORAGE

HANDLING

See ANSI STANDARD B7.1. Section 2.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

VENTILATION PROTECTION

Handle with adequate ventilation. See OSHA 29 CFR 1910.94 (ventilation) and 29 CFR 1910.1000 (Air contaminants).

RESPIRATORY PROTECTION

As needed, approved dust respirators. See OSHA 29CFR 1910.134.

EYE PROTECTION

Recommended. See OSHA 29 CFR 1910.133.

OTHER PROTECTION

Not Applicable

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE & ODOR

Grey or gold appearance.

SECTION 10. STABILITY AND REACTIVITY

INCOMPATIBILITIES

None.

DECOMPOSITION

Not Applicable

SECTION 11. TOXICOLOGICAL INFORMATION

CARCINOGENICITY

Nickel - EPA-A, IARC-2B, NTP-R, NIOSH-X; Chromium - IARC-3; Copper - EPA-D; Cobalt - IARC-2B, MAK-2; Manganese - EPA-D

LD50/LC50

Values are not appropriate or available.

SECTION 12. ECOLOGICAL INFORMATION

CHEMICAL FATE

Not Applicable

SECTION 13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL

Follow landfill methods consistent with applicable federal, state and local laws.

SECTION 14. TRANSPORT INFORMATION

HAZARD CLASS

This product is not hazardous as defined by the Department of Transportation. (USA)

This product is "Not Regulated" under the Transportation of Dangerous Goods Act. (CAN)

SECTION 15. REGULATORY INFORMATION

EXPOSURE LIMITS/REGULATORY INFORMATION

SUBSTANCE DESCRIPTION	UNITS	OSHA	ACGIH	MOL
Chromium(*)	MG/M3	1.0000	0.5000	0.0000
Cobalt(*)	MG/M3	0.0500	0.0200	0.1000
Copper(*)	MG/M3	0.1000	0.2000	0.2000
Iron	MG/M3	1.0000	1.0000	1.0000
Manganese(*)	MG/M3	1.0000	1.0000	1.0000
Nickel(*)	MG/M3	1.0000	1.0000	1.0000

LEGEND:

EXPOSURE LIMIT DESCRIPTIONS

CA PROP 65

This product is considered an accessory to power tools by the State of California and therefore does not require labeling under Proposition 65.

TSCA

Section 8(b) - Inventory Status

All components of this product are registered under the regulations of the Toxic Substance Control Act.

DOMESTIC SUBSTANCE LIST

All components of this product are found on the Domestic Substance List.

SECTION 16. OTHER INFORMATION

DISCLAIMER

N/A

KEY TO ABBREVIATIONS:

EQ=Equal

LT=Less Than

GT=Greater Than

AP=Approximately

TR=TRace

ND=No Data available

=

CHEM LINK PRODUCTS LLC

Material Safety Data Sheet

ANSI 2400.1 Format

EMERGENCY CONTACTS

Call Chemtrec: USA: 1-800-424-9300
International: (703) 527-3887

Section 1. Product and Company Information

Product Name	WallSecure	CHEM LINK PRODUCTS LLC 353 E. Lyons Street Schoolcraft, MI 49087 U.S.A.
Chemical Family	Silyl terminated polyether	
Product Use	Moisture cure sealant	
MSDS Prepared	04/18/2012	Tel: 269-679-4440
MSDS Prepared by	CHEM LINK Product Safety Group	Fax: 269-679-4448

Section 2. Composition / Information on Ingredients

HAZARDOUS INGREDIENTS

<u>Ingredient Name</u>	<u>CAS Number</u>	<u>Concentration</u>
Amino Silane	1760-24-3	1 – 5%

Section 3. Hazards Identification

EMERGENCY OVERVIEW

Human Effects and Symptoms of Exposure

Routes of Entry – Dermal contact, Eye.

Acute Eye Contact – Direct contact can cause severe irritation.

Acute Skin Contact – Direct contact may cause slight irritation.

Skin Absorption – Not Toxic.

Acute Inhalation – Product is extremely low in volatility and therefore not likely to pose a problem from inhalation.

Acute Ingestion – May be harmful if ingested, not a likely route of entry.

Chronic Effects of exposure – Repeated or prolonged direct contact to the eyes may cause chemical burns. Repeated or prolonged direct contact to the skin may cause a dermatitis.

Medical Conditions Aggravated by exposure – Preexisting skin and eye disorders may be aggravated by direct contact to this product.

Carcinogenicity – There are no components in this product that are listed as a carcinogen by NTP, IARC, ACGIH or OSHA.

HMIG

Health 1

Flammability 0

Reactivity 0

Protective

Equipment B

Section 4. First Aid Measures

First Aid For Eyes – Flush with large amounts of water for at least 15 minutes. Consult a physician if ill effects or irritation occurs.

First Aid For Skin – Clean product from affected area with Ethyl alcohol, then wash with soap and water.

First Aid for Inhalation – An unlikely route of entry. Remove to fresh air. Consult a physician.

First Aid For Ingestion – An unlikely route of entry. Consult a physician.

Section 5. Fire Fighting Measures

Special Fire Fighting Instructions – None. Full emergency equipment with self – contained breathing apparatus and full protective clothing should be worn by firefighters.
Extinguishing Media – Water, CO₂, Dry Chemical, Foam.
Unusual Fire and Explosion Hazards – None. This product is not considered flammable.
Flashpoint – Not applicable.
Upper Flammable Limit – Not applicable.
Lower Flammable Limit – Not applicable.
Autoignition temperature – Not applicable.
Sensitivity to Impact – Not applicable.
Sensitivity to Static Discharge – Not applicable.
Hazardous Combustion Products – Thermal decomposition may produce toxic fumes of Carbon Monoxide and/or Carbon dioxide.

Section 6. Accidental release measures

Personal Precautions – Use personal protection recommended in section 8.
Methods For Cleaning Up – Collect spill with absorbent material such as cardboard and place into a container approved for waste disposal.

Section 7. Handling and Storage

Handling – Use personal protection recommended in section 8. Avoid eye, skin and clothing contact.
Storage – Store in a cool dry area (this product polymerizes when in contact with moisture.)

Section 8. Exposure Controls / Personal Protection

Exposure Guidelines – No established limits.
Engineering controls – No specific controls are needed.
Personal Protective Equipment:
 Eye Protection – Wear safety glasses or goggles to avoid eye contact.
 Skin Protection – Wear impervious gloves such as vinyl to minimize contact with skin.
 Respiratory Protection – Not required.
 Work/Hygienic Practices – Avoid contact with eyes and skin. Wash thoroughly after handling and before eating or drinking.

Section 9. Physical and Chemical Properties

Physical State.....Paste.(reacts with moisture to become a firm synthetic rubber)
Odor and appearanceMild ester odor, thick paste of various colors.
pH.....Not established.
Specific Gravity.....Varies from color to color. All colors are heavier than water.
Density.....~ 13.35 lbs/gal.
Vapor Density (air = 1).....> 1
Vapor Pressure (mmHg).....Not established.
Evaporation Rate.....Not Applicable.

Section 9. Physical and Chemical Properties (continued)

Boiling Point.....Not established.
Freezing Point.....Not established.
Coefficient of Water/Oil Distribution...Not established
Viscosity.....~ 400,000 – 500,000 cPs

Section 10. Stability and Reactivity

Stability – Considered Stable.
Conditions to Avoid – None known
Incompatible Materials – None known.
Hazardous Decomposition Products – None known.
Hazardous polymerization – Will not occur.
Reactivity – Hazardous reaction will not occur.

Section 11. Toxicological Information

Information below is based on Amino Silane (refer to sections 2.and 3.)

Oral – Result: LD50 > 2,000 mg/kg. Remark: Very low order of toxicity.
Skin Absorption – Result: LD50 > 2,000 mg/kg. Remark: Very low order of toxicity.
Skin Direct contact – Result: Slight irritation.
Eye Direct contact – Result: Severe irritation. Remark: Causes corneal injury.
Inhalation – Result: LC50 Not acutely Toxic.
Exposure Limits – Not applicable.
Sensitization – No.
Reproductive Toxicity – No.
Mutagenicity – No.
Teratogenicity – No
Synergistic Products – None.

Section 12. Ecological Information

No known applicable information.

Section 13. Disposal Considerations

If this product as supplied becomes a waste, it does not meet the criteria of a hazardous waste as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261.
This product becomes a firm synthetic rubber when cured. Please allow to cure before disposal.

Section 14. Transport Information

Special Shipping Information – None.
DOT – Not regulated.
TDG – Not available.
PIN – Not available.

Section 15. Regulatory Information

OSHA 29 CFR 1910-1200 – Irritant.

TSCA – All components of this product are listed on TSCA Inventory.

CERCLA Reportable Quantity – Not applicable.

SARA Title III:

Section 302 Extremely Hazardous Substances – None.

Section 304 – Not applicable.

Section 311/312 – Immediate (acute) health hazard.

Section 313 – None.

RCRA – Refer to section 13.

California Proposition 65 – This product contains no levels of listed substances which the state of California has found to cause cancer, birth defects or other reproductive harm.

WHIMS Classification – D2B

Section 16. Other Information

Prepared in accordance with 29 CFR 1910.1200

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

To the best of our knowledge, the information contained herein is accurate. However CHEM LINK Products LLC does not assume any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be handled with care. Although we have described herein all of the hazards to which we are currently aware, we cannot guarantee that these are the only hazards which exist.

1 Identification of the substance/mixture and of the company/undertaking**Product identifier****Trade name:** WRDA-82**MSDS ID Number:** D-06720**Details of the supplier of the safety data sheet****Manufacturer/Supplier:**

W.R. Grace & Co. -Conn.
62 Whittemore Avenue
Cambridge, MA 02140 USA

Information department:

Environmental Health & Safety
USA: +1-617-876-1400 (24 hours)
+1-800-354-5414 (8AM - 5PM) Not functional within Massachusetts

Transport Emergency: Chemtrec +1-800-424-9300 (24 hours)**2 Composition/information on ingredients****Chemical characterization: Mixtures****Description:** Mixture of the substances listed below with nonhazardous additions.**Hazardous components:**

102-71-6	Triethanolamine	5.0-10.0%
----------	-----------------	-----------

3 Hazards identification**Classification of the substance or mixture****Information concerning particular hazards for human and environment:** Harmful if swallowed.**Inhalation:** Causes respiratory tract irritation.**Eye Contact:**

Causes eye irritation.

Irritating effect.

Prolonged eye contact can result in tissue damage.

Skin Contact:

Irritant to skin and mucous membranes.

Causes skin irritation.

May cause sensitization.

Ingestion:

Amines contained in this product have been associated with the following effects: lung damage, liver and kidney damage, blood effects, developmental toxicity and teratogenic effects.

Additional target organ effects:

May cause liver damage

May cause kidney damage

May cause blood effects

(Cont. on page 2)

USA

Material Safety Data Sheet

Printing date 01/19/2011

Reviewed on 01/19/2011

Trade name: **WRDA-82**

NFPA ratings (scale 0 - 4)

(Cont. from page 1)



Health = 1

Fire = 1

Reactivity = 0

HMIS-ratings (scale 0 - 4)



Health = *2

Flammability = 1

Reactivity = 0

4 First aid measures**Description of first aid measures****General information:**

No special measures required.

After skin contact:

Immediately wash contaminated skin with soap or mild detergent and water. If this chemical soaks clothing, immediately remove clothing and wash skin.

If skin irritation continues, consult a doctor.

After eye contact:

Rinse opened eye for several minutes under running water.

Seek immediate medical advice.

After swallowing: Do not induce vomiting; immediately call for medical help.**Information for doctor:****Most important symptoms and effects, both acute and delayed** No further relevant information available.**Indication of any immediate medical attention and special treatment needed**

No further relevant information available.

5 Firefighting measures**Extinguishing media****Suitable extinguishing agents:**CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.**Special hazards arising from the substance or mixture** No further relevant information available.**Additional information** Collect contaminated fire fighting water separately. It must not enter the sewage system.

USA

(Cont. on page 3)

Trade name: *WRDA-82*

(Cont. from page 2)

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures

Wear protective equipment. Keep unprotected persons away.

Methods and material for containment and cleaning up:

Contain and/or absorb spill with inert material (i.e. sand, vermiculite) then place in a suitable container.

Sweep up spilled product into receptacles.

Dispose contaminated material as waste according to section 13 of the MSDS.

Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

7 Handling and storage

Handling:

Precautions for safe handling

Open and handle receptacle with care.

Prevent formation of aerosols.

Avoid contact with eyes, skin and clothing.

Do not take internally.

Practice good personal hygiene to avoid ingestion.

Use only with adequate ventilation.

Wash clothing before reuse.

FOR PROFESSIONAL USE ONLY. KEEP OUT OF CHILDREN'S REACH.

Information about protection against explosions and fires:

Empty containers may retain hazardous residue, both liquid and vapor.

Conditions for safe storage, including any incompatibilities

Storage:

Information about storage in one common storage facility: No special measures required.

Further information about storage conditions: Keep receptacle tightly sealed.

Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

Additional information about design of technical systems: No further data; see item 7.

(Cont. on page 4)

USA

Trade name: **WRDA-82**

(Cont. from page 3)

Control parameters**Components with limit values that require monitoring at the workplace:****102-71-6 Triethanolamine**TLV | 5 mg/m³**Additional information:** The lists that were valid during the creation were used as basis.**Exposure controls****Personal protective equipment:****General protective and hygienic measures:** Avoid contact with the eyes and skin.**Breathing equipment:**

Respiratory protection is not normally required. However, a chemical cartridge respirator with organic vapor cartridge and a prefilter for dusts/mists is required at or above the applicable exposure limits (consult exposure guidelines). If no limits exist, use an approved respirator whenever a vapor or mist is generated or if respiratory irritation occurs. Supplied air respirator (SCBA) is required at exposure levels above the capabilities of a chemical cartridge respirator.

Protection of hands:

Gloves should be worn to prevent skin contact and should be impermeable and resistant to the product. Rubber or other impervious gloves should be worn to prevent skin contact.

Material of gloves

Gloves should be impermeable and resistant to the product. Selection of material should be considered before use.

Eye protection:

Safety glasses with side shield protection.



A face shield should also be worn if there is potential exposure to splash or spray.

Safety glasses with side shields should be worn to prevent contact due to splashing. Under high vapor mist concentrations, tightly sealed goggles should be worn.

Body protection: Protective work clothing**9 Physical and chemical properties****Information on basic physical and chemical properties****General Information****Appearance:****Form:**

Liquid

Color:

According to product specification

Odor:

Characteristic

Odour threshold:

Not determined.

(Cont. on page 5)

USA

Material Safety Data Sheet

Printing date 01/19/2011

Reviewed on 01/19/2011

Trade name: **WRDA-82**

(Cont. from page 4)

pH-value:	~7.4
Change in condition	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	100°C (212°F)
Flash point:	100°C (212°F)
Method:	Not determined (estimated) Aqueous system.
Decomposition temperature:	Not determined.
Auto igniting:	Product is not selfigniting.
Danger of explosion:	Product does not present an explosion hazard.
Explosion limits:	
Lower:	Not determined.
Upper:	Not determined.
Vapor pressure:	Not determined.
Density:	Not determined.
Vapour density	Not determined.
Evaporation rate	Not determined.
Solubility in / Miscibility with	
Water:	
Segregation coefficient (n-octanol/water):	Not determined.
Viscosity:	
Dynamic:	Not determined.
Kinematic:	Not determined.
Other information	No further relevant information available.

10 Stability and reactivity**Reactivity****Chemical stability****Thermal decomposition:** No decomposition if used according to specifications.**Conditions to avoid** No further relevant information available.**Incompatible materials:** No further relevant information available.**Hazardous decomposition products:** Carbon monoxide and carbon dioxide**Additional information:** See section 7 for information on handling, storage and conditions to be avoided.USA
(Cont. on page 6)

Trade name: *WRDA-82*

(Cont. from page 5)

11 Toxicological information

Information on toxicological effects

Acute toxicity:**Primary irritant effect:****inhalation:** Irritating to respiratory system.**Sensitization:** Sensitization possible through skin contact.**Additional toxicological information:**

Amines contained in this product have been associated with the following effects: skin sensitization, lung damage, liver and kidney damage, blood effects, developmental toxicity and teratogenic effects.

12 Ecological information

Toxicity

Acquatic toxicity: No further relevant information available.**Persistence and degradability** No further relevant information available.**Behavior in environmental systems:****Bioaccumulative potential** No further relevant information available.**Mobility in soil** No further relevant information available.**Additional ecological information:****General notes:**

Slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

Results of PBT and vPvB assessment**PBT:** Not applicable.**vPvB:** Not applicable.**Other adverse effects** No further relevant information available.

13 Disposal considerations

Waste treatment methods Comply with Federal, State and local regulations.**Recommendation:**

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

(Cont. on page 7)

USA

Material Safety Data Sheet

Printing date 01/19/2011

Reviewed on 01/19/2011

Trade name: *WRDA-82*

(Cont. from page 6)

Uncleaned packagings:**Recommendation:** Disposal must be made according to official regulations.**14 Transport information****DOT regulations:****Hazard class:**

-

Remarks:

Not Regulated.

Land Transport ADR/RID (cross-border):**ADR/RID class:**

-

Remarks:

Not Regulated.

Inland shipping ADN:**ADN/R Class:**

-

Maritime Transport IMDG:**IMDG Class:**

-

Marine pollutant:

No

Remarks:

Not Regulated.

Air Transport ICAO-TI and IATA-DGR: Not Regulated for ICAO and IATA-DGR**ICAO/IATA Class:**

-

Remarks:

Not Regulated.

Special precautions for user Not applicable.**Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.**15 Regulatory information****SARA (Superfund Amendments and Reauthorization Act)****Section 302/304 (extremely hazardous substances):**

None of the ingredients is listed.

Section 313 Reportable Ingredients (Chemicals present below reporting threshold are exempt):

None of the ingredients is listed.

SARA Section 312/Tier I & II Hazard Categories:

Health Immediate (acute)	Yes
Health Delayed (chronic)	Yes
Flammable	No
Reactive	No
Pressure	No

(Cont. on page 8)

USA

Material Safety Data Sheet

Page 8/9

Printing date 01/19/2011

Reviewed on 01/19/2011

Trade name: *WRDA-82*

(Cont. from page 7)

National Chemical Inventory Status

TSCA (Toxic Substances Control Act - United States):

All ingredients are listed or exempt from listing unless otherwise noted below.

Remarks:

CEPA (Canadian DSL):

All ingredients are listed or exempt from listing unless otherwise noted below.

California Proposition 65

Chemicals known to cause cancer:

50-00-0 Formaldehyde

Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.

Chemicals known to cause reproductive toxicity for males:

50-00-0 Formaldehyde

Chemicals known to cause developmental toxicity:

50-00-0 Formaldehyde

WHMIS Classification(s):

D2B - Toxic material causing other toxic effects



Carcinogenicity Categories

EPA (Environmental Protection Agency)

None of the ingredients is listed.

IARC (International Agency for Research on Cancer)

None of the ingredients is listed.

NTP (National Toxicology Program)

None of the ingredients is listed.

TLV-ACGIH (Threshold Limit Value for Carcinogens established by ACGIH)

None of the ingredients is listed.

NIOSH-Cancer (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

OSHA-Cancer (Occupational Safety & Health Administration)

None of the ingredients is listed.

National Volatile Organic Emission Standards for Architectural Coatings: Volatile Organic Content:

European EINECS

Inventory listing could not be confirmed for one or more substances.

Philippines Inventory of Chemicals and Chemical Substances PICCS

Inventory listing could not be confirmed for one or more substances.

(Cont. on page 9)

USA

Material Safety Data Sheet

Printing date 01/19/2011

Reviewed on 01/19/2011

Trade name: *WRDA-82*

(Cont. from page 8)

Inventory of Existing Chemical Substances manufactured or imported in China IECSC

102-71-6 Triethanolamine

111-42-2 Diethanolamine

50-00-0 Formaldehyde

Australian Inventory of Chemical Substances AICS

Inventory listing could not be confirmed for one or more substances.

Existing and New Chemical Substance List ENCS

Inventory listing could not be confirmed for one or more substances.

Korean Existing Chemical Inventory

All ingredients are listed.

Product related hazard information:**Hazard symbols:**

Irritant

Hazard-determining components of labelling:

Triethanolamine

Risk phrases:

Irritating to eyes, respiratory system and skin.

May cause sensitization by skin contact.

Safety phrases:

Do not breathe gas/fumes/vapor/spray.

Avoid contact with skin.

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Wear suitable gloves.

This material and its container must be disposed of as hazardous waste.

Non-hazardous Ingredients

8061-52-7 Calcium lignin sulfonate

30-50%

7732-18-5 Water

50-100%

Chemical safety assessment: A Chemical Safety Assessment has not been carried out.**16 Other information**

"The data included herein are presented in accordance with various environment, health and safety regulations. It is the responsibility of a recipient of the data to remain currently informed on chemical hazard information, to design and update its own program and to comply with all national, federal, state and local laws and regulations applicable to safety, occupational health, right-to-know and environmental protection."

USA

Material Safety Data Sheet

Printing date 03/02/2012

Version Number 1.0

Reviewed on 03/02/2012

1 Identification of the substance/mixture and of the company/undertaking**Product identifier****Trade name:** DARAVAIR 1400**MSDS ID Number:** D-06832**Replaces MSDS ID Number:** D-06422**Details of the supplier of the safety data sheet****Manufacturer/Supplier:**

W.R. Grace & Co. -Conn.
62 Whittemore Avenue
Cambridge, MA 02140 USA

Other Country Contact Information:

For products distributed beyond the country Manufacturer/Supplier identified above
Consult Section 16 for additional emergency contact information.

Information department:

Environmental Health & Safety
USA: +1-617-876-1400 (24 hours)
+1-800-354-5414 (8AM - 5PM) Not functional within Massachusetts

Transport Emergency: Chemtrec +1-800-424-9300 (24 hours)**2 Composition/information on ingredients****Chemical characterization: Mixtures****Description:** Mixture of the substances listed below with nonhazardous additions.**Hazardous components:** Not applicable.**3 Hazards identification****Special labelling of certain preparations:**

Contains Rosin; colophony. May produce an allergic reaction.

Inhalation: May cause respiratory tract irritation.**Eye Contact:** May cause eye irritation. Permanent eye injury may result from exposure.**Skin Contact:** May be irritating to the skin on prolonged contact.**Skin Absorption:** Not expected to be harmful if absorbed through the skin.**NFPA ratings (scale 0 - 4)**

Health = 2
Fire = 1
Reactivity = 0

(Cont. on page 2)

USA

Material Safety Data Sheet

Printing date 03/02/2012

Version Number 1.0

Reviewed on 03/02/2012

Trade name: *DARAVAIR 1400***HMIS-ratings (scale 0 - 4)**

(Cont. from page 1)

HEALTH	2	Health = *2
FIRE	1	Flammability = 1
REACTIVITY	0	Reactivity = 0

4 First aid measures**General information:**

No special measures required.

After skin contact:

Immediately wash contaminated skin with soap or mild detergent and water. If this chemical soaks clothing, immediately remove clothing and wash skin.

After eye contact: Rinse opened eye for several minutes under running water.

After swallowing: Do not induce vomiting; immediately call for medical help.

5 Firefighting measures

Special hazards arising from the substance or mixture No further relevant information available.

Additional information Collect contaminated fire fighting water separately. It must not enter the sewage system.

6 Accidental release measures**Personal precautions, protective equipment and emergency procedures**

Wear protective equipment. Keep unprotected persons away.

Methods and material for containment and cleaning up:

Contain and/or absorb spill with inert material (i.e. sand, vermiculite) then place in a suitable container.

Sweep up spilled product into receptacles.

Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

USA

(Cont. on page 3)

Material Safety Data Sheet

Printing date 03/02/2012

Version Number 1.0

Reviewed on 03/02/2012

Trade name: *DARAVAIR 1400*

(Cont. from page 2)

7 Handling and storage**Handling:****Precautions for safe handling**

Open and handle receptacle with care.

Avoid contact with eyes, skin and clothing.

Do not take internally.

Practice good personal hygiene to avoid ingestion.

Use only with adequate ventilation.

Wash clothing before reuse.

FOR PROFESSIONAL USE ONLY. KEEP OUT OF CHILDREN'S REACH.

Information about protection against explosions and fires:

Empty containers may retain hazardous residue, both liquid and vapor.

Storage:

Information about storage in one common storage facility: No special measures required.

Further information about storage conditions: Keep receptacle tightly sealed.

Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

Additional information about design of technical systems: No further data; see item 7.

Components with limit values that require monitoring at the workplace:

The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

Additional information: The lists that were valid during the creation were used as basis.

Personal protective equipment:

General protective and hygienic measures: Avoid contact with the eyes and skin.

Breathing equipment:

Respiratory protection is not normally required. However, a chemical cartridge respirator with organic vapor cartridge and a prefilter for dusts/mists is required at or above the applicable exposure limits (consult exposure guidelines). If no limits exist, use an approved respirator whenever a vapor or mist is generated or if respiratory irritation occurs. Supplied air respirator (SCBA) is required at exposure levels above the capabilities of a chemical cartridge respirator.

Protection of hands:

Gloves should be worn to prevent skin contact and should be impermeable and resistant to the product.

Rubber or other impervious gloves should be worn to prevent skin contact.

Material of gloves

Gloves should be impermeable and resistant to the product. Selection of material should be considered before use.

(Cont. on page 4)

USA

Material Safety Data Sheet

Printing date 03/02/2012

Version Number 1.0

Reviewed on 03/02/2012

Trade name: **DARAVAIR 1400**

(Cont. from page 3)

Eye protection:

Safety glasses with side shield protection.



A face shield should also be worn if there is potential exposure to splash or spray.

Body protection: Protective work clothing**9 Physical and chemical properties****General Information****Appearance:**

Form:	Liquid
Color:	According to product specification
Odor:	Characteristic
Odour threshold:	Not determined.

pH-value at 20°C (68 °F):	10
----------------------------------	----

Change in condition

Melting point/Melting range:	Undetermined.
Flash point:	Not applicable.

Flammability (solid, gaseous):	Not applicable.
---------------------------------------	-----------------

Decomposition temperature:	Not determined.
Auto igniting:	Product is not selfigniting.
Danger of explosion:	Product does not present an explosion hazard.

Explosion limits:

Lower:	Not determined.
Upper:	Not determined.
VOC Content (max):	Not determined.

Vapor pressure:	Not determined.
Density at 20°C (68 °F):	1.025 g/cm ³ (8.554 lbs/gal)
Vapour density	Not determined.
Evaporation rate	Not determined.
Solubility in / Miscibility with	

Water:	
Segregation coefficient (n-octanol/water):	Not determined.

Viscosity:

Dynamic:	Not determined.
Kinematic:	Not determined.

(Cont. on page 5)

USA

Material Safety Data Sheet

Printing date 03/02/2012

Version Number 1.0

Reviewed on 03/02/2012

Trade name: **DARAVAIR 1400**

(Cont. from page 4)

Other information

No further relevant information available.

10 Stability and reactivity**Thermal decomposition:** No decomposition if used according to specifications.**Possibility of hazardous reactions** No dangerous reactions known.**Incompatible materials:** No further relevant information available.**Hazardous decomposition products:** Carbon monoxide and carbon dioxide**Additional information:** See section 7 for information on handling, storage and conditions to be avoided.**11 Toxicological information****Acute toxicity:****Primary irritant effect:****on the skin:** May be irritating to the skin on prolonged contact**on the eye:** May be irritating to the eyes.**Sensitization:** Sensitization possible through skin contact.**Additional toxicological information:**

The product is not subject to classification according to internally approved calculation methods for preparations:

12 Ecological information**Aquatic toxicity:** No further relevant information available.**Persistence and degradability** No further relevant information available.**Behavior in environmental systems:****Bioaccumulative potential** No further relevant information available.**13 Disposal considerations****Waste treatment methods** Comply with Federal, State and local regulations.**Recommendation:**

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

(Cont. on page 6)

USA

Material Safety Data Sheet

Printing date 03/02/2012

Version Number 1.0

Reviewed on 03/02/2012

Trade name: *DARAVAIR 1400*

(Cont. from page 5)

Uncleaned packagings:**Recommendation:** Disposal must be made according to official regulations.**14 Transport information****UN-Number**

DOT, ADR, ADN, IMDG, IATA

Not applicable.

UN proper shipping name

DOT, ADR, ADN, IMDG, IATA

Not applicable.

Transport hazard class(es)

DOT, ADR, ADN, IMDG, IATA

Class

Not applicable.

Packing group

DOT, ADR, IMDG, IATA

Not applicable.

Environmental hazards:**Marine pollutant:**

No

Special precautions for user

Not applicable.

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Not applicable.

Transport/Additional information:**DOT****Remarks:**

Not Regulated.

15 Regulatory information**SARA (Superfund Amendments and Reauthorization Act)****Section 302/304 (extremely hazardous substances):**

None of the ingredients is listed.

Section 313 Reportable Ingredients (Chemicals present below reporting threshold are exempt):

None of the ingredients is listed.

SARA Section 312/Tier I & II Hazard Categories:

Health Immediate (acute)	Yes
Health Delayed (chronic)	Yes
Flammable	No
Reactive	No
Pressure	No

(Cont. on page 7)

USA

Material Safety Data Sheet

Printing date 03/02/2012

Version Number 1.0

Reviewed on 03/02/2012

Trade name: **DARAVAIR 1400**

(Cont. from page 6)

North America Chemical Inventory Status**TSCA (Toxic Substances Control Act - United States):**

All ingredients are listed or exempt from listing unless otherwise noted below.

CEPA (Canadian DSL):

All ingredients are listed or exempt from listing unless otherwise noted below.

California Proposition 65**Chemicals known to cause cancer:**

None of the ingredients is listed.

Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.

Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed.

Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

Carcinogenicity Categories**EPA (Environmental Protection Agency)**

None of the ingredients is listed.

IARC (International Agency for Research on Cancer) Human Carcinogenicity:**Group 1- Positive, Group 2A- Probable, Group 2B- Possible, Group 3- Not Classifiable**

None of the ingredients is listed.

NTP (National Toxicology Program)**K-Known to be carcinogenic, R-May reasonably be anticipated to be carcinogenic**

None of the ingredients is listed.

TLV-ACGIH (THE American Conference of Governmental Industrial Hygienists)**Human Carcinogen - A1 Confirmed, A2 Suspected, A3 Unknown Relevance, A4 Not Classifiable**

None of the ingredients is listed.

NIOSH-Cancer (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

OSHA-Cancer (Occupational Safety & Health Administration)

None of the ingredients is listed.

Volatile Organic Compounds (VOC) reported per the Emission Standards for Architectural Coatings:

If no g/L value is provided this product is not subject to above standard.

International Chemical Inventory Status**European EINECS**

Inventory listing could not be confirmed for one or more substances.

Philippines Inventory of Chemicals and Chemical Substances PICCS

Inventory listing could not be confirmed for one or more substances.

Inventory of Existing Chemical Substances manufactured or imported in China IECSC

All ingredients are listed.

(Cont. on page 8)

USA

Material Safety Data Sheet

Printing date 03/02/2012

Version Number 1.0

Reviewed on 03/02/2012

Trade name: **DARAVAIR 1400**

(Cont. from page 7)

Australian Inventory of Chemical Substances AICS

Inventory listing could not be confirmed for one or more substances.

Japan Existing and New Chemical Substance List ENCS

Inventory listing could not be confirmed for one or more substances.

Korean Existing Chemical Inventory

Inventory listing could not be confirmed for one or more substances.

Non-hazardous Ingredients

85409-27-4 Rosin, maleated, potassium salt

61790-50-9 Resin acids and rosin acids, potassium salts

7732-18-5 Water

16 Other information

"The data included herein are presented in accordance with various environment, health and safety regulations. It is the responsibility of a recipient of the data to remain currently informed on chemical hazard information, to design and update its own program and to comply with all national, federal, state and local laws and regulations applicable to safety, occupational health, right-to-know and environmental protection."

USA

Material Safety Data Sheet

For Unhardened Concrete Only

Providers of this MSDS must complete Section I:

- Manufacturer's Name, Address
- Supplier's Name, Address
- Emergency Telephone Number



Material Safety Data Sheet For Unhardened Concrete

Section I - Identity

Manufacturer's name and address: Kansas City Ready Mix Group
Supplier's name and address: Kansas City Ready Mix Group
11011 Cody
Overland Park, KS 66210

Emergency Telephone Number: 913-345-2030

Chemical Name & Synonyms: Plastic concrete, concrete slurry, unset concrete

Date Revised: January 2011

Section II - Hazardous Ingredients

Unhardened concrete is a slurry of portland cement, aggregate, silica sand, and various admixtures used to enhance concrete performance characteristics.

	<u>CAS #</u>	<u>%</u>	<u>ACGIH TLV</u>	<u>OSHA PEL</u>
Portland Cement	65997-15-1	>1%	10 mg/m ³	15 mg/m ³ Total Dust 5 mg/m ³ Respirable Dust
Silica (quartz)	14808-60-7	>0.1%	0.025 mg/m ³ *	10 mg/m ³ % silica*+2
Calcium Oxide	1305-78-8	>1%	2 mg/m ³	5 mg/m ³

* Respirable fraction

NOTE: Unhardened concrete is a wet slurry and dusting is not a concern .

Section III - Physical/Chemical Characteristics

Boiling Point: Not applicable
Specific Gravity (H₂O=1): 2.20 - 2.60
Vapor Pressure (mmHg): Not applicable
Melting Point: Not applicable
Vapor Density (Air=1): Not applicable
Evaporation Rate: Not applicable
Solubility in Water: Slight; 0.1-1.0%
Appearance and Odor: Thick gray slurry; alkaline, earthy odor

Section IV - Fire and Explosion Hazard of Material

Flash Point (Method Used):	Not Applicable
Flammable Limits:	Not Applicable
LEL/UEL:	Not Applicable
Extinguishing Media:	Not Applicable
Special Firefighting Procedures:	Not Applicable
Unusual Fire and Explosion Hazards:	Not Applicable

Section V - Health Hazard Data

Route of Exposure:	Inhalation?	No
	Skin?	Yes
	Eyes?	Yes
	Ingestion?	Yes

Health Hazards (acute and chronic):

Acute: Contact with unhardened concrete and the bleed water can produce severe skin burns; development of pain symptoms may be delayed several hours. Irritation of both eyes and tissue lining of nose can be severe. Prolonged contact can cause severe alkali burns. Hypersensitive individuals may develop an allergic-type of dermatitis (cement in concrete may contain traces of chromium). Pre-existing skin conditions may be worsened.

Chronic: Dermatitis can result from continued contact of unprotected skin with unhardened concrete. Exposure to respirable crystalline silica without the use of a respirator can cause silicosis. Shortness of breath, coughing, diminished work capacity, reduced lung volume and heart enlargement characterizes silicosis. Silicosis may aggravate other chronic conditions and may increase the risk of pulmonary tuberculosis infection.

	<u>Unhardened Concrete</u>	<u>Portland Cement</u>	<u>Silica (Quartz)</u>	<u>Calcium Oxide</u>
Carcinogenicity:				
NTP:	No	No	Yes	No
IARC:	No	No	Yes	No
OSHA regulated:	No	No	No	No

Respiratory exposure to silica in unhardened concrete is not a concern.

Emergency and First Aid Procedures: Irrigate eyes immediately and repeatedly with water and get prompt medical attention. Wash exposed skin areas with soap and water.

Section VI - Reactivity Data

Stability:	Unhardened concrete will consolidate and harden to a continuous mass, compressive strength increasing with time.
Incompatibility (Materials to Avoid):	Not Applicable
Hazardous Decomposition or By-Products:	Not Applicable
Hazardous Polymerization:	Will not occur:
Conditions to Avoid:	Not Applicable

Section VII - Precautions for Safe Handling and Use

Steps to be taken in case material is released or spilled: Emergency procedures are not required.

Waste disposal method: Material can be disposed of as common waste or returned to a container for later use if it is not contaminated.

Precautions to be taken in handling or storing: **AVOID CONTACT WITH SKIN AND EYES.** Skin of hands, feet, and lower legs, including the knees, is especially vulnerable (e.g., concrete finishers).

Other precautions: Use personal protective equipment (PPE) as described in Section VIII, Control Measures.

Section VIII - Control Measures

Respiratory protection:	Respiratory protection should not be necessary when handling unhardened concrete. However, a NIOSH-approved dust respirator is recommended when handling dry cement or when cutting or otherwise abrading hardened concrete.
Ventilation:	Local exhaust ventilation should not be necessary when handling unhardened concrete. However, local exhaust ventilation can be used to control airborne dust levels that may be generated while handling dry cement or when cutting or otherwise abrading hardened concrete.
Protective gloves:	Select chemical and abrasion resistant gloves to provide protection against skin contact with unhardened concrete and the <input type="checkbox"/> bleed <input type="checkbox"/> water. Avoid contaminating the inside of protective gloves with concrete or bleed water.
Eye Protection:	Use tight fitting goggles.

Other Protective Clothing or Equipment:

Use impermeable boots, gloves, aprons and clothing that will protect all potentially exposed skin, and prevent contact with unhardened concrete and the bleed water. Immediately remove and/or rinse with fresh water clothing that has become wetted or saturated by unhardened concrete or bleed water. Contaminated clothing that remains in contact with the skin can cause skin burns.

Work/Hygienic Practices:

Wash hands frequently during the workday with fresh water and pH-neutral soap. Immediately after working with unhardened concrete, workers should shower with pH-neutral soap and fresh water. Avoid placing hands in the rinse water used to clean tools; concrete residue in the rinse water causes the water to become highly alkaline. Precautions must be observed because the alkaline cement in concrete can cause severe burns without warning; little heat is sensed.

This product neither contains nor is directly manufactured with any controlled ozone depleting substances, Class I and II.

Safety data sheet

EMACO GP THORITE

Revision date : 2009/02/24
Version: 1.0

Page: 1/6
(30367735/MDS_GEN_US/EN)

1. Substance/preparation and company identification

Company

BASF Construction Chemicals
100 Campus Drive
Florham Park, NJ 07932

24 Hour Emergency Response Information

CHEMTREC: 1-800-424-9300
BASF HOTLINE: 1-800-832-HELP

2. Composition/information on ingredients

<u>CAS Number</u>	<u>Content (W/W)</u>	<u>Chemical name</u>
14808-60-7	40.0 - 70.0 %	crystalline silica
65997-15-1	10.0 - 30.0 %	Cement, portland, chemicals
65997-16-2	10.0 - 30.0 %	Cement, alumina, chemicals
1317-65-3	1.0 - 5.0 %	Limestone
1309-37-1	1.0 - 5.0 %	Iron oxide
7778-18-9	0.5 - 1.5 %	Calcium sulphate
13463-67-7	0.1 - 1.0 %	titanium dioxide

3. Hazard identification

Emergency overview

WARNING: CONTAINS MATERIAL WHICH CAN CAUSE CANCER.
MAY BE HARMFUL IF INHALED.

Can cause moderate irritation due to abrasive action.

In combination with water, repeated or prolonged dermal exposure can cause moderate to severe alkali burns.

Keep container tightly closed.

Avoid inhalation of dusts.

Avoid ingestion.

Avoid contact with the skin, eyes and clothing.

Wash thoroughly after handling.

Potential health effects

Primary routes of exposure

Routes of entry for solids and liquids include eye and skin contact, ingestion and inhalation. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquified gases.

Acute toxicity:

No data available.

Irritation:

Contact with powders or dusts may irritate the eyes, skin and respiratory tract. Depending on the concentration and duration of exposure, aqueous solutions can cause a strongly irritating or corrosive effect on the skin or eyes.

Safety data sheet

EMACO GP THORITE

Revision date : 2009/02/24
Version: 1.0

Page: 2/6
(30367735/MDS_GEN_US/EN)

Repeated dose toxicity:

Information on: Iron oxide

Chronic exposures have been known to produce pneumoconiosis (chronic inflammatory and fibrotic lung disease).

The substance may cause increase in lung mass and lung tissue changes after repeated inhalation.

The product has not been tested. The statement has been derived from products of a similar structure and composition.

Information on: crystalline silica

This product may contain greater than 0.1% crystalline silica.

Repeated exposure to high concentrations results in silicosis, a lung disease characterized by coughing, difficult breathing, wheezing, scarring of the lungs, and repeated, non-specific chest illnesses.

Potential environmental effects

Aquatic toxicity:

At the present state of knowledge, no negative ecological effects are expected.

There is a high probability that the product is not acutely harmful to aquatic organisms.

The product has not been tested. The statement has been derived from products of a similar structure and composition.

4. First-aid measures

If inhaled:

After inhalation of dust. Keep patient calm, remove to fresh air. If difficulties occur: Obtain medical attention.

If on skin:

After contact with skin, wash immediately with plenty of water and soap. Under no circumstances should organic solvent be used. If irritation develops, seek medical attention.

If in eyes:

Flush with copious amounts of water for at least 15 minutes.

If swallowed:

Rinse mouth immediately and then drink plenty of water, seek medical attention. Do not induce vomiting unless told to by a poison control center or doctor.

5. Fire-fighting measures

Suitable extinguishing media:

foam, water spray, dry extinguishing media, carbon dioxide

Unsuitable extinguishing media for safety reasons:

water jet

Hazards during fire-fighting:

carbon dioxide, carbon monoxide, harmful vapours, nitrogen oxides, fumes/smoke, carbon black

Protective equipment for fire-fighting:

Wear a self-contained breathing apparatus.

Further information:

The degree of risk is governed by the burning substance and the fire conditions. Contaminated extinguishing water must be disposed of in accordance with official regulations.

Safety data sheet

EMACO GP THORITE

Revision date : 2009/02/24
Version: 1.0

Page: 3/6
(30367735/MDS_GEN_US/EN)

6. Accidental release measures

Personal precautions:

Avoid dust formation. Avoid contact with skin and eyes. Use personal protective clothing. Handle in accordance with good building materials hygiene and safety practice.

Environmental precautions:

Contain contaminated water/firefighting water. Do not discharge into drains/surface waters/groundwater.

Cleanup:

Avoid raising dust.

For small amounts: Pick up with suitable appliance and dispose of. Dispose of absorbed material in accordance with regulations.

For large amounts: Pick up with suitable appliance and dispose of. Dispose of absorbed material in accordance with regulations.

7. Handling and storage

Handling

General advice:

Avoid dust formation. Avoid inhalation of dusts. Avoid skin contact. Pour downwind and allow as little free fall as possible while emptying bags into equipment. Breathing must be protected when large quantities are decanted without local exhaust ventilation.

Protection against fire and explosion:

Prevent electrostatic charge - sources of ignition should be kept well clear - fire extinguishers should be kept handy. Keep away from sources of ignition - No smoking. Dust can form an explosive mixture with air.

Storage

Storage incompatibility:

General: Segregate from metals. Segregate from acids. Segregate from lyes. Segregate from oxidants. Segregate from foods and animal feeds.

8. Exposure controls and personal protection

Components with workplace control parameters

crystalline silica	OSHA	TWA value 2.4 millions of particles per cubic foot of air Respirable ; TWA value 0.1 mg/m ³ Respirable ; TWA value 0.3 mg/m ³ Total dust ;
Cement, portland, chemicals	ACGIH	TWA value 0.025 mg/m ³ Respirable fraction ;
	OSHA	PEL 5 mg/m ³ Respirable fraction ; PEL 15 mg/m ³ Total dust ;
Limestone	ACGIH	TWA value 10 mg/m ³ ;
	OSHA	PEL 5 mg/m ³ Respirable fraction ; PEL 15 mg/m ³ Total dust ;
Iron oxide		
Calcium sulphate	ACGIH	TWA value 5 mg/m ³ Respirable fraction ;
	OSHA	PEL 5 mg/m ³ Respirable fraction ; PEL 15 mg/m ³ Total dust ;
titanium dioxide	ACGIH	TWA value 10 mg/m ³ Inhalable fraction ;
	OSHA	PEL 15 mg/m ³ Total dust ;
	ACGIH	TWA value 10 mg/m ³ ;

Safety data sheet

EMACO GP THORITE

Revision date : 2009/02/24

Version: 1.0

Page: 4/6

(30367735/MDS_GEN_US/EN)

Personal protective equipment

Respiratory protection:

Wear respiratory protection if ventilation is inadequate.

Hand protection:

Chemical resistant protective gloves, Manufacturer's directions for use should be observed because of great diversity of types.

Eye protection:

Tightly fitting safety goggles (chemical goggles).

Body protection:

Body protection must be chosen based on level of activity and exposure.

General safety and hygiene measures:

Avoid contact with the skin, eyes and clothing. Avoid inhalation of dusts. In order to prevent contamination while handling, closed working clothes and working gloves should be used. Handle in accordance with good building materials hygiene and safety practice. When using, do not eat, drink or smoke. Hands and/or face should be washed before breaks and at the end of the shift. At the end of the shift the skin should be cleaned and skin-care agents applied. Gloves must be inspected regularly and prior to each use. Replace if necessary (e.g. pinhole leaks).

9. Physical and chemical properties

Form:	powder	
Odour:	odourless	
Colour:	grey	
Melting point:		Unspecified
Relative density:	2.2	

10. Stability and reactivity

Conditions to avoid:

Avoid dust formation.

Substances to avoid:

strong acids, strong bases, strong oxidizing agents

Hazardous reactions:

The product is stable if stored and handled as prescribed/indicated.

11. Toxicological information

Chronic toxicity

Carcinogenicity:

Information on: crystalline silica

The International Agency for Research on Cancer (IARC) has classified this substance as a Group 1 (known) human carcinogen.

Information on: titanium dioxide

IARC (International Agency for Research on Cancer) has classified this substance as group 2B (The agent is possibly carcinogenic to humans).

In long-term studies in rats in which the substance was given by inhalation, a carcinogenic effect was observed.

Tumors were only observed in rats after chronic inhalative exposure to high concentrations which caused sustained lung inflammation.

In long-term studies in rats and mice in which the substance was given by feed, a carcinogenic effect was not observed.

Safety data sheet

EMACO GP THORITE

Revision date : 2009/02/24

Version: 1.0

Page: 5/6

(30367735/MDS_GEN_US/EN)

Dermal exposure is not expected to be carcinogenic.

Other information:

Based on our experience and the information available, no adverse health effects are expected if handled as recommended with suitable precautions for designated uses.

The product has not been tested. The statements on toxicology have been derived from products of a similar structure and composition.

12. Ecological information

Environmental toxicity

Other ecotoxicological advice:

Ecological data are not available.

13. Disposal considerations

Waste disposal of substance:

Dispose of in accordance with national, state and local regulations.

Recommendations: Use excess product in an alternate beneficial application.

Container disposal:

Contaminated packaging should be emptied as far as possible; then it can be passed on for recycling after being thoroughly cleaned.

14. Transport information

Land transport

USDOT

Not classified as a dangerous good under transport regulations

Sea transport

IMDG

Not classified as a dangerous good under transport regulations

Air transport

IATA/ICAO

Not classified as a dangerous good under transport regulations

15. Regulatory information

Federal Regulations

OSHA hazard category: IARC 1, 2A or 2B carcinogen, NTP listed carcinogen, Chronic target organ effects reported, OSHA PEL established, ACGIH TLV established

Safety data sheet

EMACO GP THORITE

Revision date : 2009/02/24

Version: 1.0

Page: 6/6

(30367735/MDS_GEN_US/EN)

SARA hazard categories (EPCRA 311/312): Acute, Chronic

State regulations

State RTK

CAS Number

14808-60-7

65997-15-1

1317-65-3

7778-18-9

13463-67-7

Chemical name

crystalline silica

Cement, portland, chemicals

Limestone

Calcium sulphate

titanium dioxide

State RTK

MA, NJ, PA

MA, NJ, PA

MA, PA

MA, PA

MA, NJ, PA

CA Prop. 65:

THIS PRODUCT CONTAINS A CHEMICAL(S) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER AND BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.

16. Other information

HMIS III rating

Health: 2 $\frac{1}{2}$

Flammability: 0

Physical hazard: 1

HMIS uses a numbering scale ranging from 0 to 4 to indicate the degree of hazard. A value of zero means that the substance possesses essentially no hazard; a rating of four indicates high hazard.

Local contact information

NTU/R NA

END OF DATA SHEET

Material Data Safety Sheet

July 2007

page 1 of 5



ACRYL® 60

CONSUMER PRODUCTS

1. Product and Company Information

Company: Thoro Consumer Products
BASF Construction Chemicals, LLC
23700 Chagrin Blvd.
Cleveland, Ohio 44122

Telephone: (216) 839-7171 or (866) 518-7171

Emergency telephone: (800) 424-9300
(703) 527-3887 (Outside continental U.S.)

Product name: Thoro ACRYL® 60

Product Use
Description : Admixture

2. Hazardous Ingredients

Does not contain hazardous chemicals as defined by 29 CFR 1910.1200 and WHMIS.

3. Hazards Identification

HMIS® rating:	Health	Flammability	Physical Hazard
	1	0	0

WHMIS class: D2B

Effects of Overexposure

Inhalation: Can cause slight irritation.

Skin: Can cause slight irritation.

Eyes: Can cause slight irritation.

Ingestion: Can cause slight irritation.

Chronic exposure: Can cause slight irritation.

Material Data Safety Sheet

July 2007

page 2 of 5



ACRYL® 60

CONSUMER PRODUCTS

4. First Aid Measures

Eye contact:	Flush eyes with water, lifting upper and lower lids occasionally for 15 minutes. Seek medical attention.
Skin contact:	Remove contaminated clothing. Wash thoroughly with soap and water. If irritation persists seek medical attention. Wash contaminated clothing before reuse.
Ingestion:	Do not induce vomiting without medical advice. If conscious, drink plenty of water. If a person feels unwell or symptoms of skin irritation appear, consult a physician. If a person vomits, place him/her in the recovery position. Never give anything by mouth to an unconscious person.
Inhalation:	Remove victim from exposure. If difficulty with breathing, administer oxygen. If breathing has stopped administer artificial respiration, preferably mouth-to-mouth. Seek immediate medical attention.

5. Fire-Fighting Measures

Flash point:	Not combustible.	Autoignition temperature:	Not combustible.
Lower explosion limit:	No data available	Suitable extinguishing media:	CO ₂ Foam Dry chemical Water fog
Upper explosion limit:	No data available		
Fire and explosion hazards:	Containers can build up pressure if exposed to heat (fire). Cool closed containers exposed to fire with water spray.		
Special fire-fighting procedures:	As in any fire, wear self-contained breathing apparatus pressure-demand (MSHAINIOSH approved or equivalent) and full protective gear.		

6. Accidental Release Measures

Methods for cleaning up: Wear appropriate protective equipment. Take action to eliminate source of leak; prevent from entry into open streams or sewers; contain spill by diking; vacuum up liquid or use absorbent media; remove to storage for disposal and rinse residual stain with water.

7. Handling and Storage

Handling:	Keep out of reach of children. For personal protection see section 8.
Storage:	Keep tightly closed.

Material Data Safety Sheet

July 2007

page 3 of 5



ACRYL® 60

CONSUMER PRODUCTS

8. Exposure Controls / Personal Protection

Eye protection:	Wear as appropriate: safety glasses with side-shields goggles face-shield
Hand protection:	Wear as appropriate: impervious gloves
Body protection:	Wear as appropriate: impervious clothing preventive skin protection
Respiratory protection:	In case of insufficient ventilation wear suitable respiratory equipment. When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
Hygienic practices:	Avoid contact with skin, eyes and clothing. Ensure adequate ventilation, especially in confined areas. Wash hands before breaks and at the end of workday. When using, do not eat, drink or smoke. Handle in accordance with good industrial hygiene and safety practice.
Engineering Controls :	Local exhaust ventilation can be necessary to control any air contaminants to within their TLVs during the use of this product.

9. Physical and Chemical Properties

Color:	White	Physical state:	Liquid
Odor:	Slight ammoniacal	pH (at 100 %):	9.5-10
Odor threshold:	No data available	Vapor pressure:	No data available
Vapor density:	Heavier than air	Boiling point/range:	No data available
Freeze point:	Not determined	Water solubility:	Dilutable
Specific gravity:	1.04	Viscosity:	No data available
Evaporation rate:	Slower than Butyl acetate	Partition coefficient: (n-octanol water)	No data available
VOC Concentration as applied (less water and exempt solvents): 1 g/l			

10. Stability and Reactivity

Stability:	Stable under recommended storage conditions.
Conditions to avoid:	Prolonged exposure to high temperatures.
Materials to avoid:	Strong mineral acids, Lewis acids, oxidizing agents, strong bases.
Hazardous polymerization:	Will not occur under normal conditions.

Material Data Safety Sheet

July 2007

page 4 of 5



ACRYL® 60

CONSUMER PRODUCTS

11. Toxicological Information

	Type	Value	Species	Exposure Time
Acute inhalation toxicity				
Product	LC50	No data available		
Acute oral toxicity				
Product	LD50 (Oral)	No data available		
Acute dermal toxicity				
Product	LD50 (Dermal)	No data available		

12. Ecological Information

Ecotoxicological Information: There is no data available for this product.

13. Disposal Considerations

Recommendations: Use excess product in an alternate beneficial application. Handle disposal of waste material in manner which complies with local, state, province and federal regulation.

14. Transportation Information

DOT:	Proper shipping name	Not regulated
IATA:	Proper shipping name	Not regulated

15. Regulatory Information

SARA 313

This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and the Reauthorization Act of 1986 and 40 CFR Part 372:

This product contains no chemicals subject to the SARA 313 supplier notification requirements.

CERCLA

CERCLA section 103(a) specifically requires the person in charge of a vessel or facility to report immediately to the National Response Center (NRC) a release of hazardous substances whose amount equals or exceeds the assigned RQ.

The following hazardous substances are contained in this product:

RQ	CAS Number	Chemical Name
----	------------	---------------

No CERCLA chemicals exist in this product above reportable concentrations.

TSCA Section 12(b) Export Notification

This product contains the following chemical substances subject to the reporting requirements of TSCA 12(b) if exported from the United States:

CAS Number	Chemical Name
------------	---------------

There are no TSCA 12(b) Chemicals in this product.

Material Data Safety Sheet

July 2007

page 5 of 5



ACRYL® 60

CONSUMER PRODUCTS

California Proposition 65

The chemical(s) noted below and contained in this product, are known to the state of California to cause cancer, birth defects or other reproductive harm. Unless otherwise specified in Section 2 of this MSDS, these chemicals are present at < 0.1%:

CAS Number	Chemical Name
50-00-0	Formaldehyde
75-21-8	Ethylene oxide

16. Other Information

Legend:

- N.E. - Not established
- TLV - Threshold limit value
- STEL - Short term exposure limit
- PEL - Permissible exposure limit
- CEIL - Ceiling

Prepared by: Environment, Health and Safety department

This information is furnished without warranty, representation, or license of any kind, except that this information is accurate to the best of the manufacturer's knowledge, or is obtained from sources believed by the manufacturer to be accurate and is not intended to be all inclusive. No warranty is expressed or implied regarding the accuracy of this information or the results to be obtained from its use thereof. The manufacturer assumes no responsibility for injuries proximately caused by use of the Material if reasonable safety procedures are not followed as stipulated in this Data Sheet. Additionally, the manufacturer assumes no responsibility for injuries proximately caused by abnormal use of the Material even if reasonable safety procedures are followed. Buyer assumes the risk in its use of the Material.

End of MSDS.

Date of preparation: 02/24/11

SECTION I

Manufacturer : **W. R. MEADOWS, INC.**
 Address : 300 Industrial Drive
 : Hampshire, IL 60140

Telephone # : (847) 683-4500
 Emergency # : 1-800-424-9300 Chemtrec

- H M I S -

IHealth : 1
IFlammability : 0
IReactivity : 0
IPersonal Protection : I

(Hazard Rating: 0=Least,1=Slight,2=Moderate,3=High,4=Extreme,*=Chronic)

Product Class : DIVISION 3

Mfg. code I.D. : 3013000

Trade Name : **1300 CLEAR CONCRETE CURING COMPOUND****SECTION II-A HAZARDOUS COMPONENTS**

No.	Component	CAS#	% by Weight	SARA 313	VAPOR PRESSURE (mm Hg @ 20 C)	LEL (@ 25 C)
None of the components of this product are recognized as hazardous as defined by OSHA 29 CFR Part 1910.1200 Appendix A						

SECTION II-B OCCUPATIONAL EXPOSURE LIMITS

No.	OSHA				ACGIH			
	PEL/TWA	PEL/CEILING	PEL/STEL	SKIN	TLV/TWA	TLV/CEILING	TLV/STEL	SKIN
Not Applicable								

SECTION III PHYSICAL DATA

Boiling Point	: 212 degrees F	% Volatile by volume	: 76.69 (Theoretical)
Evaporation Rate	: <1 (ether = 1)	% Volatile by weight	: 79.38 (Theoretical)
Vapor Density	: > 1 (air = 1)	Weight per gallon	: 8.05 (Theoretical)
pH Level	: 8.70		

SECTION IV HEALTH INFORMATION**EYE CONTACT:** This material may cause mild eye irritation.**SKIN CONTACT:** Exposure may cause mild skin irritation. Prolonged or repeated contact may cause redness, burning, drying, and cracking of the skin. Persons with pre-existing skin disorders may be more susceptible to the effects of this material**INHALATION:** Exposure may produce irritation to the nose, throat, respiratory tract and other mucous membranes.**INGESTION:** This product may cause irritation of the gastrointestinal tract.**SIGNS AND SYMPTOMS:** Symptoms of eye irritation include pain, tearing, reddening, and swelling. Symptoms of skin irritation include reddening, swelling, rash, and redness. Symptoms of respiratory irritation include runny nose, sore throat, coughing, chest discomfort, shortness of breath, and reduced lung function. Symptoms of gastrointestinal irritation include sore throat, abdominal pain, nausea, vomiting, and diarrhea.**AGGRAVATED MEDICAL CONDITIONS:** None recognized.**OTHER HEALTH EFFECTS:** None recognized.**SECTION V EMERGENCY AND FIRST AID PROCEDURES****EYE CONTACT:** Immediately flush eyes with water for at least fifteen (15) minutes. If symptoms persist, seek medical attention.**SKIN CONTACT:** Remove contaminated shoes and clothing. Wipe excess from skin and flush with water using soap if available. Seek medical attention if irritation persists. Do not reuse clothing until thoroughly decontaminated.**INHALATION:** Remove victim to fresh air and treat symptomatically. Provide oxygen if breathing is difficult. Give artificial respiration if the victim is not breathing. Seek prompt medical attention.**INGESTION:** Dilute with liquid unless the victim is unconscious or very drowsy. If vomiting spontaneously occurs, keep the victim's head below the hips to prevent aspiration into the lungs. Consult a physician, hospital, or poison control center and/or transport to an emergency facility immediately.**SECTION VI FIRE AND EXPLOSION HAZARDS**

FLAMMABILITY CLASSIFICATION

- NFPA: Combustible Liquid - Class IIB
- DOT: Not Regulated

FLASH POINT: Greater than 210 degrees F**EXTINGUISHING MEDIA:** Use water fog, foam, dry chemical or Carbon Dioxide**SPECIAL FIRE FIGHTING PROCEDURES AND PRECAUTIONS:** None recognized.**UNUSUAL FIRE AND EXPLOSION HAZARDS:** None recognized.

Date of preparation: 02/24/11

1300 CLEAR CONCRETE CURING COMPOUND

3013000

Page 1

Date of preparation: 02/24/11

SECTION VII REACTIVITY

STABILITY: Stable**HAZARDOUS POLYMERIZATION:** Will not occur**CONDITIONS AND MATERIALS TO AVOID:** None recognized**HAZARDOUS DECOMPOSITION PRODUCTS:** Combustion may yield Carbon Dioxide, Carbon Monoxide, and/or incomplete combustion products. Do not breathe smoke or fumes. Wear appropriate protective equipment.

SECTION VIII EMPLOYEE PROTECTION

RESPIRATORY PROTECTION: None required with normal product use.**PROTECTIVE CLOTHING:** Wear safety glasses, goggles, or a splash shield to prevent eye contact. Contact lenses should not be worn. Wear appropriate gloves and protective clothing to prevent contact with skin and clothing.**ADDITIONAL PROTECTIVE MEASURES:** Eye wash fountains and safety showers should be available for use in an emergency.

SECTION IX ENVIRONMENTAL PROTECTION

SPILL OR LEAK PROCEDURES: LARGE SPILLS>> Evacuate the hazard area of unprotected personnel. Wear appropriate respirator and protective clothing. Shut off source of leak only if safe to do so. Dike and contain. If vapor cloud forms, water fog may be used to suppress; contain run-off. Remove with vacuum trucks or pump to storage/salvage vessels. Soak up residue with an absorbent such as clay, sand or other suitable material; place in non-leaking containers for proper disposal. Flush area with water to remove trace residue; dispose of flush solutions as above. SMALL SPILLS>> Take up with an absorbent material and place in non-leaking containers; seal tightly for proper disposal.**WASTE DISPOSAL:** Observe all Federal, State and local regulations regarding proper disposal.

SECTION X ADDITIONAL PRECAUTIONS

Keep containers closed when not in use. Containers can contain product residues even when empty. Wash with soap and water before eating, drinking, smoking or using toilet facilities.

The information contained herein is based on the data available to us and is believed to be correct. However, we make no warranty, expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof. We assume no responsibility for injury from the use of the product described herein.

Material Safety Data Sheet

acc. to ISO/DIS 11014

Printing date 03/12/2013

Reviewed on 03/12/2013

1 Identification of substance

Product details

Trade name: **CWC 910 - Part A**

Article number: 87-140202A

Application of the substance / the preparation

Manufacturer/Supplier:

Carter Waters
2440 W. Pennway
Kansas City, MO 64141

Tel: (816) 471-2570

Information department: Environmental, Health, and Safety department.

2 Composition/Data on components

Chemical characterization

Description: Mixture of the substances listed below with nonhazardous additions.

Dangerous components:

25068-38-6	reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight = 700)	75-100%
------------	--	---------

Additional information: For the wording of the listed risk phrases refer to section 16.

3 Hazards identification

Hazard description: May cause eye and skin irritation. Prolonged contact may cause sensitization.

Information pertaining to particular dangers for man and environment:

The product has to be labelled due to internationally acknowledged calculation procedures using the latest valid versions.

Classification system:

The classification was made according to the latest editions of international substances lists, and expanded upon from company and literature data.

NFPA ratings (scale 0 - 4)



Health = 1

Fire = 1

Reactivity = 0

HMIS-ratings (scale 0 - 4)

HEALTH	1	Health = 1
FIRE	1	Fire = 1
PHYSICAL HAZARD	0	Reactivity = 0

4 First aid measures

After inhalation:

Supply fresh air and to be sure call for a doctor.

In case of unconsciousness place patient stably in side position for transportation.

After skin contact:

Immediately wash with water and soap and rinse thoroughly.

If skin irritation continues, consult a doctor.

After eye contact: Rinse opened eye for several minutes under running water. Then consult a doctor.

After swallowing:

Seek immediate medical advice.

(Contd. on page 2)

Material Safety Data Sheet

acc. to ISO/DIS 11014

Printing date 03/12/2013

Reviewed on 03/12/2013

Trade name: CWC 910 - Part A

Seek medical treatment.

(Contd. of page 1)

5 Fire fighting measures

- **Suitable extinguishing agents:**
CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Protective equipment:**
Because fire may produce thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full face piece operated in pressure-demand or positive-pressure mode.

6 Accidental release measures

- **Person-related safety precautions:** Wear protective equipment. Keep unprotected persons away.
- **Measures for environmental protection:** Inform respective authorities in case of seepage into water course or sewage system.
- **Measures for cleaning/collecting:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Ensure adequate ventilation.

7 Handling and storage

- **Handling:**
- **Information for safe handling:**
Wear appropriate personal protective clothing to prevent eye and skin contact. Avoid breathing vapors or mists of this product. Use with adequate ventilation. Do not take internally.
- **Information about protection against explosions and fires:** No special measures required.
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a cool dry location.
- **Information about storage in one common storage facility:** Store away from incompatible materials.
- **Further information about storage conditions:** Keep receptacle tightly sealed.

8 Exposure controls and personal protection

- **Additional information about design of technical systems:** No further data; see item 7.

- **Components with limit values that require monitoring at the workplace:**

1317-65-3 Limestone

PEL	15*; 5** mg/m ³
	*Total dust **Respirable fraction
REL	10*; 5** mg/m ³
	*Total dust **Respirable fraction
TLV	10 mg/m ³
	(e)

- **Additional information:** The lists that were valid during the creation were used as basis.
- **Personal protective equipment:**
- **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.

(Contd. on page 3)

—USA—

Material Safety Data Sheet

acc. to ISO/DIS 11014

Printing date 03/12/2013

Reviewed on 03/12/2013

Trade name: CWC 910 - Part A

(Contd. of page 2)

· **Breathing equipment:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

· **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

· **Eye protection:** Wear appropriate eye protection to prevent eye contact.

9 Physical and chemical properties

· **General Information**

Form: Liquid
Color: Clear
Odor: Mild

· **Change in condition**

Melting point/Melting range: Undetermined.

Boiling point/Boiling range: Undetermined.

· **Flash point:** > 93°C (> 199°F)

· **Auto igniting:** Product is not selfigniting.

· **Danger of explosion:** Product does not present an explosion hazard.

· **Density at 20°C (68°F):** 1.200 g/cm³

· **Solubility in / Miscibility with Water:** Not miscible or difficult to mix.

· **Solvent content:**

Organic solvents: 0.0 %

· **Solids content:** 100.0 %

· **Volatile Organic Compounds:** Not determined

10 Stability and reactivity

· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.

· **Dangerous reactions** Reacts with acids, alkalis and oxidizing agents.

· **Dangerous products of decomposition:** Carbon monoxide and carbon dioxide

11 Toxicological information

· **Acute toxicity:**

· **Primary irritant effect:**

· **on the skin:** May cause skin irritation.

· **on the eye:** Irritating effect.

· **Sensitization:** Sensitization possible through skin contact.

· **Additional toxicological information:**

The product shows the following dangers according to internally approved calculation methods for preparations:

(Contd. on page 4)

Material Safety Data Sheet

acc. to ISO/DIS 11014

Printing date 03/12/2013

Reviewed on 03/12/2013

Trade name: CWC 910 - Part A

Irritant

(Contd. of page 3)

12 Ecological information

- **Ecotoxical effects:**
- **Remark:** Toxic for fish
- **General notes:**
 Water hazard class 1 (Self-assessment): slightly hazardous for water
 Also poisonous for fish and plankton in water bodies.
 Toxic for aquatic organisms

13 Disposal considerations

- **Product:**
- **Recommendation:**
 Must not be disposed of as normal garbage. Do not allow product to reach sewage system.
 It is the generator's responsibility to determine if the waste meets applicable definitions of hazardous waste. State and local regulations may differ from federal disposal regulations. Dispose of waste material according to local, state, federal, and provincial environmental regulations.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to Federal, State, and Local regulations.

14 Transport information

- | | |
|---|---|
| · DOT regulations: | Not Regulated |
| · Hazard class: | N/A |
| · Packing group: | III |
| · Remarks: | Add "Marine Pollutant" to end of proper shipping name if shipping in a bulk container (>119 gallons).
Not Regulated for Transport. |
| · Limited Quantity Exemption: | No Limited Quantity exemption applies for this shipping class. |
| · U.S. Domestic Ground Shipments: | Same as listed for Standard Shipments above. |
| · U.S. Domestic Ground Non-Bulk (119 gal or less per container) Shipments: | Same as listed for Standard Shipments above. |
| · Emergency Response Guide (ERG) Number: | Not determine |
| · Land transport ADR/RID (cross-border): | |
| · ADR/RID class: | N/A |
| · UN-Number: | |
| · Packaging group: | III |
| · Remarks: | Not Regulated for Transport. |
| · Maritime transport IMDG: | |
| · IMDG Class: | 9 |
| · UN Number: | 3082 |
| · Packaging group: | III |
| · Marine pollutant: | Yes |
| · Propper shipping name: | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(epoxy resin) |
| · Air transport ICAO-TI and IATA-DGR: | |
| · ICAO/IATA Class: | - |

(Contd. on page 5)

—USA—

Material Safety Data Sheet

acc. to ISO/DIS 11014

Printing date 03/12/2013

Reviewed on 03/12/2013

Trade name: CWC 910 - Part A

(Contd. of page 4)

· Packaging group:

III

15 Regulations

· Sara

· Section 355 (extremely hazardous substances):

None of the ingredient is listed.

· Section 313 (Specific toxic chemical listings):

This product may contain 1 or more toxic chemicals subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR part 372. If so, the chemicals are listed below.

None of the ingredients is listed.

· TSCA (Toxic Substances Control Act):

All ingredients are listed.

· Proposition 65

· Chemicals known to the State of California (Prop. 65) to cause cancer:

25068-38-6 reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight = 700)

· Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed.

· Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

· Cancerogenity categories

· EPA (Environmental Protection Agency)

None of the ingredients is listed.

· IARC (International Agency for Research on Cancer)

14807-96-6 Talc ($Mg_3H_2(SiO_3)_4$)

3

· NTP (National Toxicology Program)

None of the ingredients is listed.

· TLV (Threshold Limit Value established by ACGIH)

14807-96-6 Talc ($Mg_3H_2(SiO_3)_4$)

A4

· MAK (German Maximum Workplace Concentration)

None of the ingredients is listed.

· NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

· OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

· Product related hazard informations:

The product has been classified and marked in accordance with directives on hazardous materials.

· Hazard symbols:

Xi Irritant

N Dangerous for the environment

(Contd. on page 6)

USA

Material Safety Data Sheet

acc. to ISO/DIS 11014

Printing date 03/12/2013

Reviewed on 03/12/2013

Trade name: CWC 910 - Part A

(Contd. of page 5)

· **Hazard-determining components of labelling:**

reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number averagemolecular weight = 700)

· **Risk phrases:**

36/38 Irritating to eyes and skin.

43 May cause sensitisation by skin contact.

51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

· **Safety phrases:**

23 Do not breathe gas/fumes/vapour/spray (appropriate wording to be specified by the manufacturer).

24/25 Avoid contact with skin and eyes.

26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

28 After contact with skin, wash immediately with plenty of ... (to be specified by the manufacturer).

29 Do not empty into drains.

37/39 Wear suitable gloves and eye/face protection.

46 If swallowed, seek medical advice immediately and show this container or label.

64 If swallowed, rinse mouth with water (only if the person is conscious).

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing MSDS:** Environmental, Health & Safety Department

· **Contact:** Environmental, Health & Safety Manager

USA

Material Safety Data Sheet

acc. to ISO/DIS 11014

Printing date 03/12/2013

Reviewed on 03/12/2013

1 Identification of substance

- Product details

- Trade name: **CWC 910 - Part B**

- Article number: 87-140202B

- Application of the substance / the preparation

- Manufacturer/Supplier:

Carter Waters

2440 W. Pennway

Kansas City, MO 64141

Tel: (816) 471-2570

- Information department: Environmental, Health, and Safety department.

2 Composition/Data on components

- Chemical characterization

- Description: Mixture of the substances listed below with nonhazardous additions.

- Dangerous components:

1477-55-0	m-phenylenebis(methylamine)	10-25%
251545-52-3	Nonyl phenol	10-25%
694-83-7	cyclohex-1,2-ylenediamine	≤ 10%

- Additional information: For the wording of the listed risk phrases refer to section 16.

3 Hazards identification

- Hazard description: Not applicable.

- Information pertaining to particular dangers for man and environment:

The product has to be labelled due to internationally acknowledged calculation procedures using the latest valid versions.

- Classification system:

The classification was made according to the latest editions of international substances lists, and expanded upon from company and literature data.

- NFPA ratings (scale 0 - 4)



- HMIS-ratings (scale 0 - 4)

HEALTH	3	Health = 3
FIRE	1	Fire = 1
PHYSICAL HAZARD	2	Reactivity = 2

4 First aid measures

- General information: Immediately remove any clothing soiled by the product.

- After inhalation:

Supply fresh air and to be sure call for a doctor.

In case of unconsciousness place patient stably in side position for transportation.

- After skin contact:

Immediately wash with water and soap and rinse thoroughly.

If skin irritation continues, consult a doctor.

- After eye contact: Rinse opened eye for several minutes under running water. Then consult a doctor.

(Contd. on page 2)

USA

Material Safety Data Sheet

acc. to ISO/DIS 11014

Printing date 03/12/2013

Reviewed on 03/12/2013

Trade name: CWC 910 - Part B

(Contd. of page 1)

· After swallowing:

Drink copious amounts of water and provide fresh air. Immediately call a doctor.
Seek medical treatment.

5 Fire fighting measures

· Suitable extinguishing agents:

CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

· Protective equipment:

Because fire may produce thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full face piece operated in pressure-demand or positive-pressure mode.

6 Accidental release measures

· Person-related safety precautions: Wear protective equipment. Keep unprotected persons away.

· Measures for environmental protection: Do not allow product to reach sewage system or any water course.

· Measures for cleaning/collecting:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Use neutralizing agent.

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

7 Handling and storage

· Handling:

· Information for safe handling:

Wear appropriate personal protective clothing to prevent eye and skin contact. Avoid breathing vapors or mists of this product. Use with adequate ventilation. Do not take internally.

· Information about protection against explosions and fires: No special measures required.

· Storage:

· Requirements to be met by storerooms and receptacles: Store in a cool dry location.

· Information about storage in one common storage facility: Store away from incompatible materials.

· Further information about storage conditions: Keep receptacle tightly sealed.

8 Exposure controls and personal protection

· Additional information about design of technical systems: No further data; see item 7.

· Components with limit values that require monitoring at the workplace:

1477-55-0 m-phenylenebis(methylamine)

REL Short-term value: C 0.1 mg/m³

Skin

TLV Short-term value: C 0.1 mg/m³

Skin

124-09-4 hexamethylenediamine

TLV 2.3 mg/m³, 0.5 ppm

· Additional information: The lists that were valid during the creation were used as basis.

· Personal protective equipment:

· General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.

(Contd. on page 3)

Material Safety Data Sheet

acc. to ISO/DIS 11014

Printing date 03/12/2013

Reviewed on 03/12/2013

Trade name: CWC 910 - Part B

(Contd. of page 2)

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Do not inhale gases / fumes / aerosols.

Avoid contact with the eyes and skin.

Breathing equipment:

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Eye protection: Wear appropriate eye protection to prevent eye contact.

9 Physical and chemical properties

General Information

Form: Liquid
Color: Grey
Odor: Distinctive

Change in condition

Melting point/Melting range: Undetermined.

Boiling point/Boiling range: Undetermined.

Flash point: > 94°C (> 201°F)

Ignition temperature: 315.0°C (599°F)

Auto igniting: Product is not selfigniting.

Danger of explosion: Product does not present an explosion hazard.

Explosion limits:

Lower: 2.1 Vol %

Upper: 10.5 Vol %

Vapor pressure at 20°C (68°F): 0.1 hPa (0 mm Hg)

Density at 20°C (68°F): 1.776 g/cm³

Solubility in / Miscibility with

Water: Not miscible or difficult to mix.

Solvent content:

Organic solvents: 0.0 %

Solids content: 100.0 %

Volatile Organic Compounds: Not determined

10 Stability and reactivity

Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.

Dangerous reactions Reacts with acids, alkalis and oxidizing agents.

(Contd. on page 4)

USA

Material Safety Data Sheet

acc. to ISO/DIS 11014

Printing date 03/12/2013

Reviewed on 03/12/2013

Trade name: CWC 910 - Part B

(Contd. of page 3)

· **Dangerous products of decomposition:**

Carbon monoxide and carbon dioxide

Nitrogen oxides

11 Toxicological information

· **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**

1477-55-0 m-phenylenebis(methylamine)

Oral	LD50	1040 mg/kg (rat)
Inhalative	LC50/4 h	2.4 mg/l (rat)

124-09-4 hexamethylenediamine

Oral	LD50	750 mg/kg (rat)
Dermal	LD50	1110 mg/kg (rabbit)

· **Primary irritant effect:**

· **on the skin:** Caustic effect on skin and mucous membranes.

· **on the eye:** Strong caustic effect.

· **Sensitization:** Sensitization possible through skin contact.

· **Additional toxicological information:**

The product shows the following dangers according to internally approved calculation methods for preparations:

Corrosive

Irritant

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

12 Ecological information

· **General notes:**

Water hazard class 1 (Self-assessment): slightly hazardous for water

Must not reach bodies of water or drainage ditch undiluted or unneutralized.

13 Disposal considerations

· **Product:**

· **Recommendation:**

Must not be disposed of as normal garbage. Do not allow product to reach sewage system.

It is the generator's responsibility to determine if the waste meets applicable definitions of hazardous waste. State and local regulations may differ from federal disposal regulations. Dispose of waste material according to local, state, federal, and provincial environmental regulations.

· **Uncleaned packagings:**

· **Recommendation:** Disposal must be made according to Federal, State, and Local regulations.

— USA —

(Contd. on page 5)

Material Safety Data Sheet

acc. to ISO/DIS 11014

Printing date 03/12/2013

Reviewed on 03/12/2013

Trade name: CWC 910 - Part B

(Contd. of page 4)

14 Transport information

· DOT regulations:



- **Hazard class:** 8
- **Identification number:** UN1760
- **Packing group:** III
- **Proper shipping name (technical name):** CORROSIVE LIQUID, N.O.S. (nonylphenol)
- **Label:** 8
- **Remarks:** Add "Marine Pollutant" to end of proper shipping name if shipping in a bulk container (>119 gallons).
- **Limited Quantity Exemption:** Limited Quantity applies for inner packages 1 gallon or smaller.
- **U.S. Domestic Ground Shipments:** Same as listed for Standard Shipments above.
- **U.S. Domestic Ground Non-Bulk (119 gal or less per container) Shipments:** Same as listed for Standard Shipments above.
- **Emergency Response Guide (ERG) Number:** Not determine

· Land transport ADR/RID (cross-border):



- **ADR/RID class:** 8 Corrosive substances
- **UN-Number:** 1760
- **Packaging group:** III
- **Description of goods:** 1760 CORROSIVE LIQUID, N.O.S. (nonylphenol)

· Maritime transport IMDG:



- **IMDG Class:** 8
- **UN Number:** 1760
- **Label:** 8
- **Packaging group:** III
- **EMS Number:** F-A,S-B
- **Marine pollutant:** Yes
- **Propper shipping name:** CORROSIVE LIQUID, N.O.S. (nonylphenol)

· Air transport ICAO-TI and IATA-DGR:



- **ICAO/IATA Class:** 8
- **UN/ID Number:** 1760
- **Label:** 8
- **Packaging group:** III
- **Propper shipping name:** CORROSIVE LIQUID, N.O.S. (nonylphenol)

USA

(Contd. on page 6)

Material Safety Data Sheet

acc. to ISO/DIS 11014

Printing date 03/12/2013

Reviewed on 03/12/2013

Trade name: CWC 910 - Part B

(Contd. of page 5)

15 Regulations

· Sara

· Section 355 (extremely hazardous substances):

None of the ingredient is listed.

· Section 313 (Specific toxic chemical listings):

This product may contain 1 or more toxic chemicals subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR part 372. If so, the chemicals are listed below.

None of the ingredients is listed.

· TSCA (Toxic Substances Control Act):

All ingredients are listed.

· Proposition 65

· Chemicals known to the State of California (Prop. 65) to cause cancer:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed.

· Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

· Cancerogenity categories

· EPA (Environmental Protection Agency)

None of the ingredients is listed.

· IARC (International Agency for Research on Cancer)

None of the ingredients is listed.

· NTP (National Toxicology Program)

None of the ingredients is listed.

· TLV (Threshold Limit Value established by ACGIH)

None of the ingredients is listed.

· MAK (German Maximum Workplace Concentration)

None of the ingredients is listed.

· NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

· OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

· Product related hazard informations:

The product has been classified and marked in accordance with directives on hazardous materials.

· Hazard symbols: C Corrosive

· Hazard-determining components of labelling:

cyclohex-1,2-ylenediamine

m-phenylenebis(methylamine)

hexamethylenediamine

· Risk phrases:

34 Causes burns.

43 May cause sensitisation by skin contact.

(Contd. on page 7)

USA

Material Safety Data Sheet

acc. to ISO/DIS 11014

Printing date 03/12/2013

Reviewed on 03/12/2013

Trade name: CWC 910 - Part B

(Contd. of page 6)

Safety phrases:

- 2 Keep out of the reach of children.
- 20 When using do not eat or drink.
- 23 Do not breathe gas/fumes/vapour/spray (appropriate wording to be specified by the manufacturer).
- 25 Avoid contact with eyes.
- 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- 27/28 After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water.
- 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
- 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
- 56 Dispose of this material and its container to hazardous or special waste collection point.
- 60 This material and its container must be disposed of as hazardous waste.
- 64 If swallowed, rinse mouth with water (only if the person is conscious).

National regulations:

- Water hazard class: Water hazard class 1 (Self-assessment): slightly hazardous for water.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- Department issuing MSDS: Environmental, Health & Safety Department
- Contact: Environmental, Health & Safety Manager

USA

MSDS Material Safety Data Sheet

CARTER-WATERS

CWC 202

Page 1 of 5

MSDS Number: 5011

Revision Date: 3/18/2005

1

PRODUCT AND COMPANY IDENTIFICATION

Manufacturer

UNITEX

3101 Gardner Ave.
Kansas City, MO 64120

Contact: Technical Services

Telephone Number: 816-231-7700

FAX Number: 816-483-3149

E-Mail: mail@unitex-chemicals.com

Web: www.unitex-chemicals.com

Supplier Emergency contacts & Phone

Contact #1 800-555-4545

Contact #2

Product Name: CWC 202
Revision Date: 3/18/2005
MSDS Number: 5011
Common Name: Aminopropyl diethanolamine
Product Code: CWC 202
Chemical Family: Aminopropyl diethanolamine
Synonyms: Amines Liquid Corrosive
Product Use: Bonding Adhesive

Chemtrec Emergency Telephone No.: 800-424-9300

2

COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients:

Cas #	Chemical Name	Perc.

Component A		
25068386	Modified Bisphenol A	>85%
2461156	Aliphatic Glycidyl Ether	<10%
1317802	Titanium Dioxide	<5%

Component B		
Trade Secret	Amine Blend containing one or more of the following:	
694837		>95%
68411905		
84852153		
90722	2,4,6 Tri(dimethylaminomethyl)phenol	<5%

MSDS Material Safety Data Sheet

CARTER-WATERS

CWC 202

Page 2 of 5

MSDS Number: 5011

Revision Date: 3/18/2005

3

HAZARDS IDENTIFICATION

Route of Entry: Eyes, Skin, Swallowing, Inhalation
Target Organs: None Known
Inhalation: May cause irritation to nose and throat.
Skin Contact: May cause irritation and dermatitis.
Eye Contact: May cause irritation, sensitization and may lead to eye damage.
Ingestion: May cause irritation of the mouth, stomach and sensitization.

	OSHA PEL	ACGIH TLV
COMPONENT A		
25068386	NE	NE
2461156	NE	NE
1317802	15 mg/m3	10 mg/m3

COMPONENT B		
694837	NE	NE
68411905	NE	NE
84852153	NE	NE
90722	NE	NE

4

FIRST AID MEASURES

Inhalation: If respiratory irritation occurs, go to fresh air. Flood work area with fresh air. If irritation continues seek medical attention.

Skin Contact: Remove contaminated clothing and shoes. Wash affected area(s) thoroughly with soap and water. If irritation persists, seek medical attention. SOLVENTS SHOULD NOT BE USED because they carry the irritant into the skin.

Eye Contact: Flush the eyes with plenty of water for at least 15 minutes. If necessary, gently hold eyelids open during the flush. Immediately seek medical attention.

Ingestion: Obtain immediate medical attention. Do not induce vomiting. Should vomiting occur, be sure to keep victim's head below hips to avoid aspiration of vomitus into the lungs.

5

FIRE FIGHTING MEASURES

Flash Point: >200 F
Flash Point Method: Pensky Martens Closed Cup
Burning Rate: No data available
Autoignition Temperature: No data available
LEL: NA
UEL: NA

Other:
Special Fire Fighting Procedures: None. Avoid breathing smoke. NFPA Class B-C extinguisher (dry chemical or foam) for class 1C fires. Water spray may be ineffective on fire but can protect fire-fighters and cool closed containers. Use fog nozzles if water is used. Use supplied breathing masks.

MSDS Material Safety Data Sheet

CARTER-WATERS

CWC 202

Page 3 of 5

MSDS Number: 5011

Revision Date: 3/18/2005

6 ACCIDENTAL RELEASE MEASURES

SMALL SPILLS: Absorb with an inert material (sand, vermiculite). Sweep or scoop up and put into disposal containers. Flush area immediately with water (prevent water from entering waterways).

LARGE SPILLS:

Containment: For large spills, dike far ahead of liquid spill for later disposal. Do not release into sewers or waterways.

Cleanup: Absorb with an inert material (sand, vermiculite, etc.) Sweep or scoop up into disposal containers. Flush area immediately with water (prevent water from entering waterways).

Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120).

Eliminate all ignition sources (flares, flames including pilot lights, electrical sparks). Persons not wearing protective equipment should be excluded from area or until spill clean-up has been completed.

7 HANDLING AND STORAGE

Handling Precautions: For professional use only. Avoid eye/skin contact. Wash after using and before eating or smoking. Avoid breathing vapors. Use as directed. Avoid uncontrolled mixing with other mixtures (strong acids, bases and oxidizers). Do not use solvents to thin. Respiratory protection is required when ventilation is inadequate. NIOSH/OSHA approved respirators should be provided and worn.

Storage Requirements: Store in a cool/dry location. Store away from sparks and open flames.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls:

Protective Equipment: **VENTILATION:** Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs. Local exhaust ventilation is preferred because it prevents containment dispersion into the work area by controlling it at its source.

RESPIRATORY PROTECTION: Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and if necessary, wear OSHA/NIOSH approved respirator. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen.

PROTECTIVE CLOTHING/EQUIPMENT: Wear chemically protective gloves, boots, aprons to prevent prolonged or repeated skin contact. Wear protective goggles and face shield, per OSHA eye and face protection (29 CFR 1910.133).

CONTAMINATED EQUIPMENT: Separate contaminated work clothing from street clothes. Launder before reuse. Remove this material from your work shoes and clean personal protective equipment.

OTHER PRECAUTION: Never eat, drink, or smoke in work areas.

This material is not listed by the International Agency for Research on Cancer, the National Toxicology Program, or the Occupational Safety and Health Administration.

MSDS Material Safety Data Sheet

CARTER-WATERS

CWC 202

Page 4 of 5

MSDS Number: 5011

Revision Date: 3/18/2005

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	A- Gray B-Amber	Boiling Point:	ND
Physical State:	Liquid	Freezing/Melting Pt.:	ND/NE
Odor:	A=Mild B=Strong Distinctive	Solubility:	Insoluble
pH:	ND	Spec Grav./Density:	(H2O =1) A:1.05 B:0.96
Vapor Pressure:	N/E		
Vapor Density:	(Air=1) >1		
VOC:	0		
Evap. Rate:	Slower than Butyl Acetate		
Viscosity:	2500cps		
Percent Volatile:	0		

10 STABILITY AND REACTIVITY

Stability:	Stable
Conditions to avoid:	None
Materials to avoid (incompatibility):	Strong oxidizers, acids and bases.
Hazardous Decomposition products:	CO, CO2, NOX
Hazardous Polymerization:	None

11 TOXICOLOGICAL INFORMATION

No data available.

12 ECOLOGICAL INFORMATION

No data available.

13 DISPOSAL CONSIDERATIONS

When disposed of properly, this material does not meet RCRA classification or listing for hazardous waste. Never dispose of a liquid to a landfill. Spilled material should be stabilized or solidified prior to disposal. Once stabilized/solidified, the material may be disposed of through normal means. Certain localities and state laws have specific disposal requirements for non-hazardous industrial chemicals. Consult local municipal authorities, landfill personnel, disposal companies for details prior to any disposal activity. Always follow local, state and federal regulations.

14 TRANSPORT INFORMATION

Shipping Name: Amines, Liquid Corrosive, N.O.S. (aminopropyl dietanolamine) UN2735, Class 8 Corrosive PG III.

Placards required over 1000 lbs.

MSDS Material Safety Data Sheet

CARTER-WATERS

CWC 202

Page 5 of 5

MSDS Number: 5011

Revision Date: 3/18/2005

15

REGULATORY INFORMATION

This MSDS has been prepared in accordance with federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

HMIS Codes: Health(3) Flammability(1) Reactivity(2) PPE(H)

16

OTHER INFORMATION

The information and recommendations in this document are based on the best information available to us at the time of preparation. We make no other warranty, expressed or implied, as to its correctness or completeness, or as to the results or reliance of this product.

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

END OF MSDS DOCUMENT

MATERIAL SAFETY DATA SHEET

Protectosil® CIT



Material no.	Version	6.0 / US
Specification	Revision date	12/07/2011
Order Number	Print Date	04/09/2012
	Page	1 / 2

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

Product information

Trade name : Protectosil® CIT
Use of the Substance / : For industrial use
Preparation
Function : Corrosion inhibitor

Company : Evonik Degussa Corporation USA
299 Jefferson Road
Parsippany, NJ 07054-0677
USA

Telephone : 973-929-8000

Telefax : 973-929-8040

US: CHEMTREC EMERGENCY : 800-424-9300
NUMBER

CANADA: CANUTEC : 613-996-6666
EMERGENCY NUMBER

Product Regulatory Services : 973-929-8060

2. HAZARDS IDENTIFICATION

*** EMERGENCY OVERVIEW ***

Form-liquid **Color-colorless to yellowish** **Odor-fruity, ester-like, slightly amine-like**

Combustible liquid and vapor.
Causes skin and eye burns.
May be harmful if absorbed through skin.

POTENTIAL HEALTH EFFECTS

Eye contact

Contains a component (>1.0%) which may cause burns to eyes.
May cause tearing, reddening and/or swelling.
May cause permanent eye injury.

Skin Contact

Contains a component (>1.0%) which may cause burns to skin.
May be harmful if absorbed through skin.

Inhalation

Harmful if inhaled.
Possible discomfort: irritation of mucous lining (nose, throat, eyes), coughing.

MATERIAL SAFETY DATA SHEET

Protectosil® CIT



Material no.		Version	6.0 / US
Specification	131910	Revision date	12/07/2011
Order Number		Print Date	04/09/2012
		Page	2 / 2

Ingestion

May be harmful if swallowed.
Can cause gastrointestinal irritation.

Chronic Health Hazard

This product can hydrolyze to form a material posing additional health effects:
Ethanol: ACGIH TLV: TWA 1000 ppm; OSHA PEL: TWA 1000 ppm. Liquid and high vapor concentrations cause eye irritation. Contact of liquid with skin causes drying, cracking, and irritation. Inhalation causes irritation of the respiratory tract. Repeated or prolonged exposure to high vapor concentrations may cause drowsiness. Excessive or repeated ingestion may cause central nervous system effects, liver effects and reproductive effects. However, ingestion is not an expected route of exposure. Ethanol has a low potential to cause allergic skin reactions; however, undocumented cases of human skin sensitization have been reported.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature

Silane preparation

Information on ingredients / Hazardous components

NJTSR No.56705700001-5318P				
CAS-No.	Trade Secret	Percent (Wt./ Wt.)	>= 60 - <= 100 %	
NJTSR No.56705700001-6642P				
CAS-No.	Trade Secret	Percent (Wt./ Wt.)	>= 1 - < 5 %	

Other information

This material is classified as hazardous under OSHA regulations.

4. FIRST AID MEASURES

General advice

Remove contaminated or saturated clothing immediately and dispose of safely.

Inhalation

If aerosol or mists are inhaled, take affected persons out into the fresh air. Possible discomforts include severe irritation of mucus lining (nose, throat, eyes), cough, sneezing and flow of tears. In case of persistent discomfort, obtain medical attention immediately.

Skin contact

Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Obtain medical attention. Wash clothing before reuse. Destroy or thoroughly clean contaminated shoes before reuse.

Eye contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
Do not allow contaminated water to contact the unaffected eye or face during irrigation of an affected eye.
Consult an ophthalmologist.

MATERIAL SAFETY DATA SHEET

Protectosil® CIT



Material no.		Version	6.0 / US
Specification	131910	Revision date	12/07/2011
Order Number		Print Date	04/09/2012
		Page	3 / 2

Ingestion

If accidentally swallowed, rinse mouth thoroughly with water and afterwards, drink plenty of water. In case of discomfort, obtain medical attention.

Never administer anything by mouth to an individual who rapidly losing consciousness, unconscious or convulsing.

Notes to physician

After absorbing large amount of substance, apply therapy for irritative effects. If substance has been swallowed, early endoscopy is recommended in order to assess mucosa lesions in the esophagus and stomach which may appear. If necessary, suck away leftover substance. Allergic reactions cannot be excluded. Apply treatment of allergic reaction if necessary.

5. FIRE-FIGHTING MEASURES

Flash point 62 °C , 144 °F
Method: DIN 51 755

Autoignition temperature not determined

OSHA Flammability Classification Combustible Liquid

Suitable extinguishing media

alcohol-resistant foam, water spray, CO2, dry powder

Specific hazards during fire fighting

Combustible liquid. Vapors can travel to a source of ignition and flash back. Explosive mixtures may occur at temperatures at or above the flashpoint.

Burning will produce hazardous compounds including oxides of: carbon. nitrogen.

Special protective equipment for fire-fighters

As in any fire, wear self-contained positive-pressure breathing apparatus, (MSHA/NIOSH approved or equivalent) and full protective gear.

Further information

Water used to extinguish fire should not enter drainage systems, soil or stretches of water. Ensure there are sufficient retaining facilities for water used to extinguish fire. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Ensure adequate ventilation. Use personal protective equipment.

Environmental precautions

Obey relevant local, state, provincial and federal laws and regulations. Do not contaminate any lakes, streams, ponds, groundwater or soil.

Methods for cleaning up

Contain and collect spillage with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

MATERIAL SAFETY DATA SHEET

Protectosil® CIT



Material no.		Version	6.0 / US
Specification	131910	Revision date	12/07/2011
Order Number		Print Date	04/09/2012
		Page	4 / 2

Additional advice

Remove sources of ignition and ventilate area.
Run off may create fire or explosion hazard in sewer.
Ensure sufficient ventilation.

7. HANDLING AND STORAGE

Handling

Safe handling advice

Use in the open air or with adequate ventilation.

Wear personal protective equipment; see section 8.

Keep away from heat, sparks, flames and other sources of ignition. Keep container tightly closed. Use only with adequate ventilation.

Vapors may spread long distances and travel to areas away from the work site before igniting or flashing back to the vapor source.

Advice on protection against fire and explosion

Take precautionary measures against static charges, keep away from sources of ignition.

This material may have a low electrical conductivity and therefore may accumulate dangerous levels of static electricity. An ignitable vapor-air mixture can form inside storage tanks.

The user must be sure to dissipate static charge by careful bonding and grounding of all equipment and personnel involved in fluid transfer with continuity checks to prove effectiveness. Additional precautions against fire and explosion are the use of inert gas to purge vapor space; dip-pipes while filling vessels, especially lined vessels; grounded tank level floats; reduced flow velocity; self-closing valves on transfer lines and flame arrestors in vent lines.

Additional guidance on fire and explosion protection may be found in various consensus standards, including NFPA 30, 69 and 77 and API 2003 as well as OSHA regulation 29CFR1910.106.

Follow all MSDS/label precautions even after container is emptied because it may retain product residues.

Storage

Requirements for storage areas and containers

Keep containers tightly closed in a cool, well-ventilated place. Protect from moisture.
Residual vapors might explode on ignition; do not apply heat, cut, drill, grind or weld on or near this container.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Component occupational exposure guidelines

• 2-diethylaminoethanol

CAS-No. 100-37-8
Control parameters 2 ppm

Time Weighted Average (TWA): (ACGIH)
Skin designation: (ACGIH)

MATERIAL SAFETY DATA SHEET

Protectosil® CIT



Material no.		Version	6.0 / US
Specification	131910	Revision date	12/07/2011
Order Number		Print Date	04/09/2012
		Page	5 / 2

Can be absorbed through the skin.

10 ppm
50 mg/m3

PEL:(OSHA Z1)

Skin designation:(OSHA Z1)

Can be absorbed through the skin.

2 ppm
9.6 mg/m3

Time Weighted Average (TWA)
Permissible Exposure Limit (PEL):(US CA
OEL)
Skin designation:(US CA OEL)

Can be absorbed through the skin.

Engineering measures

Provide adequate ventilation.

Personal protective equipment

Respiratory protection

A respiratory protection program that meets OSHA 1910.134 and ANSI Z88.2 or applicable federal/provincial requirements must be followed whenever workplace conditions warrant respirator use. NIOSH's "Respirator Decision Logic" may be useful in determining the suitability of various types of respirators.

Hand protection

Glove material	for example, butyl-rubber
Material thickness	0.5 mm
Break through time	>= 480 min
Glove material	for example, Fluorinated rubber (Viton)
Material thickness	0.4 mm
Break through time	>= 480 min

The above mentioned hand protection is based on knowledge of the chemistry and anticipated uses of this product but it may not be appropriate for all workplaces. A hazard assessment should be conducted prior to use to ensure suitability of gloves for specific work environments and processes prior to use.

Use impermeable gloves.

Personal protective equipment that provides a barrier to prevent dermal exposure to this substance is required.

Eye protection

Use chemical splash goggles or face shield.

Skin and body protection

A safety shower and eye wash fountain should be readily available.

To identify additional Personal Protective Equipment (PPE) requirements, it is recommended that a hazard assessment in accordance with the OSHA PPE Standard (29CFR1910.132) be conducted before using this product.

Hygiene measures

Avoid contact with skin, eyes and clothing. Do not inhale vapors or aerosols. Do not eat, drink, or smoke when using the product. Remove contaminated or saturated clothing.

MATERIAL SAFETY DATA SHEET

Protectosil® CIT



Material no.		Version	6.0 / US
Specification	131910	Revision date	12/07/2011
Order Number		Print Date	04/09/2012
		Page	6 / 2

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	liquid
Color	colorless to yellowish
Odor	fruity, ester-like, slightly amine-like

Safety data

pH	11 (20 °C)	
	Method: DIN 38404-C5	
Melting point/range	< -65 °C	
Boiling point/range	ca. 186 °C (1013 hPa)	
	Method: DIN 51 751	
Flash point	62 °C	
	Method: DIN 51 755	
Autoignition temperature:	not determined	
Density	0.882 g/cm ³ (20 °C)	
	Method: DIN 51757	
Water solubility	not miscible	
	decomposition by hydrolysis	
Solvents and Volatiles Data	% VOC (gm/l)	400

10. STABILITY AND REACTIVITY

Materials to avoid	water
Hazardous decomposition products	Ethanol in case of hydrolysis

11. TOXICOLOGICAL INFORMATION

Component Acute oral toxicity	NJTSR No.56705700001-5318P Trade Secret LD50 Rat: > 5000 mg/kg Method: OECD Test Guideline 401
	NJTSR No.56705700001-6642P Trade Secret LD50 Rat: 1300 mg/kg RTECS
Component Acute inhalation	NJTSR No.56705700001-5318P

MATERIAL SAFETY DATA SHEET

Protectosil® CIT



Material no.	Version	6.0 / US
Specification	Revision date	12/07/2011
Order Number	Print Date	04/09/2012
	Page	7 / 2

toxicity	Trade Secret LC50 Rat: 5.88 mg/l / 4 h / Aerosol
Component Acute dermal toxicity	NJTSR No.56705700001-5318P Trade Secret LD50 Rat: > 2000 mg/kg Method: OECD Test Guideline 402 NJTSR No.56705700001-6642P Trade Secret LD50 guinea pig: 880 mg/kg RTECS NJTSR No.56705700001-6642P Trade Secret LD50 Rabbit: 1260 mg/kg (literature value)
Product Skin irritation	irritating The data are derived from the labeling according to the EC Dangerous Preparations Directive.
Component Eye irritation	NJTSR No.56705700001-6642P Trade Secret Risk of serious damage to eyes.
Product General Toxicity Information	No data is available on the product itself.

12. ECOLOGICAL INFORMATION

General Ecological Information	No ecotoxicological studies are available.
--------------------------------	--

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL

Advice on disposal	Waste must be disposed of in accordance with federal, state and local regulations. Incineration is the preferred method. Empty containers must be handled with care due to product residue. DO NOT HEAT OR CUT THE EMPTY CONTAINER WITH ELECTRIC OR GAS TORCH.
--------------------	--

14. TRANSPORT INFORMATION

D.O.T. Road/Rail

Class	Combustible Liquid
UN-No	1993
Packing group	III
Proper shipping name	Combustible liquid, n.o.s.

MATERIAL SAFETY DATA SHEET

Protectosil® CIT



Material no.		Version	6.0 / US
Specification	131910	Revision date	12/07/2011
Order Number		Print Date	04/09/2012
		Page	8 / 2

Technical Name

(Diethylaminoethanol)

Loading instructions/Remarks

IMDG	Not classified as hazardous sea cargo (IMDG code)
IATA_C	Not hazardous freight in air traffic (ICAO-TI / IATA-DGR).
IATA_P	Not hazardous freight in air traffic (ICAO-TI / IATA-DGR).

15. REGULATORY INFORMATION

US Federal Regulations

OSHA

If listed below, chemical specific standards apply to the product or components:

- None listed

Clean Air Act Section (112)

If listed below, components present at or above the de minimus level are hazardous air pollutants:

- None listed

CERCLA Reportable Quantities

If listed below, a reportable quantity (RQ) applies to the product based on the percent of the named component:

- None listed

SARA Title III Section 311/312 Hazard Categories

The product meets the criteria only for the listed hazard classes:

- Acute Health Hazard
- Fire Hazard

SARA Title III Section 313 Reportable Substances

If listed below, components are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

- None listed

Toxic Substances Control Act (TSCA)

If listed below, non-proprietary substances are subject to export notification under Section 12 (b) of TSCA:

- None listed

MATERIAL SAFETY DATA SHEET

Protectosil® CIT



Material no.		Version	6.0 / US
Specification	131910	Revision date	12/07/2011
Order Number		Print Date	04/09/2012
		Page	9 / 2

State Regulations

California Proposition 65

A warning under the California Drinking Water Act is required only if listed below:

- None listed

International Chemical Inventory Status

Unless otherwise noted, this product is in compliance with the inventory listing of the countries shown below. For information on listing for countries not shown, contact the Product Regulatory Services Department.

• Europe (EINECS/ELINCS)	Listed/registered
• USA (TSCA)	Listed/registered
• Canada (DSL)	Listed/registered
• Australia (AICS)	Listed/registered
• Japan (MITI)	Listed/registered
• Korea (TCCL)	Listed/registered
• Philippines (PICCS)	Not listed/Not registered
• China	Not listed/Not registered

16. OTHER INFORMATION

HMIS Ratings

Health :	3
Flammability :	2
Physical Hazard :	1

NFPA Ratings

Health :	2
Flammability :	2
Reactivity :	1

Further information

Changes since the last version are highlighted in the margin. This version replaces all previous versions.

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



MAC
McConnell & Associates
Pavement Maintenance Products



MACRO DECK Concrete Protector

Material Safety Data Sheet

MACRO DECK is manufactured by STAR Specialty Technology and Research. MACRO DECK and other STAR products are available from McConnell & Associates, Corp.

Section I - Identification

Product Name STAR MACRO DECK Coating and Penetrant for concrete surfaces
Chemical Family Latex Specialty Additive
Chemical Name Proprietary
Prepared by G.C. Dubey

H.M.I.S.	
Health	= 1
Fire	= 1
Reactivity	= 1

N/A = Data Not Available N/AP = Not Applicable

Special Fire Fighting Procedures: Water may be used to cool exposed containers to prevent pressure build up and possible rupture. Wear self-contained breathing equipment and protective clothing. Water may be ineffective to control fires. If water is used, fog nozzles are preferred.

Explosive Power	Burning Rate
N/AP	N/AP

Section II - Ingredients

Ingredients	Case #	WT%	Exposure Limits (OSHA/ACGIH)	
			PEL	TLV
Water	7732-18-5	78-80	None	None
Polymer	Proprietary	18-20	None	None
Surfactants	Proprietary	1- 2	None	None

SECTION III - Physical Data

Boiling Point	Vapor Pressure	Vapor Density	Appearance
	(mm Hg)	(Air=1)	
212-370 °F	25	0.6	Translucent, light green color liquid with latex odor

Evaporation Rate	Specific Gravity	% Volatile	Freezing Point
(Water=1)		by Weight	
1	1.03	approx.. 75%	32 °F / 0° C

Miscibility	Threshold Odor	pH	VOC gm/liter	VOC lb/Gal
w/Water				
Infinite	N/AP	7-8	51	0.43

Section IV - Fire and Explosion Hazard Data

Flammability Classification	Flash Point	Flammable	Limits
	(method used)	LEL	UEL
OSHA - CLASS III B DOT- NOT REGULATED	Over 200 °F	2.6	N/A

Combustion Products	Extinguishing Media
CO, CO2, Residual Monomer vapor	Foam, Dry Chemical, CO2

Unusual Fire and Explosion Hazards: Containers may rupture due to steam pressure build up when exposed to intense heat. Product may splatter if the temperature exceeds the boiling point of water.

Section V - Health Hazard Data

Threshold Limit Value	N/A
Routes Of Entry	Skin, eyes, inhalation, ingestion.
Effects Of Overexposure	Acute: NO Chronic: NO

Acute

Eyes: May cause eye irritation.
Skin: May cause irritation, material is slightly alkaline.
Inhalation: May cause nausea and headache.
Ingestion: May cause nausea, cramps, vomiting, diarrhea or acute effects.

Chronic

No Chronic Toxicity has been established.

Medical conditions prone to aggravation by exposure: None Known.

Carcinogenic: IARC- NO NTP- NO OSHA- NO ACGIH- NO

Emergency and First Aid Procedures

Eyes Immediately flush with plenty of water for 15 minutes, call a physician, if condition persists.

Skin Wash thoroughly with plenty of water and soap. Remove and wash contaminated clothing. Consult a physician if irritation persists.

Inhalation Move to fresh air, Restore breathing if required. Treat symptomatically. Consult a physician.

Ingestion Induce vomiting only if the patient is conscious. Consult a physician or Poison Control Center immediately treat symptomatically. Show Material Safety Data Sheet or label.

Section VI - Reactivity Data

Stability	Conditions to Avoid	Incompatibility
Stable	Keep from freezing	(Materials to Avoid) None reasonably foreseeable.

Hazardous Decomposition Products: May produce fumes when heated to decomposition, as in welding or fire. Fumes may contain CO, CO₂, Hydrocarbons and other products of combustion.

Hazardous Polymerization: Will not occur.

Section VII - Spill or Leak Procedures

SARA Title III

302 – No # 304 CERLA – No # 313 – No

Steps to be Taken in Case Material is Released or Spilled

- Limit spread of leak or spill.
- Ventilate the area.
- Avoid falls, as the floors may become slippery when the product is spilled.
- Wear approved respiratory protection.
- Wear suitable protective clothing, gloves and eye/face protection.
- Soak up with an inert absorbent material like sand or earth and pick up waste material.
- Put in a sealed approved container.
- Keep material out of sewers, drains and bodies of water.

The product is not considered a hazardous waste under current federal RCRA requirements.

Reportable Quantity - N/A

TPQ (Lb.) - N/A

Regulations - N/A

Hazardous Waste - N/A

Section VIII - Safe Handling and Protection Information

Ventilation: Use local exhaust ventilation to control mists or vapors generated when using this product. Ventilation must be adequate to keep exposure below regulated limits as noted in section II.

Respiratory Protection: A qualified person should select appropriate respiratory protection if exposure is expected to be excessive.

Protective Gloves: Rubber Gloves, chemically resistant.

Eye Protection: Wear safety glasses, goggles or face shield.

Other Protective Equipment: Wear suitable protective clothing. Remove and wash contaminated clothing before re-use. A source of clean water shall be available for washing eyes and skin.

Hygienic Practices: Wash hands before eating, smoking or using washrooms. Smoke only in designated areas.

Section IX - Special Precautions

1. Keep out of reach of children.
2. For professional and industrial use only.
3. Do not handle until manufacturer's safety precautions have been read and understood.
4. Use only with adequate ventilation.

5. Do not take internally.
6. Avoid contact with eyes and skin. Liquid penetrates leather and shoes causing delayed burns.
7. Wash thoroughly after using. Practice safe hygiene principles.
8. Additional Technical Data Sheets and/or M.S.D.S.s are available upon request.
9. Store between 50-100 °F. Keep the containers tightly closed after each use.

The recommendations and information provided herein are believed to be accurate as the date hereof. However, such information and recommendations are provided without warranty of any kind and S.T.A.R., Inc. disclaims all liability or legal responsibility for use and reliance upon the same.

Manufacturer:

S.T.A.R., INC. • 1400 Walcutt Road • Columbus, Ohio 43228

Emergency Phone No.

CHEM-TEL 800-255-3924

Information Phone No.

614-870-0744

Date of Preparation

September 13, 2002

Supersedes Date

February 15, 2001



McConnell & Associates

Kansas City (816) 842-6066 / (800) 779-6066

Pevely (636) 475-7733

www.McConnellAssociates.org

Safety Data Sheet

PRIMA LUB

Revision date : 2012/08/27
Version: 2.1

Page: 1/10
(30406778/SDS_GEN_US/EN)

1. Product and Company Identification

Company

BASF CORPORATION
100 Park Avenue
Florham Park, NJ 07932, USA

24 Hour Emergency Response Information

CHEMTREC: 1-800-424-9300
BASF HOTLINE: 1-800-832-HELP (4357)

2. Hazards Identification

Emergency overview

WARNING:

COMBUSTIBLE LIQUID.

CONTAINS DIPHENYLMETHANE DIISOCYANATE (CAS No. 101-68-8). INHALATION OF MDI MISTS OR VAPORS MAY CAUSE RESPIRATORY IRRITATION, BREATHLESSNESS, CHEST DISCOMFORT AND REDUCED PULMONARY FUNCTION. OVEREXPOSURE WELL ABOVE THE PEL MAY RESULT IN BRONCHITIS, BRONCHIAL SPASMS AND PULMONARY EDEMA. LONG-TERM EXPOSURE TO ISOCYANATES HAS BEEN REPORTED TO CAUSE LUNG DAMAGE, INCLUDING REDUCED LUNG FUNCTION WHICH MAY BE PERMANENT. ACUTE OR CHRONIC OVEREXPOSURE TO ISOCYANATES MAY CAUSE SENSITIZATION IN SOME INDIVIDUALS, RESULTING IN ALLERGIC RESPIRATORY REACTIONS INCLUDING WHEEZING, SHORTNESS OF BREATH AND DIFFICULTY BREATHING.

CONTAINS MATERIAL WHICH MAY CAUSE CANCER.

State of matter: liquid

Colour: light grey

Odour: solvent-like

Potential health effects

Primary routes of exposure:

Routes of entry for solids and liquids include eye and skin contact, ingestion and inhalation. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquified gases.

Acute toxicity:

Of moderate toxicity after short-term inhalation. Virtually nontoxic after a single ingestion. Virtually nontoxic after a single skin contact.

Irritation / corrosion:

Irritating to eyes, respiratory system and skin.

Assessment other acute effects:

Causes temporary irritation of the respiratory tract.

Safety Data Sheet

PRIMA LUB

Revision date : 2012/08/27
Version: 2.1

Page: 2/10
(30406778/SDS_GEN_US/EN)

Sensitization:

Sensitization after skin contact possible. The substance may cause sensitization of the respiratory tract. Studies in animals suggest that dermal exposure may lead to pulmonary sensitization. However, the relevance of this result for humans is unclear.

Chronic toxicity:

Carcinogenicity: A carcinogenic effect cannot safely be ruled out.

Repeated dose toxicity: After repeated exposure the prominent effect is local irritation.

Reproductive toxicity: No effects have been reported in reproductive organs in long term animal studies.

Teratogenicity: The substance did not cause malformations in animal studies; however, toxicity to development was observed at high doses that were toxic to the parental animals.

Genotoxicity: Results from a number of mutagenicity studies with microorganisms, mammalian cell culture and mammals are available. Taking into account all of the information, there is no indication that the substance is mutagenic.

Signs and symptoms of overexposure:

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11.

Potential environmental effects**Aquatic toxicity:**

The product may hydrolyse. The test result maybe partially due to degradation products. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

3. Composition / Information on Ingredients

<u>CAS Number</u>	<u>Content (W/W)</u>	<u>Chemical name</u>
64742-47-8	>= 10.0 - <= 30.0 %	Distillates (petroleum), hydrotreated light
26447-40-5	>= 7.0 - <= 13.0 %	Methylenediphenyl diisocyanate
101-68-8	>= 7.0 - <= 15.0 %	Diphenylmethane-4,4'-diisocyanate (MDI)
64742-95-6	>= 5.0 - <= 10.0 %	solvent naphtha
8052-41-3	>= 3.0 - <= 7.0 %	Stoddard solvent
95-63-6	>= 3.0 - <= 7.0 %	1,2,4-trimethylbenzene
112945-52-5	>= 1.0 - <= 5.0 %	Silica
9016-87-9	>= 1.0 - <= 5.0 %	P-MDI
13463-67-7	>= 0.5 - <= 1.5 %	Titanium dioxide
98-82-8	>= 0.1 - <= 1.0 %	cumene

4. First-Aid Measures

General advice:

First aid personnel should pay attention to their own safety. Remove contaminated clothing.

If inhaled:

Remove the affected individual into fresh air and keep the person calm. If breathing difficulties develop, aid in breathing and seek immediate medical attention.

If on skin:

Wash thoroughly with soap and water. Under no circumstances should organic solvent be used. If irritation develops, seek medical attention.

Safety Data Sheet

PRIMA LUB

Revision date : 2012/08/27

Version: 2.1

Page: 3/10

(30406778/SDS_GEN_US/EN)

If in eyes:

Wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

If swallowed:

Rinse mouth and then drink plenty of water. Do not induce vomiting due to aspiration hazard. Do not induce vomiting unless told to by a poison control center or doctor.

5. Fire-Fighting Measures

Flash point: 108 °F
Flammability: Flammable.

Suitable extinguishing media:

dry powder, alcohol-resistant foam

Unsuitable extinguishing media for safety reasons:

water jet

Hazards during fire-fighting:

carbon dioxide, carbon monoxide, harmful vapours, nitrogen oxides, fumes/smoke, carbon black

Protective equipment for fire-fighting:

Wear a self-contained breathing apparatus.

Further information:

The degree of risk is governed by the burning substance and the fire conditions. Containers may rocket or explode in heat of fire. Keep containers cool by spraying with water if exposed to fire. Collect contaminated extinguishing water separately, do not allow to reach sewage or effluent systems. Contaminated extinguishing water must be disposed of in accordance with official regulations.

6. Accidental release measures

Personal precautions:

Use personal protective clothing. Avoid prolonged inhalation. Avoid contact with the skin, eyes and clothing. Avoid all sources of ignition: heat, sparks, open flame.

Environmental precautions:

Notify proper authorities. Do not discharge into drains/surface waters/groundwater. Substance/product is RCRA hazardous due to its properties.

Cleanup:

For large amounts: Pump off product.

For residues: Pick up with inert absorbent material (e.g. sand, earth etc.). Correctly dispose of recovered product immediately.

7. Handling and Storage

Handling

General advice:

Take precautionary measures against static discharges. Keep away from sources of ignition - No smoking. Provide good room ventilation even at ground level (vapours are heavier than air).

Protection against fire and explosion:

Sources of ignition should be kept well clear. Take precautionary measures against static discharges. Substance/product can form explosive mixture with air. Vapours are heavier than air and may accumulate in low areas and travel a considerable distance up to the source of ignition.

Safety Data Sheet

PRIMA LUB

Revision date : 2012/08/27
Version: 2.1

Page: 4/10
(30406778/SDS_GEN_US/EN)

Storage

General advice:

Keep container tightly closed and in a well-ventilated place. Keep away from heat. Avoid all sources of ignition: heat, sparks, open flame.

Storage incompatibility:

General advice: Segregate from foods and animal feeds.

8. Exposure Controls and Personal Protection

Components with workplace control parameters

P-MDI	OSHA	CLV 0.02 ppm 0.2 mg/m3 ;
	ACGIH	TWA value 0.005 ppm ;
Diphenylmethane-4,4'-diisocyanate (MDI)	OSHA	CLV 0.02 ppm 0.2 mg/m3 ;
	ACGIH	TWA value 0.005 ppm ;
Stoddard solvent	OSHA	PEL 500 ppm 2,900 mg/m3 ;
	ACGIH	TWA value 100 ppm ;
1,2,4-trimethylbenzene	ACGIH	TWA value 25 ppm ;
cumene	OSHA	PEL 50 ppm 245 mg/m3 ; Skin Designation ; The substance can be absorbed through the skin.
	ACGIH	TWA value 50 ppm ;
Titanium dioxide	OSHA	PEL 15 mg/m3 Total dust ;
	ACGIH	TWA value 10 mg/m3 ;
Distillates (petroleum), hydrotreated light	ACGIH	TWA value 200 mg/m3 Non-aerosol (total hydrocarbon vapor); Application restricted to conditions in which there are negligible aerosol exposures. Skin Designation Non-aerosol (total hydrocarbon vapor); The substance can be absorbed through the skin.
	OSHA	; listed TWA value 20 millions of particles per cubic foot of air ; TWA value 0.8 mg/m3 ; The exposure limit is calculated from the equation, 80/(%SiO ₂), using a value of 100% SiO ₂ . Lower percentages of SiO ₂ will yield higher exposure limits.

Personal protective equipment

Respiratory protection:

When atmospheric levels may exceed the occupational exposure limit (PEL or TLV) NIOSH-certified air-purifying respirators equipped with an organic vapor sorbent and particulate filter can be used as long as appropriate precautions and change out schedules are in place.

Hand protection:

Wear chemical resistant protective gloves.

Eye protection:

Safety glasses with side-shields.

Body protection:

light protective clothing

Safety Data Sheet

PRIMA LUB

Revision date : 2012/08/27
Version: 2.1

Page: 5/10
(30406778/SDS_GEN_US/EN)

General safety and hygiene measures:

Avoid inhalation of dusts/mists/vapours. Avoid contact with the skin, eyes and clothing. Avoid prolonged and/or repeated contact with the skin. Handle in accordance with good building materials hygiene and safety practice. When using, do not eat, drink or smoke. Hands and/or face should be washed before breaks and at the end of the shift. At the end of the shift the skin should be cleaned and skin-care agents applied. Gloves must be inspected regularly and prior to each use. Replace if necessary (e.g. pinhole leaks).

9. Physical and Chemical Properties

Form:	liquid	
Odour:	solvent-like	
Colour:	light grey	
pH value:		not applicable
Boiling point:	> 100 °C	
<i>Information on: Stoddard solvent</i>		
Boiling range:	220 - 300 °C	
<i>Information on: solvent naphtha</i>		
Boiling range:	135 - 145 °C	(1,013.25 hPa) (other) At normal pressure may be distilled without decomposition. Literature data.

Density:	1.02 g/cm3	
Partitioning coefficient n-octanol/water (log Pow):		not applicable
Other Information:	If necessary, information on other physical and chemical parameters is indicated in this section.	

10. Stability and Reactivity

Conditions to avoid:

See MSDS section 7 - Handling and storage.

Substances to avoid:

strong oxidizing agents

Hazardous reactions:

No hazardous reactions if stored and handled as prescribed/indicated.

Decomposition products:

No hazardous decomposition products if stored and handled as prescribed/indicated.

Thermal decomposition:

Vapours may form explosive mixture with air. No decomposition if stored and handled as prescribed/indicated.

Oxidizing properties:

Not an oxidizer.

11. Toxicological information

Acute toxicity

Information on: Stoddard solvent

Assessment of acute toxicity:

Aspiration may result in chemical pneumonitis, which may be fatal.

Information on: Methylenediphenyl diisocyanate

Assessment of acute toxicity:

Safety Data Sheet

PRIMA LUB

Revision date : 2012/08/27

Version: 2.1

Page: 6/10

(30406778/SDS_GEN_US/EN)

Virtually nontoxic after a single skin contact. Virtually nontoxic after a single ingestion. Of moderate toxicity after short-term inhalation. Result of analysis for GOAL end points expected (see date)

Inhalation of vapours may cause irritation of the mucous membranes of the nose, throat or trachea, breathlessness, chest discomfort, difficult breathing and reduced pulmonary function. Inhalation exposure well above the PEL may result additionally in eye irritation, headache, chemical bronchitis, asthma-like findings or pulmonary edema. Isocyanates have also been reported to cause hypersensitivity pneumonitis, which is characterized by flu-like symptoms, the onset of which may be delayed. Gastrointestinal symptoms include nausea, vomiting and abdominal pain.

Information on: Diphenylmethane-4,4'-diisocyanate (MDI)

Assessment of acute toxicity:

Of moderate toxicity after short-term inhalation. Virtually nontoxic after a single ingestion. Virtually nontoxic after a single skin contact.

Inhalation of vapours may cause irritation of the mucous membranes of the nose, throat or trachea, breathlessness, chest discomfort, difficult breathing and reduced pulmonary function. Inhalation exposure well above the PEL may result additionally in eye irritation, headache, chemical bronchitis, asthma-like findings or pulmonary edema. Isocyanates have also been reported to cause hypersensitivity pneumonitis, which is characterized by flu-like symptoms, the onset of which may be delayed. Gastrointestinal symptoms include nausea, vomiting and abdominal pain.

Information on: 1,2,4-trimethylbenzene

Assessment of acute toxicity:

Of low toxicity after single ingestion. Of moderate toxicity after short-term inhalation. EU-classification

Information on: solvent naphtha

Assessment of acute toxicity:

Virtually nontoxic after a single ingestion. Virtually nontoxic after a single skin contact. Virtually nontoxic by inhalation. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Irritation / corrosion

Information on: Methylenediphenyl diisocyanate

Assessment of irritating effects:

Irritating to eyes and skin.

Information on: Diphenylmethane-4,4'-diisocyanate (MDI)

Assessment of irritating effects:

Irritating to eyes, respiratory system and skin.

Information on: 1,2,4-trimethylbenzene

Assessment of irritating effects:

Irritating to eyes and skin.

Information on: P-MDI

Assessment of irritating effects:

Irritating to eyes, respiratory system and skin.

Sensitization

Information on: Methylenediphenyl diisocyanate

Assessment of sensitization:

The substance may cause sensitization of the respiratory tract. Sensitization after skin contact possible.

Information on: Diphenylmethane-4,4'-diisocyanate (MDI)

Assessment of sensitization:

The substance may cause sensitization of the respiratory tract. Sensitization after skin contact possible. Studies in animals suggest that dermal exposure may lead to pulmonary sensitization. However, the relevance of this result for humans is unclear.

As a result of previous repeated overexposures or a single large dose, certain individuals will develop isocyanate sensitization (chemical asthma) which will cause them to react to a later exposure to isocyanate at levels well below the PEL/TLV. These symptoms, which include chest tightness, wheezing, cough, shortness of breath, or asthmatic attack, could be immediate or delayed up to several hours after exposure. Similar to many

Safety Data Sheet

PRIMA LUB

Revision date : 2012/08/27

Version: 2.1

Page: 7/10

(30406778/SDS_GEN_US/EN)

non-specific asthmatic responses, there are reports that once sensitized an individual can experience these symptoms upon exposure to dust, cold air, or other irritants. This increased lung sensitivity can persist for weeks and in severe cases for several years. Chronic overexposure to isocyanates has also been reported to cause lung damage, including a decrease in lung function, which may be permanent. Prolonged contact can cause reddening, swelling, rash, scaling, or blistering. In those who have developed a skin sensitization, these symptoms can develop as a result of contact with very small amounts of liquid material, or even as a result of vapour-only exposure.

Information on: P-MDI

Assessment of sensitization:

The substance may cause sensitization of the respiratory tract. Sensitization after skin contact possible.

Repeated dose toxicity

Information on: Stoddard solvent

Assessment of repeated dose toxicity:

Overexposure may cause liver and kidney toxicity. Repeated exposures may result in pulmonary congestion.

Information on: 1,2,4-trimethylbenzene

Assessment of repeated dose toxicity:

Repeated oral uptake of the substance did not cause substance-related effects. Investigations using experimental animals show that the material can cause lung tissue changes following inhalation.

Information on: P-MDI

Carcinogenicity

Information on: solvent naphtha

The substance caused cancer in animal studies.

Information on: Methylenediphenyl diisocyanate

A carcinogenic potential cannot be excluded after prolonged exposure to severely irritating concentrations.

These effects are not relevant to humans at occupational levels of exposure.

Information on: Diphenylmethane-4,4'-diisocyanate (MDI)

A carcinogenic potential cannot be excluded after prolonged exposure to severely irritating concentrations.

These effects are not relevant to humans at occupational levels of exposure.

Information on: Titanium dioxide

IARC (International Agency for Research on Cancer) has classified this substance as group 2B (The agent is possibly carcinogenic to humans). In long-term studies in rats in which the substance was given by inhalation, a carcinogenic effect was observed. Tumors were only observed in rats after chronic inhalative exposure to high concentrations which caused sustained lung inflammation. In long-term studies in rats and mice in which the substance was given by feed, a carcinogenic effect was not observed. Dermal exposure is not expected to be carcinogenic.

Information on: P-MDI

Based on the ingredients there is a suspicion of a carcinogenic effect in humans.

Information on: Distillates (petroleum), hydrotreated light

Long-term exposure to highly irritating concentrations resulted in skin tumors in animals. A carcinogenic effect in humans can be excluded after brief skin contact. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Aspiration Hazard:

May also damage the lung at swallowing (aspiration hazard).

Experiences in humans:

Information on: P-MDI

Can severely irritate the eyes and respiratory tract depending upon the concentration.

Other Information:

Safety Data Sheet

PRIMA LUB

Revision date : 2012/08/27

Version: 2.1

Page: 8/10

(30406778/SDS_GEN_US/EN)

Based on our experience and the information available, no adverse health effects are expected if handled as recommended with suitable precautions for designated uses. The product has not been tested. The statements on toxicology have been derived from the properties of the individual components.

Information on: Stoddard solvent

In tests with mammals a central nervous system disorder was observed.

12. Ecological Information

Other adverse effects:

Do not release untreated into natural waters. Do not allow to enter soil, waterways or waste water channels. The product has not been tested. The statement has been derived from the properties of the individual components.

13. Disposal considerations

Waste disposal of substance:

Dispose of in accordance with national, state and local regulations.

Container disposal:

Contaminated packaging should be emptied as far as possible; then it can be passed on for recycling after being thoroughly cleaned.

14. Transport Information

Land transport

USDOT

Hazard class:	3
Packing group:	III
ID number:	UN 1993
Hazard label:	3
Proper shipping name:	FLAMMABLE LIQUID, N.O.S. (contains STODDARD SOLVENT, SOLVENT NAPHTHA)

Sea transport

IMDG

Hazard class:	3
Packing group:	III
ID number:	UN 1993
Hazard label:	3
Marine pollutant:	NO
Proper shipping name:	FLAMMABLE LIQUID, N.O.S. (contains STODDARD SOLVENT, SOLVENT NAPHTHA)

Air transport

IATA/ICAO

Hazard class:	3
Packing group:	III
ID number:	UN 1993
Hazard label:	3
Proper shipping name:	FLAMMABLE LIQUID, N.O.S. (contains STODDARD SOLVENT, SOLVENT NAPHTHA)

Safety Data Sheet

PRIMA LUB

Revision date : 2012/08/27
Version: 2.1

Page: 9/10
(30406778/SDS_GEN_US/EN)

15. Regulatory Information

Federal Regulations

Registration status:

Chemical TSCA, US released / listed

OSHA hazard category:

IARC 1, 2A or 2B carcinogen; Chronic target organ effects reported; OSHA PEL established; ACGIH TLV established; Combustible Liquid

EPCRA 311/312 (Hazard categories):

Acute; Chronic; Fire

EPCRA 313:

CAS Number

95-63-6

101-68-8

9016-87-9

Chemical name

1,2,4-trimethylbenzene

Diphenylmethane-4,4'-diisocyanate (MDI)

P-MDI

CERCLA RQ

5000 LBS

100 LBS

CAS Number

98-82-8; 101-68-8;

9016-87-9

1330-20-7; 108-90-

7; 111-84-2

Chemical name

cumene; Diphenylmethane-4,4'-diisocyanate (MDI); P-MDI

Xylene; chlorobenzene; Nonane

State regulations

State RTK

MA, NJ, PA

MA, NJ, PA

MA, NJ, PA

MA, PA

MA, NJ, PA

MA, NJ, PA

MA, NJ, PA

CAS Number

64742-47-8

101-68-8

8052-41-3

112945-52-5

9016-87-9

13463-67-7

98-82-8

Chemical name

Distillates (petroleum), hydrotreated light

Diphenylmethane-4,4'-diisocyanate (MDI)

Stoddard solvent

Silica

P-MDI

Titanium dioxide

cumene

CA Prop. 65:

THIS PRODUCT CONTAINS A CHEMICAL(S) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER.

16. Other Information

HMIS III rating

Health: 2⁺

Flammability: 2

Physical hazard: 1

NFPA and HMIS use a numbering scale ranging from 0 to 4 to indicate the degree of hazard. A value of zero means that the substance possesses essentially no hazard; a rating of four indicates extreme danger. Although similar, the two rating systems are intended for different purposes, and use different criteria. The NFPA system was developed to provide an on-the-spot alert to the hazards of a material, and their severity, to emergency responders. The HMIS system was designed to communicate workplace hazard information to employees who handle hazardous chemicals.

We support worldwide Responsible Care® initiatives. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment to Responsible Care is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.

Safety Data Sheet

PRIMA LUB

Revision date : 2012/08/27

Version: 2.1

Page: 10/10

(30406778/SDS_GEN_US/EN)

MSDS Prepared by:

BASF NA Product Regulations

msds@basf.com

MSDS Prepared on: 2012/08/27

IMPORTANT: WHILE THE DESCRIPTIONS, DESIGNS, DATA AND INFORMATION CONTAINED HEREIN ARE PRESENTED IN GOOD FAITH AND BELIEVED TO BE ACCURATE , IT IS PROVIDED FOR YOUR GUIDANCE ONLY. BECAUSE MANY FACTORS MAY AFFECT PROCESSING OR APPLICATION/USE, WE RECOMMEND THAT YOU MAKE TESTS TO DETERMINE THE SUITABILITY OF A PRODUCT FOR YOUR PARTICULAR PURPOSE PRIOR TO USE. NO WARRANTIES OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE MADE REGARDING PRODUCTS DESCRIBED OR DESIGNS, DATA OR INFORMATION SET FORTH, OR THAT THE PRODUCTS, DESIGNS, DATA OR INFORMATION MAY BE USED WITHOUT INFRINGING THE INTELLECTUAL PROPERTY RIGHTS OF OTHERS. IN NO CASE SHALL THE DESCRIPTIONS, INFORMATION, DATA OR DESIGNS PROVIDED BE CONSIDERED A PART OF OUR TERMS AND CONDITIONS OF SALE. FURTHER, YOU EXPRESSLY UNDERSTAND AND AGREE THAT THE DESCRIPTIONS, DESIGNS, DATA, AND INFORMATION FURNISHED BY OUR COMPANY HEREUNDER ARE GIVEN GRATIS AND WE ASSUME NO OBLIGATION OR LIABILITY FOR THE DESCRIPTION, DESIGNS, DATA AND INFORMATION GIVEN OR RESULTS OBTAINED, ALL SUCH BEING GIVEN AND ACCEPTED AT YOUR RISK.

END OF DATA SHEET

Safety Data Sheet

WABO BOND PTA

Revision date : 2013/04/22

Version: 1.1

Page: 1/7

(30417618/SDS_GEN_US/EN)

1. Product and Company Identification

Company

BASF CORPORATION
100 Park Avenue
Florham Park, NJ 07932, USA

24 Hour Emergency Response Information

CHEMTREC: 1-800-424-9300
BASF HOTLINE: 1-800-832-HELP (4357)

2. Hazards Identification

Emergency overview

WARNING:

MAY CAUSE ALLERGIC SKIN REACTION.

MAY CAUSE EYE IRRITATION.

MAY CAUSE SKIN IRRITATION.

Avoid contact with the skin, eyes and clothing.

Wash thoroughly after handling.

Keep container tightly closed.

State of matter: liquid

Colour: white

Odour: slight odour

Potential health effects**Primary routes of exposure:**

Routes of entry for solids and liquids include eye and skin contact, ingestion and inhalation. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquified gases.

Acute toxicity:

Virtually nontoxic after a single ingestion. Based on available Data, the classification criteria are not met.

Irritation / corrosion:

Eye contact causes irritation. Skin contact causes irritation.

Sensitization:

Sensitization after skin contact possible.

Chronic toxicity:

Carcinogenicity: Based on the ingredients there is no suspicion of a carcinogenic effect in humans. Based on available Data, the classification criteria are not met.

Safety Data Sheet

WABO BOND PTA

Revision date : 2013/04/22

Version: 1.1

Page: 2/7

(30417618/SDS_GEN_US/EN)

Repeated dose toxicity: No reliable data was available concerning repeated dose toxicity. Based on available Data, the classification criteria are not met.

Reproductive toxicity: The chemical structure does not suggest a specific alert for such an effect. Based on available Data, the classification criteria are not met.

Teratogenicity: The chemical structure does not suggest a specific alert for such an effect. Based on available Data, the classification criteria are not met.

Genotoxicity: The chemical structure does not suggest a specific alert for such an effect. Based on available Data, the classification criteria are not met.

Signs and symptoms of overexposure:

Eye irritation, skin irritation, allergic contact dermatitis

Potential environmental effects

Aquatic toxicity:

Acutely toxic for aquatic organisms. May cause long-term adverse effects in the aquatic environment. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations.

Degradation / environmental fate:

The product is virtually insoluble in water and can thus be separated from water mechanically in suitable effluent treatment plants.

3. Composition / Information on Ingredients

<u>CAS Number</u>	<u>Content (W/W)</u>	<u>Chemical name</u>
25085-99-8	>= 30.0 - <= 60.0 %	Oxirane, 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis-, homopolymer
25068-38-6	>= 30.0 - <= 60.0 %	bisphenol A-epichlorohydrin resin
2210-79-9	>= 5.0 - <= 10.0 %	Oxirane, 2-[(2-methylphenoxy)methyl]-

4. First-Aid Measures

General advice:

First aid personnel should pay attention to their own safety. Immediately remove contaminated clothing.

If inhaled:

If difficulties occur after vapour/aerosol has been inhaled, remove to fresh air and seek medical attention.

If on skin:

After contact with skin, wash immediately with plenty of water and soap. Under no circumstances should organic solvent be used. If irritation develops, seek medical attention.

If in eyes:

Wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

If swallowed:

Rinse mouth immediately and then drink plenty of water, seek medical attention. Do not induce vomiting unless told to by a poison control center or doctor.

Note to physician

Treatment:

Treat according to symptoms (decontamination, vital functions), no known specific antidote.

Safety Data Sheet

WABO BOND PTA

Revision date : 2013/04/22

Version: 1.1

Page: 3/7

(30417618/SDS_GEN_US/EN)

5. Fire-Fighting Measures

Flash point:	93.34 °C	(ASTM D93)
Lower explosion limit:		dropped
Flammability:	not highly flammable	

Suitable extinguishing media:

foam, water spray, dry powder, carbon dioxide

Unsuitable extinguishing media for safety reasons:

water jet

Protective equipment for fire-fighting:

Wear a self-contained breathing apparatus.

Further information:

The degree of risk is governed by the burning substance and the fire conditions. If exposed to fire, keep containers cool by spraying with water. Collect contaminated extinguishing water separately, do not allow to reach sewage or effluent systems. Contaminated extinguishing water must be disposed of in accordance with official regulations.

6. Accidental release measures

Personal precautions:

Do not breathe vapour/aerosol/spray mists. Wear eye/face protection. If exposed to high vapour concentration, leave area immediately. Use personal protective clothing. Handle in accordance with good building materials hygiene and safety practice.

Environmental precautions:

Contain contaminated water/firefighting water. Do not discharge into drains/surface waters/groundwater.

Cleanup:

For small amounts: Pick up with inert absorbent material (e.g. sand, earth etc.). Dispose of contaminated material as prescribed.

For large amounts: Pump off product.

7. Handling and Storage

Handling

General advice:

Avoid aerosol formation. Avoid inhalation of mists/vapours. Avoid skin contact. No special measures necessary provided product is used correctly.

Storage

General advice:

Keep only in the original container in a cool, dry, well-ventilated place away from ignition sources, heat or flame. Protect from direct sunlight.

8. Exposure Controls and Personal Protection

Safety Data Sheet

WABO BOND PTA

Revision date : 2013/04/22

Version: 1.1

Page: 4/7

(30417618/SDS_GEN_US/EN)

Personal protective equipment

Respiratory protection:

When workers are facing concentrations above the occupational exposure limits they must use appropriate certified respirators.

Eye protection:

Tightly fitting safety goggles (chemical goggles).

Body protection:

Body protection must be chosen depending on activity and possible exposure, e.g. apron, protecting boots, chemical-protection suit (according to EN 14605 in case of splashes or EN ISO 13982 in case of dust).

General safety and hygiene measures:

Do not inhale gases/vapours/aerosols. Avoid contact with the skin, eyes and clothing. Avoid exposure - obtain special instructions before use. Handle in accordance with good building materials hygiene and safety practice. Wearing of closed work clothing is recommended. When using, do not eat, drink or smoke. Hands and/or face should be washed before breaks and at the end of the shift. At the end of the shift the skin should be cleaned and skin-care agents applied. Gloves must be inspected regularly and prior to each use. Replace if necessary (e.g. pinhole leaks).

9. Physical and Chemical Properties

Form:	liquid	
Odour:	slight odour	
Colour:	white	
pH value:		not applicable
Melting temperature:		not applicable
Boiling point:	approx. 182 °C	
Density:	approx. 1.18 g/cm ³	(20 °C)
Vapour density:		Heavier than air.
Partitioning coefficient n-octanol/water (log Pow):		No data available.
Solubility in water:		(20 °C) insoluble
Miscibility with water:		(20 °C) not soluble
Other Information:	If necessary, information on other physical and chemical parameters is indicated in this section.	

10. Stability and Reactivity

Substances to avoid:

strong acids, strong bases, strong oxidizing agents, strong reducing agents

Hazardous reactions:

The product is stable if stored and handled as prescribed/indicated.

Decomposition products:

No hazardous decomposition products if stored and handled as prescribed/indicated.

Corrosion to metals:

Corrosive effects to metal are not anticipated.

11. Toxicological information

Irritation / corrosion

Information on: bisphenol A-epichlorohydrin resin

Assessment of irritating effects:

Safety Data Sheet

WABO BOND PTA

Revision date : 2013/04/22

Version: 1.1

Page: 5/7

(30417618/SDS_GEN_US/EN)

Eye contact causes irritation. Skin contact causes irritation.

Information on: Oxirane, 2-[(2-methylphenoxy)methyl]-

Assessment of irritating effects:

Eye contact causes irritation. Skin contact causes irritation.

Sensitization

Information on: Oxirane, 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis-, homopolymer

Assessment of sensitization:

May cause sensitization by skin contact.

Information on: bisphenol A-epichlorohydrin resin

Assessment of sensitization:

Sensitization after skin contact possible.

Information on: Oxirane, 2-[(2-methylphenoxy)methyl]-

Assessment of sensitization:

Caused skin sensitization in animal studies.

Genetic toxicity

Information on: Oxirane, 2-[(2-methylphenoxy)methyl]-

The substance was mutagenic in a bacterial test system. The substance was not mutagenic in studies with mammals.

Other Information:

Based on our experience and the information available, no adverse health effects are expected if handled as recommended with suitable precautions for designated uses. The product has not been tested. The statements on toxicology have been derived from the properties of the individual components.

12. Ecological Information

Degradability / Persistence

Biological / Abiological Degradation

Evaluation: Not readily biodegradable (by OECD criteria).

Bioaccumulation

Because of the product's consistency and low water solubility, bioavailability is improbable.

13. Disposal considerations

Waste disposal of substance:

Dispose of in accordance with national, state and local regulations. Residues should be disposed of in the same manner as the substance/product. Do not discharge into drains/surface waters/groundwater.

Container disposal:

Contaminated packaging should be emptied as far as possible; then it can be passed on for recycling after being thoroughly cleaned.

14. Transport Information

Safety Data Sheet

WABO BOND PTA

Revision date : 2013/04/22

Version: 1.1

Page: 6/7

(30417618/SDS_GEN_US/EN)

Land transport

USDOT

Hazard class: 9
Packing group: III
ID number: UN 3082
Hazard label: 9, EHSM
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(contains BISPHENOL-A-EPICHLORHYDRIN RESINS M <=700)

Sea transport

IMDG

Hazard class: 9
Packing group: III
ID number: UN 3082
Hazard label: 9, EHSM
Marine pollutant: YES
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(contains BISPHENOL-A-EPICHLORHYDRIN RESINS M <=700)

Air transport

IATA/ICAO

Hazard class: 9
Packing group: III
ID number: UN 3082
Hazard label: 9, EHSM
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(contains BISPHENOL-A-EPICHLORHYDRIN RESINS M <=700)

15. Regulatory Information

Federal Regulations

Registration status:

Chemical TSCA, US released / listed

OSHA hazard category: No data available.;

EPCRA 311/312 (Hazard categories): Acute; Chronic

CERCLA RQ

100 LBS

CAS Number

106-89-8

Chemical name

1-chloro-2,3-epoxypropane

State regulations

CA Prop. 65:

THIS PRODUCT CONTAINS A CHEMICAL(S) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER AND BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.

16. Other Information

Safety Data Sheet

WABO BOND PTA

Revision date : 2013/04/22

Version: 1.1

Page: 7/7

(30417618/SDS_GEN_US/EN)

HMIS III rating

Health: 2^a Flammability: 1 Physical hazard: 0

NFPA and HMIS use a numbering scale ranging from 0 to 4 to indicate the degree of hazard. A value of zero means that the substance possesses essentially no hazard; a rating of four indicates extreme danger. Although similar, the two rating systems are intended for different purposes, and use different criteria. The NFPA system was developed to provide an on-the-spot alert to the hazards of a material, and their severity, to emergency responders. The HMIS system was designed to communicate workplace hazard information to employees who handle hazardous chemicals.

We support worldwide Responsible Care® initiatives. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment to Responsible Care is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.

SDS Prepared by:

BASF NA Product Regulations

msds@basf.com

SDS Prepared on: 2013/04/22

IMPORTANT: WHILE THE DESCRIPTIONS, DESIGNS, DATA AND INFORMATION CONTAINED HEREIN ARE PRESENTED IN GOOD FAITH AND BELIEVED TO BE ACCURATE, IT IS PROVIDED FOR YOUR GUIDANCE ONLY. BECAUSE MANY FACTORS MAY AFFECT PROCESSING OR APPLICATION/USE, WE RECOMMEND THAT YOU MAKE TESTS TO DETERMINE THE SUITABILITY OF A PRODUCT FOR YOUR PARTICULAR PURPOSE PRIOR TO USE. NO WARRANTIES OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE MADE REGARDING PRODUCTS DESCRIBED OR DESIGNS, DATA OR INFORMATION SET FORTH, OR THAT THE PRODUCTS, DESIGNS, DATA OR INFORMATION MAY BE USED WITHOUT INFRINGING THE INTELLECTUAL PROPERTY RIGHTS OF OTHERS. IN NO CASE SHALL THE DESCRIPTIONS, INFORMATION, DATA OR DESIGNS PROVIDED BE CONSIDERED A PART OF OUR TERMS AND CONDITIONS OF SALE. FURTHER, YOU EXPRESSLY UNDERSTAND AND AGREE THAT THE DESCRIPTIONS, DESIGNS, DATA, AND INFORMATION FURNISHED BY OUR COMPANY HEREUNDER ARE GIVEN GRATIS AND WE ASSUME NO OBLIGATION OR LIABILITY FOR THE DESCRIPTION, DESIGNS, DATA AND INFORMATION GIVEN OR RESULTS OBTAINED, ALL SUCH BEING GIVEN AND ACCEPTED AT YOUR RISK.

END OF DATA SHEET



The Chemical Company

Safety Data Sheet

WABO BOND PTB

Revision date : 2012/10/03

Version: 1.0

Page: 1/8

(30417619/SDS_GEN_US/EN)

1. Product and Company Identification

Company

BASF CORPORATION
100 Park Avenue
Florham Park, NJ 07932, USA

24 Hour Emergency Response Information

CHEMTREC: 1-800-424-9300
BASF HOTLINE: 1-800-832-HELP (4357)

2. Hazards Identification

Emergency overview

DANGER:
HARMFUL IF SWALLOWED.
MAY BE HARMFUL IF INHALED.
MAY CAUSE BURNS.
MAY CAUSE ALLERGIC SKIN REACTION.
CONTAINS MATERIAL WHICH CAN CAUSE CANCER.
Avoid contact with the skin, eyes and clothing.
Wash thoroughly after handling.
Keep container tightly closed.

State of matter: liquid
Colour: brown
Odour: ammonia-like

Potential health effects

Primary routes of exposure:

Routes of entry for solids and liquids include eye and skin contact, ingestion and inhalation. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquified gases.

Acute toxicity:

Harmful by inhalation, in contact with skin and if swallowed.

Irritation / corrosion:

Causes burns.

Sensitization:

May produce an allergic reaction. Sensitization after skin contact possible. The product has not been tested. The statement has been derived from the properties of the individual components.

Chronic toxicity:

Carcinogenicity: Contains a known carcinogen.

Safety Data Sheet

WABO BOND PTB

Revision date : 2012/10/03
Version: 1.0

Page: 2/8
(30417619/SDS_GEN_US/EN)

Potential environmental effects

Aquatic toxicity:

The product has not been tested.

3. Composition / Information on Ingredients

<u>CAS Number</u>	<u>Content (W/W)</u>	<u>Chemical name</u>
14808-60-7	>= 15.0 - <= 40.0 %	crystalline silica
9046-10-0	>= 15.0 - <= 40.0 %	alpha-(2-Aminomethylethyl)-omega-(2-aminomethylethoxy)-poly(oxy(methyl-1,2-ethanediyl))
1317-65-3	>= 10.0 - <= 30.0 %	Limestone
25154-52-3	>= 10.0 - <= 30.0 %	nonylphenol
111-40-0	>= 3.0 - <= 7.0 %	2,2'-iminodi(ethylamine)
90-72-2	>= 1.0 - <= 5.0 %	2,4,6-tris(dimethylaminomethyl)phenol

4. First-Aid Measures

General advice:

First aid personnel should pay attention to their own safety. Immediately remove contaminated clothing.

If inhaled:

If difficulties occur after vapour/aerosol has been inhaled, remove to fresh air and seek medical attention.

If on skin:

After contact with skin, wash immediately with plenty of water and soap. Under no circumstances should organic solvent be used. If irritation develops, seek medical attention.

If in eyes:

Wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

If swallowed:

Rinse mouth immediately and then drink plenty of water, seek medical attention. Do not induce vomiting unless told to by a poison control center or doctor.

5. Fire-Fighting Measures

Flash point:	124 °C	(ASTM D93)
Lower explosion limit:		No data available.
Upper explosion limit:		No data available.

Suitable extinguishing media:

carbon dioxide, dry powder, foam, water spray

Hazards during fire-fighting:

carbon dioxide, carbon monoxide, nitrogen oxides, fumes/smoke, carbon black, corrosive gases/vapours

Protective equipment for fire-fighting:

Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

Further information:

The degree of risk is governed by the burning substance and the fire conditions. Contaminated extinguishing water must be disposed of in accordance with official regulations.

Safety Data Sheet

WABO BOND PTB

Revision date : 2012/10/03
Version: 1.0

Page: 3/8
(30417619/SDS_GEN_US/EN)

6. Accidental release measures

Personal precautions:

Use personal protective clothing. Do not breathe vapour/aerosol/spray mists. Handle in accordance with good building materials hygiene and safety practice.

Environmental precautions:

Contain contaminated water/firefighting water. Do not discharge into drains/surface waters/groundwater.

Cleanup:

For small amounts: Pick up with inert absorbent material (e.g. sand, earth etc.). Dispose of contaminated material as prescribed.

For large amounts: Pump off product.

7. Handling and Storage

Handling

General advice:

Keep away from sources of ignition - No smoking. Keep container tightly sealed. Handle and open container with care.

Protection against fire and explosion:

The product does not contribute to the spreading of flames, nor is it self combustible, not explosive.

Storage

General advice:

Keep only in the original container in a cool, dry, well-ventilated place away from ignition sources, heat or flame. Protect from direct sunlight. Store protected against freezing.

8. Exposure Controls and Personal Protection

Components with occupational exposure limits

crystalline silica	OSHA	TWA value 2.4 millions of particles per cubic foot of air Respirable ; The value is calculated from a specified equation using a value of 100%. Lower values of % will give higher exposure limits. See regulation for specific equation. TWA value 0.1 mg/m3 Respirable ; The value is calculated from a specified equation using a value of 100%. Lower values of % will give higher exposure limits. See regulation for specific equation. TWA value 0.3 mg/m3 Total dust ; The value is calculated from a specified equation using a value of 100%. Lower values of % will give higher exposure limits. See regulation for specific equation.
2,2'-iminodi(ethylamine)	ACGIH	TWA value 0.025 mg/m3 Respirable fraction ;
	ACGIH	TWA value 1 ppm ; Skin Designation ; The substance can be absorbed through the skin.
Limestone	OSHA	PEL 5 mg/m3 Respirable fraction ; PEL 15 mg/m3 Total dust ;

Safety Data Sheet

WABO BOND PTB

Revision date : 2012/10/03
Version: 1.0

Page: 4/8
(30417619/SDS_GEN_US/EN)

Personal protective equipment

Respiratory protection:

Wear a NIOSH-certified (or equivalent) respirator as necessary.

Hand protection:

Wear chemical resistant protective gloves., Protective glove selection must be based on the user's assessment of the workplace hazards.

Eye protection:

Tightly fitting safety goggles (chemical goggles) and face shield.

Body protection:

Body protection must be chosen depending on activity and possible exposure, e.g. head protection, apron, protective boots, chemical-protection suit.

General safety and hygiene measures:

Do not inhale gases/vapours/aerosols. Avoid contact with the skin, eyes and clothing. Handle in accordance with good building materials hygiene and safety practice. When using, do not eat, drink or smoke. Hands and/or face should be washed before breaks and at the end of the shift. At the end of the shift the skin should be cleaned and skin-care agents applied. Gloves must be inspected regularly and prior to each use. Replace if necessary (e.g. pinhole leaks).

9. Physical and Chemical Properties

Form:	liquid	
Odour:	ammonia-like	
Colour:	brown	
pH value:		neutral to slightly alkaline
Boiling range:	130 - 300 °C	
Density:	12.11 lb/USg 1.45 g/cm3	(20 °C)
Vapour density:		Heavier than air.
Partitioning coefficient n-octanol/water (log Pow):		No data available.
Solubility in water:		insoluble
Other Information:	If necessary, information on other physical and chemical parameters is indicated in this section.	

10. Stability and Reactivity

Conditions to avoid:

See MSDS section 7 - Handling and storage.

Substances to avoid:

strong bases, strong acids, oxidizing agents

Hazardous reactions:

The product is stable if stored and handled as prescribed/indicated.

Decomposition products:

carbon oxides, nitrogen oxides

Thermal decomposition:

No decomposition if stored and handled as prescribed/indicated.

Oxidizing properties:

Based on its structural properties the product is not classified as oxidizing.

Safety Data Sheet

WABO BOND PTB

Revision date : 2012/10/03
Version: 1.0

Page: 5/8
(30417619/SDS_GEN_US/EN)

11. Toxicological information

Acute toxicity

Information on: alpha-(2-Aminomethylethyl)-omega-(2-aminomethylethoxy)- poly(oxy(methyl-1,2-ethanediyl))

Assessment of acute toxicity:

Of moderate toxicity after short-term skin contact. Of moderate toxicity after single ingestion.

Information on: nonylphenol

Assessment of acute toxicity:

Of moderate toxicity after single ingestion. Of low toxicity after short-term skin contact.

Information on: 2,2'-iminodi(ethylamine)

Assessment of acute toxicity:

Of moderate toxicity after single ingestion. Of very high toxicity after short-term inhalation. Of moderate toxicity after short-term skin contact.

Information on: 2,4,6-tris(dimethylaminomethyl)phenol

Assessment of acute toxicity:

Of moderate toxicity after single ingestion. EU-classification

Irritation / corrosion

Information on: alpha-(2-Aminomethylethyl)-omega-(2-aminomethylethoxy)- poly(oxy(methyl-1,2-ethanediyl))

Assessment of irritating effects:

Corrosive! Damages skin and eyes.

Information on: nonylphenol

Assessment of irritating effects:

Corrosive! Damages skin and eyes. May cause severe damage to the eyes.

Information on: 2,2'-iminodi(ethylamine)

Assessment of irritating effects:

Corrosive! Damages skin and eyes.

Information on: 2,4,6-tris(dimethylaminomethyl)phenol

Assessment of irritating effects:

Eye contact causes irritation. Skin contact causes irritation.

Sensitization

Information on: 2,2'-iminodi(ethylamine)

Assessment of sensitization:

Sensitization after skin contact possible.

Can sensitize the skin and/or respiratory tract of allergic persons. May produce an allergic reaction.

Repeated dose toxicity

Information on: nonylphenol

Assessment of repeated dose toxicity:

The substance may cause damage to the liver after repeated ingestion. The substance may cause damage to the kidney after repeated ingestion.

Information on: 2,2'-iminodi(ethylamine)

Assessment of repeated dose toxicity:

May affect the liver and kidneys as indicated in animal studies. The substance may cause damage to the kidney after repeated ingestion of high doses, as shown in animal studies.

Safety Data Sheet

WABO BOND PTB

Revision date : 2012/10/03
Version: 1.0

Page: 6/8
(30417619/SDS_GEN_US/EN)

Carcinogenicity

Information on: crystalline silica

In long-term studies in rats and mice in which the substance was given by feed, a carcinogenic effect was not observed. In long-term animal studies in which the substance was given by inhalation in high doses, a carcinogenic effect was observed. The substance and its compounds in the form of respirable dusts/aerosols is classified by the German MAK commission as a category 1 carcinogen (substances that cause cancer to humans). A carcinogenic effect cannot safely be ruled out. The inhalation uptake of the alveolar fraction of the fine dust may cause damage to the lungs. The International Agency for Research on Cancer (IARC) has classified this substance as a Group 1 (known) human carcinogen.

The International Agency for Research on Cancer (IARC) has classified this substance as a Group 1 (known) human carcinogen.

NTP listed carcinogen

Reproductive toxicity

Information on: nonylphenol

The results of animal studies suggest a fertility impairing effect.

Development:

Information on: nonylphenol

Indications of possible developmental toxicity/teratogenicity were seen in animal studies.

12. Ecological Information

Other adverse effects:

Ecological data are not available. Do not allow to enter drains or waterways.

13. Disposal considerations

Waste disposal of substance:

Observe national and local legal requirements. Residues should be disposed of in the same manner as the substance/product.

Container disposal:

Contaminated packaging should be emptied as far as possible; then it can be passed on for recycling after being thoroughly cleaned.

14. Transport Information

Land transport

USDOT

Hazard class:	8
Packing group:	III
ID number:	UN 1760
Hazard label:	8
Proper shipping name:	CORROSIVE LIQUID, N.O.S. (contains NONYLPHENOL, DIETHYLENETRIAMINE)

Safety Data Sheet

WABO BOND PTB

Revision date : 2012/10/03
Version: 1.0

Page: 7/8
(30417619/SDS_GEN_US/EN)

Sea transport

IMDG

Hazard class: 8
Packing group: III
ID number: UN 1760
Hazard label: 8
Marine pollutant: NO
Proper shipping name: CORROSIVE LIQUID, N.O.S. (contains NONYLPHENOL, DIETHYLENETRIAMINE)

Air transport

IATA/ICAO

Hazard class: 8
Packing group: III
ID number: UN 1760
Hazard label: 8
Proper shipping name: CORROSIVE LIQUID, N.O.S. (contains NONYLPHENOL, DIETHYLENETRIAMINE)

15. Regulatory Information

Federal Regulations

Registration status:

Chemical TSCA, US released / listed

OSHA hazard category:

IARC 1, 2A or 2B carcinogen; NTP listed carcinogen; Chronic target organ effects reported; OSHA PEL established; ACGIH TLV established

EPCRA 311/312 (Hazard categories):

Acute; Chronic

State regulations

State RTK

MA, NJ, PA
MA, NJ, PA
MA, NJ, PA

CAS Number

14808-60-7
25154-52-3
111-40-0

Chemical name

crystalline silica
nonylphenol
2,2'-iminodi(ethylamine)

CA Prop. 65:

THIS PRODUCT CONTAINS A CHEMICAL(S) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER.

16. Other Information

HMIS III rating

Health: 3* Flammability: 1 Physical hazard: 0

NFPA and HMIS use a numbering scale ranging from 0 to 4 to indicate the degree of hazard. A value of zero means that the substance possesses essentially no hazard; a rating of four indicates extreme danger. Although similar, the two rating systems are intended for different purposes, and use different criteria. The NFPA system was developed to provide an on-the-spot alert to the hazards of a material, and their severity, to emergency responders. The HMIS system was designed to communicate workplace hazard information to employees who handle hazardous chemicals.

We support worldwide Responsible Care® initiatives. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment to Responsible

Safety Data Sheet

WABO BOND PTB

Revision date : 2012/10/03
Version: 1.0

Page: 8/8
(30417619/SDS_GEN_US/EN)

Care is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.

MSDS Prepared by:
BASF NA Product Regulations
msds@basf.com
MSDS Prepared on: 2012/10/03

IMPORTANT: WHILE THE DESCRIPTIONS, DESIGNS, DATA AND INFORMATION CONTAINED HEREIN ARE PRESENTED IN GOOD FAITH AND BELIEVED TO BE ACCURATE, IT IS PROVIDED FOR YOUR GUIDANCE ONLY. BECAUSE MANY FACTORS MAY AFFECT PROCESSING OR APPLICATION/USE, WE RECOMMEND THAT YOU MAKE TESTS TO DETERMINE THE SUITABILITY OF A PRODUCT FOR YOUR PARTICULAR PURPOSE PRIOR TO USE. NO WARRANTIES OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE MADE REGARDING PRODUCTS DESCRIBED OR DESIGNS, DATA OR INFORMATION SET FORTH, OR THAT THE PRODUCTS, DESIGNS, DATA OR INFORMATION MAY BE USED WITHOUT INFRINGING THE INTELLECTUAL PROPERTY RIGHTS OF OTHERS. IN NO CASE SHALL THE DESCRIPTIONS, INFORMATION, DATA OR DESIGNS PROVIDED BE CONSIDERED A PART OF OUR TERMS AND CONDITIONS OF SALE. FURTHER, YOU EXPRESSLY UNDERSTAND AND AGREE THAT THE DESCRIPTIONS, DESIGNS, DATA, AND INFORMATION FURNISHED BY OUR COMPANY HEREUNDER ARE GIVEN GRATIS AND WE ASSUME NO OBLIGATION OR LIABILITY FOR THE DESCRIPTION, DESIGNS, DATA AND INFORMATION GIVEN OR RESULTS OBTAINED, ALL SUCH BEING GIVEN AND ACCEPTED AT YOUR RISK.

END OF DATA SHEET

Safety Data Sheet

WABOCRETE II PTA

Revision date : 2012/10/04

Version: 1.0

Page: 1/7

(30417630/SDS_GEN_US/EN)

1. Product and Company Identification

Company

WATSON BOWMAN ACME CORP.
95 Pineview Drive
Amherst, NY 14228 USA

24 Hour Emergency Response Information

CHEMTREC: 1-800-424-9300
BASF HOTLINE: 1-800-832-HELP (4357)

2. Hazards Identification

Emergency overview**WARNING:**

CONTAINS DIPHENYLMETHANE DIISOCYANATE (CAS No. 101-68-8). INHALATION OF MDI MISTS OR VAPORS MAY CAUSE RESPIRATORY IRRITATION, BREATHLESSNESS, CHEST DISCOMFORT AND REDUCED PULMONARY FUNCTION. OVEREXPOSURE WELL ABOVE THE PEL MAY RESULT IN BRONCHITIS, BRONCHIAL SPASMS AND PULMONARY EDEMA. LONG-TERM EXPOSURE TO ISOCYANATES HAS BEEN HAS BEEN REPORTED TO CAUSE LUNG DAMAGE, INCLUDING REDUCED LUNG FUNCTION WHICH MAY BE PERMANENT. ACUTE OR CHRONIC OVEREXPOSURE TO ISOCYANATES MAY CAUSE SENSITIZATION IN SOME INDIVIDUALS, RESULTING IN ALLERGIC RESPIRATORY REACTIONS INCLUDING WHEEZING, SHORTNESS OF BREATH AND DIFFICULTY BREATHING.

State of matter: liquid

Colour: yellow

Odour: aromatic, slight odour

Potential health effects**Primary routes of exposure:**

Routes of entry for solids and liquids include eye and skin contact, ingestion and inhalation. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquified gases.

Acute toxicity:

Of moderate toxicity after short-term inhalation. Virtually nontoxic after a single ingestion. Virtually nontoxic after a single skin contact.

Irritation / corrosion:

Irritating to eyes, respiratory system and skin.

Sensitization:

Sensitization after skin contact possible. The substance may cause sensitization of the respiratory tract. Studies in animals suggest that dermal exposure may lead to pulmonary sensitization. However, the relevance of this result for humans is unclear.

Safety Data Sheet

WABOCRETE II PTA

Revision date : 2012/10/04
Version: 1.0

Page: 2/7
(30417630/SDS_GEN_US/EN)

Chronic toxicity:

Carcinogenicity: A carcinogenic effect cannot safely be ruled out.

Repeated dose toxicity: The substance may cause damage to the olfactory epithelium after repeated inhalation. These effects are not relevant to humans at occupational levels of exposure.

Reproductive toxicity: No effects have been reported in reproductive organs in long term animal studies.

Teratogenicity: The substance did not cause malformations in animal studies; however, toxicity to development was observed at high doses that were toxic to the parental animals.

Genotoxicity: Results from a number of mutagenicity studies with microorganisms, mammalian cell culture and mammals are available. Taking into account all of the information, there is no indication that the substance is mutagenic.

Signs and symptoms of overexposure:

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11.

Potential environmental effects

Aquatic toxicity:

The product may hydrolyse. The test result maybe partially due to degradation products. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

3. Composition / Information on Ingredients

<u>CAS Number</u>	<u>Content (W/W)</u>	<u>Chemical name</u>
101-68-8	>= 30.0 - <= 60.0 %	Diphenylmethane-4,4'-diisocyanate (MDI)
26447-40-5	>= 10.0 - <= 30.0 %	Methylenediphenyl diisocyanate

4. First-Aid Measures

General advice:

First aid personnel should pay attention to their own safety. Remove contaminated clothing.

If inhaled:

Remove victim to fresh air and away from exposure immediately. If not breathing, give artificial respiration. Seek medical attention.

If on skin:

After contact with skin, wash immediately with plenty of water and soap. Under no circumstances should organic solvent be used. If irritation develops, seek medical attention.

If in eyes:

Wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

If swallowed:

Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions. Do not induce vomiting unless told to by a poison control center or doctor. If person is conscious and can swallow, give two glasses of water.

Note to physician

Treatment:

Treat according to symptoms (decontamination, vital functions), no known specific antidote.

Safety Data Sheet

WABOCRETE II PTA

Revision date : 2012/10/04
Version: 1.0

Page: 3/7
(30417630/SDS_GEN_US/EN)

5. Fire-Fighting Measures

Flash point: 187.78 °C (ASTM D93, closed cup)
Flammability: not highly flammable

Suitable extinguishing media:
foam, water spray, dry powder, carbon dioxide

Unsuitable extinguishing media for safety reasons:
water jet

Hazards during fire-fighting:
carbon dioxide, carbon monoxide, harmful vapours, nitrogen oxides, fumes/smoke, carbon black

Protective equipment for fire-fighting:
Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

Further information:
The degree of risk is governed by the burning substance and the fire conditions. Contaminated extinguishing water must be disposed of in accordance with official regulations.

6. Accidental release measures

Personal precautions:
Use personal protective clothing. Do not breathe vapour/aerosol/spray mists. Handle in accordance with good building materials hygiene and safety practice.

Environmental precautions:
Contain contaminated water/firefighting water. Do not discharge into drains/surface waters/groundwater.

Cleanup:
For small amounts: Pick up with inert absorbent material (e.g. sand, earth etc.). Dispose of contaminated material as prescribed.
For large amounts: Pump off product.

7. Handling and Storage

Handling

General advice:
Avoid contact with the skin, eyes and clothing. Ensure thorough ventilation of stores and work areas.

Storage

General advice:
Keep only in the original container in a cool, well-ventilated place. Protect from direct sunlight.

8. Exposure Controls and Personal Protection

Components with occupational exposure limits

Diphenylmethane-4,4'-diisocyanate (MDI)	OSHA ACGIH	CLV 0.02 ppm 0.2 mg/m3 ; TWA value 0.005 ppm ;
---	---------------	---

Safety Data Sheet

WABOCRETE II PTA

Revision date : 2012/10/04

Version: 1.0

Page: 4/7

(30417630/SDS_GEN_US/EN)

Personal protective equipment

Respiratory protection:

Wear a NIOSH-certified (or equivalent) respirator as necessary.

Hand protection:

Wear chemical resistant protective gloves., Manufacturer's directions for use should be observed because of great diversity of types.

Eye protection:

Safety glasses with side-shields.

Body protection:

Impermeable protective clothing

General safety and hygiene measures:

Do not inhale gases/vapours/aerosols. In order to prevent contamination while handling, closed working clothes and working gloves should be used. Handle in accordance with good building materials hygiene and safety practice. When using, do not eat, drink or smoke. Hands and/or face should be washed before breaks and at the end of the shift. At the end of the shift the skin should be cleaned and skin-care agents applied. Gloves must be inspected regularly and prior to each use. Replace if necessary (e.g. pinhole leaks).

9. Physical and Chemical Properties

Form:	liquid	
Odour:	aromatic, slight odour	
Colour:	yellow	
pH value:		not soluble
Vapour pressure:	< 0.0001 mmHg	(25 °C)
Density:	approx. 1.21 g/cm ³	(25 °C)
Relative density:	1.21	(25 °C)
Bulk density:	10.1 lb/USg	(20 °C)
% volatiles:		
Solubility in water:		(20 °C) Reacts with water., insoluble
Miscibility with water:		(20 °C) Reacts with water.
Solubility in other solvents:		insoluble
Other Information:	If necessary, information on other physical and chemical parameters is indicated in this section.	

10. Stability and Reactivity

Substances to avoid:

strong acids, strong bases, strong oxidizing agents

Hazardous reactions:

The product is stable if stored and handled as prescribed/indicated.

Decomposition products:

No hazardous decomposition products if stored and handled as prescribed/indicated.

Thermal decomposition:

No decomposition if stored and handled as prescribed/indicated.

Corrosion to metals:

Corrosive effects to metal are not anticipated.

11. Toxicological information

Safety Data Sheet

WABOCRETE II PTA

Revision date : 2012/10/04

Version: 1.0

Page: 5/7

(30417630/SDS_GEN_US/EN)

Acute toxicity

Oral:

Type of value: LD50

Species: rat

Value: > 2,000 mg/kg

Inhalation:

Type of value: LC50

Species: rat

Exposure time: 4 h

Irritation / corrosion

Information on: Diphenylmethane-4,4'-diisocyanate (MDI)

Assessment of irritating effects:

Irritating to eyes, respiratory system and skin.

Sensitization

Information on: Diphenylmethane-4,4'-diisocyanate (MDI)

Assessment of sensitization:

The substance may cause sensitization of the respiratory tract. Sensitization after skin contact possible. Studies in animals suggest that dermal exposure may lead to pulmonary sensitization. However, the relevance of this result for humans is unclear.

As a result of previous repeated overexposures or a single large dose, certain individuals will develop isocyanate sensitization (chemical asthma) which will cause them to react to a later exposure to isocyanate at levels well below the PEL/TLV. These symptoms, which include chest tightness, wheezing, cough, shortness of breath, or asthmatic attack, could be immediate or delayed up to several hours after exposure. Similar to many non-specific asthmatic responses, there are reports that once sensitized an individual can experience these symptoms upon exposure to dust, cold air, or other irritants. This increased lung sensitivity can persist for weeks and in severe cases for several years. Chronic overexposure to isocyanates has also been reported to cause lung damage, including a decrease in lung function, which may be permanent. Prolonged contact can cause reddening, swelling, rash, scaling, or blistering. In those who have developed a skin sensitization, these symptoms can develop as a result of contact with very small amounts of liquid material, or even as a result of vapour-only exposure.

Carcinogenicity

Information on: Diphenylmethane-4,4'-diisocyanate (MDI)

A carcinogenic potential cannot be excluded after prolonged exposure to severely irritating concentrations.

These effects are not relevant to humans at occupational levels of exposure.

Other Information:

Based on our experience and the information available, no adverse health effects are expected if handled as recommended with suitable precautions for designated uses. The product has not been tested. The statements on toxicology have been derived from the properties of the individual components.

12. Ecological Information

Fish

Acute:

Brachydanio rerio/LC0 (96 h): > 1,000 mg/l

Oryzias latipes/LC0 (96 h): > 3,000 mg/l

Aquatic invertebrates

Acute:

Safety Data Sheet

WABOCRETE II PTA

Revision date : 2012/10/04

Version: 1.0

Page: 6/7

(30417630/SDS_GEN_US/EN)

Daphnia magna/EC50 (24 h): > 1,000 mg/l

Aquatic plants

Toxicity to aquatic plants:

green algae/No observed effect concentration (72 h): 1,640 mg/l

Other adverse effects:

Do not release untreated into natural waters. Do not allow to enter soil, waterways or waste water channels. The product has not been tested. The statement has been derived from the properties of the individual components.

13. Disposal considerations

Waste disposal of substance:

Dispose of in accordance with national, state and local regulations.

14. Transport Information

Land transport

USDOT

Not classified as a dangerous good under transport regulations

Sea transport

IMDG

Not classified as a dangerous good under transport regulations

Air transport

IATA/ICAO

Not classified as a dangerous good under transport regulations

15. Regulatory Information

VOC content:

600 g/l

Federal Regulations

Registration status:

Chemical TSCA, US released / listed

OSHA hazard category:

Chronic target organ effects reported; ACGIH TLV established

EPCRA 311/312 (Hazard categories):

Acute; Chronic

EPCRA 313:

CAS Number

101-68-8

Chemical name

Diphenylmethane-4,4'-diisocyanate (MDI)

CERCLA RQ

5000 LBS

100 LBS

CAS Number

101-68-8

108-90-7

Chemical name

Diphenylmethane-4,4'-diisocyanate (MDI)

chlorobenzene

Safety Data Sheet

WABOCRETE II PTA

Revision date : 2012/10/04

Version: 1.0

Page: 7/7

(30417630/SDS_GEN_US/EN)

State regulations

State RTK

MA, NJ, PA

CAS Number

101-68-8

Chemical name

Diphenylmethane-4,4'-diisocyanate (MDI)

16. Other Information

NFPA Hazard codes:

Health : 2 Fire: 1 Reactivity: 1 Special:

HMIS III rating

Health: 2^a Flammability: 1 Physical hazard: 1

NFPA and HMIS use a numbering scale ranging from 0 to 4 to indicate the degree of hazard. A value of zero means that the substance possesses essentially no hazard; a rating of four indicates extreme danger. Although similar, the two rating systems are intended for different purposes, and use different criteria. The NFPA system was developed to provide an on-the-spot alert to the hazards of a material, and their severity, to emergency responders. The HMIS system was designed to communicate workplace hazard information to employees who handle hazardous chemicals.

We support worldwide Responsible Care® initiatives. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment to Responsible Care is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.

MSDS Prepared by:

BASF NA Product Regulations

msds@basf.com

MSDS Prepared on: 2012/10/04

IMPORTANT: WHILE THE DESCRIPTIONS, DESIGNS, DATA AND INFORMATION CONTAINED HEREIN ARE PRESENTED IN GOOD FAITH AND BELIEVED TO BE ACCURATE, IT IS PROVIDED FOR YOUR GUIDANCE ONLY. BECAUSE MANY FACTORS MAY AFFECT PROCESSING OR APPLICATION/USE, WE RECOMMEND THAT YOU MAKE TESTS TO DETERMINE THE SUITABILITY OF A PRODUCT FOR YOUR PARTICULAR PURPOSE PRIOR TO USE. NO WARRANTIES OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE MADE REGARDING PRODUCTS DESCRIBED OR DESIGNS, DATA OR INFORMATION SET FORTH, OR THAT THE PRODUCTS, DESIGNS, DATA OR INFORMATION MAY BE USED WITHOUT INFRINGING THE INTELLECTUAL PROPERTY RIGHTS OF OTHERS. IN NO CASE SHALL THE DESCRIPTIONS, INFORMATION, DATA OR DESIGNS PROVIDED BE CONSIDERED A PART OF OUR TERMS AND CONDITIONS OF SALE. FURTHER, YOU EXPRESSLY UNDERSTAND AND AGREE THAT THE DESCRIPTIONS, DESIGNS, DATA, AND INFORMATION FURNISHED BY OUR COMPANY HEREUNDER ARE GIVEN GRATIS AND WE ASSUME NO OBLIGATION OR LIABILITY FOR THE DESCRIPTION, DESIGNS, DATA AND INFORMATION GIVEN OR RESULTS OBTAINED, ALL SUCH BEING GIVEN AND ACCEPTED AT YOUR RISK.

END OF DATA SHEET

Safety Data Sheet

WABOCRETE II BLACK PTB

Revision date : 2013/01/09

Version: 2.0

Page: 1/7

(30417629/SDS_GEN_US/EN)

1. Product and Company Identification

Company

WATSON BOWMAN ACME CORP.
95 Pineview Drive
Amherst, NY 14228 USA

24 Hour Emergency Response Information

CHEMTREC: 1-800-424-9300
BASF HOTLINE: 1-800-832-HELP (4357)

2. Hazards Identification

Emergency overview**WARNING:**

Prolonged or repeated contact may cause eye and skin irritation.

May cause allergic skin reaction.

CONTAINS MATERIAL WHICH MAY CAUSE CANCER.

Avoid contact with the skin, eyes and clothing.

Wash thoroughly after handling.

Keep container tightly closed.

State of matter: liquid

Colour: various colours

Odour: oily, slight odour

Potential health effects**Primary routes of exposure:**

Routes of entry for solids and liquids include eye and skin contact, ingestion and inhalation. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquified gases.

Acute toxicity:

Ingestion may cause gastrointestinal disturbances. The product has not been tested. The statement has been derived from the properties of the individual components.

Irritation / corrosion:

May cause slight irritation to the eyes. May cause slight irritation to the skin. May cause slight irritation to the respiratory tract. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Sensitization:

Human data do not fully exclude a skin sensitizing potential.

Chronic toxicity:

Carcinogenicity: Contains a suspect carcinogen.

Safety Data Sheet

WABOCRETE II BLACK PTB

Revision date : 2013/01/09
Version: 2.0

Page: 2/7
(30417629/SDS_GEN_US/EN)

Repeated dose toxicity: No reliable data was available concerning repeated dose toxicity. Based on available Data, the classification criteria are not met.

Reproductive toxicity: The chemical structure does not suggest a specific alert for such an effect. Based on available Data, the classification criteria are not met.

Teratogenicity: The chemical structure does not suggest a specific alert for such an effect. Based on available Data, the classification criteria are not met.

Genotoxicity: The chemical structure does not suggest a specific alert for such an effect. Based on available Data, the classification criteria are not met.

Signs and symptoms of overexposure:

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11.

Potential environmental effects

Aquatic toxicity:

Based on available Data, the classification criteria are not met. There is a high probability that the product is not acutely harmful to aquatic organisms.

Bioaccumulation / bioconcentration:

Discharge into the environment must be avoided.

3. Composition / Information on Ingredients

<u>CAS Number</u>	<u>Content (W/W)</u>	<u>Chemical name</u>
8001-79-4	>= 60.0 - <= 100.0 %	Castor oil
1333-86-4	>= 0.1 - <= 1.0 %	carbon black

4. First-Aid Measures

General advice:

First aid personnel should pay attention to their own safety. Remove contaminated clothing.

If inhaled:

If difficulties occur after vapour/aerosol has been inhaled, remove to fresh air and seek medical attention.

If on skin:

After contact with skin, wash immediately with plenty of water and soap. Under no circumstances should organic solvent be used. If irritation develops, seek medical attention.

If in eyes:

Wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

If swallowed:

Rinse mouth immediately with water. Seek medical attention if necessary. Do not induce vomiting unless told to by a poison control center or doctor.

5. Fire-Fighting Measures

Flash point: 93.34 °C

Safety Data Sheet

WABOCRETE II BLACK PTB

Revision date : 2013/01/09

Version: 2.0

Page: 3/7

(30417629/SDS_GEN_US/EN)

Flammability: not highly flammable

Suitable extinguishing media:

foam, water spray, dry powder, carbon dioxide

Unsuitable extinguishing media for safety reasons:

water jet

Hazards during fire-fighting:

carbon monoxide, carbon dioxide, harmful vapours, nitrogen oxides, fumes/smoke, carbon black

Protective equipment for fire-fighting:

Wear a self-contained breathing apparatus.

Further information:

The degree of risk is governed by the burning substance and the fire conditions. Contaminated extinguishing water must be disposed of in accordance with official regulations.

6. Accidental release measures

Personal precautions:

Use personal protective clothing. Do not breathe vapour/aerosol/spray mists. Handle in accordance with good building materials hygiene and safety practice.

Environmental precautions:

Contain contaminated water/firefighting water. Do not discharge into drains/surface waters/groundwater.

Cleanup:

For small amounts: Pick up with inert absorbent material (e.g. sand, earth etc.). Dispose of contaminated material as prescribed.

For large amounts: Pump off product.

7. Handling and Storage

Handling

General advice:

Avoid aerosol formation. Avoid inhalation of mists/vapours. Avoid skin contact. No special measures necessary provided product is used correctly.

Protection against fire and explosion:

The product does not contribute to the spreading of flames, nor is it self combustible, not explosive.

Storage

General advice:

Keep only in the original container in a cool, well-ventilated place. Protect from direct sunlight. Store protected against freezing.

Temperature tolerance

Protect from temperatures below: 0 °C

The packed product must be protected from temperatures below the indicated one.

Protect from temperatures below: 32 °F

The packed product must be protected from temperatures below the indicated one.

8. Exposure Controls and Personal Protection

Components with occupational exposure limits

Safety Data Sheet

WABOCRETE II BLACK PTB

Revision date : 2013/01/09

Page: 4/7

Version: 2.0

(30417629/SDS_GEN_US/EN)

carbon black

OSHA
ACGIH

PEL 3.5 mg/m³ ;
TWA value 3.5 mg/m³ ;

Personal protective equipment

Respiratory protection:

When workers are facing concentrations above the occupational exposure limits they must use appropriate certified respirators.

Hand protection:

Wear chemical resistant protective gloves.

Eye protection:

Safety glasses with side-shields.

Body protection:

depending upon conditions of use., Cover as much of the exposed skin as possible to prevent all skin contact., light protective clothing

General safety and hygiene measures:

Avoid contact with the skin, eyes and clothing. In order to prevent contamination while handling, closed working clothes and working gloves should be used. Handle in accordance with good building materials hygiene and safety practice. When using, do not eat, drink or smoke. Hands and/or face should be washed before breaks and at the end of the shift. At the end of the shift the skin should be cleaned and skin-care agents applied. Gloves must be inspected regularly and prior to each use. Replace if necessary (e.g. pinhole leaks).

9. Physical and Chemical Properties

Form:	liquid	
Odour:	oily, slight odour	
Colour:	various colours	
pH value:		neutral to slightly alkaline
Melting temperature:		not applicable
boiling temperature:		not applicable
Density:	approx. 1.2 g/cm ³	(20 °C)
Partitioning coefficient n-octanol/water (log Pow):		No data available.
Solubility in water:		(20 °C) insoluble
Miscibility with water:		(20 °C) partly miscible
Other Information:	If necessary, information on other physical and chemical parameters is indicated in this section.	

10. Stability and Reactivity

Conditions to avoid:

Avoid extreme temperatures.

Substances to avoid:

strong acids, strong bases, strong oxidizing agents

Hazardous reactions:

The product is stable if stored and handled as prescribed/indicated.

Decomposition products:

No hazardous decomposition products if stored and handled as prescribed/indicated.

Thermal decomposition:

No decomposition if stored and handled as prescribed/indicated.

Corrosion to metals:

Safety Data Sheet

WABOCRETE II BLACK PTB

Revision date : 2013/01/09

Version: 2.0

Page: 5/7

(30417629/SDS_GEN_US/EN)

No corrosive effect on metal.

11. Toxicological information

Irritation / corrosion

Information on: Castor oil

Assessment of irritating effects:

Prolonged exposure to the product can result in irritation of the skin and mucous membranes.

Sensitization

Information on: Castor oil

Assessment of sensitization:

Human data do not fully exclude a skin sensitizing potential.

Carcinogenicity

Information on: carbon black

IARC (International Agency for Research on Cancer) has classified this substance as group 2B (The agent is possibly carcinogenic to humans). In long-term animal studies in which the substance was given by inhalation in high concentrations, a carcinogenic effect was observed. A clear indication of an increased risk of cancer in humans has so far not been shown. No carcinogenic potential can be deduced from other studies with rats and mice.

Other Information:

Based on our experience and the information available, no adverse health effects are expected if handled as recommended with suitable precautions for designated uses. The product has not been tested. The statements on toxicology have been derived from the properties of the individual components.

12. Ecological Information

Degradability / Persistence

Biological / Abiological Degradation

Evaluation: Inherently biodegradable.
The insoluble fraction can be removed by mechanical means in suitable waste water treatment plants.

Other adverse effects:

Ecological data are not available. Do not allow to enter soil, waterways or waste water channels.

13. Disposal considerations

Waste disposal of substance:

Recommendations: Use excess product in an alternate beneficial application. Dispose of in accordance with local authority regulations. Do not discharge into drains/surface waters/groundwater.

Container disposal:

Contaminated packaging should be emptied as far as possible; then it can be passed on for recycling after being thoroughly cleaned.

Safety Data Sheet

WABOCRETE II BLACK PTB

Revision date : 2013/01/09
Version: 2.0

Page: 6/7
(30417629/SDS_GEN_US/EN)

14. Transport Information

Land transport USDOT

Not classified as a dangerous good under transport regulations

Sea transport IMDG

Not classified as a dangerous good under transport regulations

Air transport IATA/ICAO

Not classified as a dangerous good under transport regulations

15. Regulatory Information

Federal Regulations

Registration status:

Chemical TSCA, US released / listed

OSHA hazard category: IARC 1, 2A or 2B carcinogen; Chronic target organ effects reported

EPCRA 311/312 (Hazard categories): Acute;

State regulations

State RTK
MA, NJ, PA

CAS Number
1333-86-4

Chemical name
carbon black

CA Prop. 65:

THIS PRODUCT CONTAINS A CHEMICAL(S) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER.

16. Other Information

HMIS III rating

Health: 1 Flammability: 1 Physical hazard: 0

NFPA and HMIS use a numbering scale ranging from 0 to 4 to indicate the degree of hazard. A value of zero means that the substance possesses essentially no hazard; a rating of four indicates extreme danger. Although similar, the two rating systems are intended for different purposes, and use different criteria. The NFPA system was developed to provide an on-the-spot alert to the hazards of a material, and their severity, to emergency responders. The HMIS system was designed to communicate workplace hazard information to employees who handle hazardous chemicals.

We support worldwide Responsible Care® initiatives. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment to Responsible Care is integral to conducting our business and operating our facilities in a safe and environmentally responsible

Safety Data Sheet

WABOCRETE II BLACK PTB

Revision date : 2013/01/09

Page: 7/7

Version: 2.0

(30417629/SDS_GEN_US/EN)

fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.

MSDS Prepared by:

BASF NA Product Regulations

msds@basf.com

MSDS Prepared on: 2013/01/09

IMPORTANT: WHILE THE DESCRIPTIONS, DESIGNS, DATA AND INFORMATION CONTAINED HEREIN ARE PRESENTED IN GOOD FAITH AND BELIEVED TO BE ACCURATE, IT IS PROVIDED FOR YOUR GUIDANCE ONLY. BECAUSE MANY FACTORS MAY AFFECT PROCESSING OR APPLICATION/USE, WE RECOMMEND THAT YOU MAKE TESTS TO DETERMINE THE SUITABILITY OF A PRODUCT FOR YOUR PARTICULAR PURPOSE PRIOR TO USE. NO WARRANTIES OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE MADE REGARDING PRODUCTS DESCRIBED OR DESIGNS, DATA OR INFORMATION SET FORTH, OR THAT THE PRODUCTS, DESIGNS, DATA OR INFORMATION MAY BE USED WITHOUT INFRINGING THE INTELLECTUAL PROPERTY RIGHTS OF OTHERS. IN NO CASE SHALL THE DESCRIPTIONS, INFORMATION, DATA OR DESIGNS PROVIDED BE CONSIDERED A PART OF OUR TERMS AND CONDITIONS OF SALE. FURTHER, YOU EXPRESSLY UNDERSTAND AND AGREE THAT THE DESCRIPTIONS, DESIGNS, DATA, AND INFORMATION FURNISHED BY OUR COMPANY HEREUNDER ARE GIVEN GRATIS AND WE ASSUME NO OBLIGATION OR LIABILITY FOR THE DESCRIPTION, DESIGNS, DATA AND INFORMATION GIVEN OR RESULTS OBTAINED, ALL SUCH BEING GIVEN AND ACCEPTED AT YOUR RISK.

END OF DATA SHEET

Safety Data Sheet

WABOCRETE II AGG

Revision date : 2013/01/14

Version: 2.0

Page: 1/7

(30417627/SDS_GEN_US/EN)

1. Product and Company Identification

Company

WATSON BOWMAN ACME CORP.
95 Pineview Drive
Amherst, NY 14228 USA

24 Hour Emergency Response Information

CHEMTREC: 1-800-424-9300
BASF HOTLINE: 1-800-832-HELP (4357)

2. Hazards Identification

Emergency overview

WARNING:

CONTAINS MATERIAL WHICH CAN CAUSE CANCER.

AVOID CREATING DUST.

CAN FORM EXPLOSIVE DUST-AIR MIXTURES.

Product may present a nuisance dust hazard.

Contact with powders or dusts may irritate the eyes, skin and respiratory tract.

Keep container tightly closed.

Avoid inhalation of dusts.

Avoid ingestion.

Avoid contact with the skin, eyes and clothing.

Wash thoroughly after handling.

State of matter: solid

Colour: white

Odour: odourless

Potential health effects**Primary routes of exposure:**

Routes of entry for solids and liquids include eye and skin contact, ingestion and inhalation. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquified gases.

Acute toxicity:

Study scientifically not justified. The substance is inert.

Irritation / corrosion:

May cause mechanical irritation. No irritation is expected under intended use and appropriate handling.

Chronic toxicity:

Carcinogenicity: Contains a known carcinogen. This product contains crystalline silica (quartz).

Safety Data Sheet

WABOCRETE II AGG

Revision date : 2013/01/14

Version: 2.0

Page: 2/7

(30417627/SDS_GEN_US/EN)

Repeated dose toxicity: The substance is inert. Repeated oral uptake of the substance did not cause substance-related effects.

Reproductive toxicity: The chemical structure does not suggest a specific alert for such an effect.

Teratogenicity: The chemical structure does not suggest a specific alert for such an effect.

Genotoxicity: The chemical structure does not suggest a specific alert for such an effect. The product has not been tested. The statement has been derived from the properties of the individual components.

Signs and symptoms of overexposure:

No significant reaction of the human body to the product known.

Potential environmental effects

Aquatic toxicity:

At the present state of knowledge, no negative ecological effects are expected. There is a high probability that the product is not acutely harmful to aquatic organisms. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Degradation / environmental fate:

Experience shows this product to be inert and non-degradable.

3. Composition / Information on Ingredients

<u>CAS Number</u>	<u>Content (W/W)</u>	<u>Chemical name</u>
14808-60-7	>= 60.0 - <= 100.0 %	crystalline silica
14808-60-7	>= 7.0 - <= 13.0 %	Quartz (SiO ₂)
1318-02-1	>= 1.0 - <= 5.0 %	zeolites

4. First-Aid Measures

General advice:

First aid personnel should pay attention to their own safety. Remove contaminated clothing.

If inhaled:

After inhalation of dust. Keep patient calm, remove to fresh air.

If on skin:

After contact with skin, wash immediately with plenty of water and soap. Under no circumstances should organic solvent be used. If irritation develops, seek medical attention.

If in eyes:

Wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

If swallowed:

Rinse mouth immediately and then drink plenty of water, seek medical attention. Do not induce vomiting unless told to by a poison control center or doctor.

5. Fire-Fighting Measures

Flash point:

Flammability:

not flammable

The substance/product is non-combustible.

Safety Data Sheet

WABOCRETE II AGG

Revision date : 2013/01/14
Version: 2.0

Page: 3/7
(30417627/SDS_GEN_US/EN)

Suitable extinguishing media:

foam, water spray, dry powder, carbon dioxide

Unsuitable extinguishing media for safety reasons:

water jet

Hazards during fire-fighting:

carbon dioxide, carbon monoxide, harmful vapours, fumes/smoke, carbon black

Protective equipment for fire-fighting:

Wear a self-contained breathing apparatus.

Further information:

The degree of risk is governed by the burning substance and the fire conditions. Contaminated extinguishing water must be disposed of in accordance with official regulations.

6. Accidental release measures

Personal precautions:

Avoid dust formation. Use personal protective clothing. Handle in accordance with good building materials hygiene and safety practice.

Environmental precautions:

Contain contaminated water/firefighting water. Do not discharge into drains/surface waters/groundwater.

Cleanup:

Avoid raising dust.

For small amounts: Pick up with suitable appliance and dispose of. Dispose of absorbed material in accordance with regulations.

For large amounts: Pick up with suitable appliance and dispose of. Dispose of absorbed material in accordance with regulations.

7. Handling and Storage

Handling**General advice:**

Avoid dust formation. Avoid inhalation of dusts. Avoid skin contact. Pour downwind and allow as little free fall as possible while emptying bags into equipment. Breathing must be protected when large quantities are decanted without local exhaust ventilation.

Protection against fire and explosion:

No special precautions necessary. Take precautionary measures against static discharges.

Storage**General advice:**

Keep only in the original container in a cool, dry, well-ventilated place away from ignition sources, heat or flame. Protect from direct sunlight.

Storage incompatibility:

General advice: Segregate from acids. Segregate from bases. Segregate from strong oxidizing agents.

8. Exposure Controls and Personal Protection

Components with occupational exposure limits

Safety Data Sheet

WABOCRETE II AGG

Revision date : 2013/01/14

Version: 2.0

Page: 4/7

(30417627/SDS_GEN_US/EN)

crystalline silica	OSHA	TWA value 2.4 millions of particles per cubic foot of air Respirable ; The value is calculated from a specified equation using a value of 100%. Lower values of % will give higher exposure limits. See regulation for specific equation. TWA value 0.1 mg/m3 Respirable ; The value is calculated from a specified equation using a value of 100%. Lower values of % will give higher exposure limits. See regulation for specific equation. TWA value 0.3 mg/m3 Total dust ; The value is calculated from a specified equation using a value of 100%. Lower values of % will give higher exposure limits. See regulation for specific equation.
zeolites	ACGIH	TWA value 0.025 mg/m3 Respirable fraction ;
	ACGIH	TWA value 1 mg/m3 Respirable fraction ;

Personal protective equipment

Respiratory protection:

Wear respiratory protection if ventilation is inadequate.

Hand protection:

Chemical resistant protective gloves

Eye protection:

Safety glasses with side-shields.

Body protection:

Body protection must be chosen depending on activity and possible exposure, e.g. head protection, apron, protective boots, chemical-protection suit.

General safety and hygiene measures:

In order to prevent contamination while handling, closed working clothes and working gloves should be used. Handle in accordance with good building materials hygiene and safety practice. When using, do not eat, drink or smoke. Hands and/or face should be washed before breaks and at the end of the shift. At the end of the shift the skin should be cleaned and skin-care agents applied. Gloves must be inspected regularly and prior to each use. Replace if necessary (e.g. pinhole leaks).

9. Physical and Chemical Properties

Form:	granules	
Odour:	odourless	
Colour:	white	
pH value:		neutral, (as aqueous suspension)
Melting temperature:	> 800 °C	
Bulk density:	1,800 - 2,400 kg/m3	
Solubility in water:		(20 °C) insoluble
Miscibility with water:		(20 °C) not soluble
Other Information:	If necessary, information on other physical and chemical parameters is indicated in this section.	

10. Stability and Reactivity

Substances to avoid:

strong acids, strong bases, strong oxidizing agents

Safety Data Sheet

WABOCRETE II AGG

Revision date : 2013/01/14
Version: 2.0

Page: 5/7
(30417627/SDS_GEN_US/EN)

Hazardous reactions:

The product is stable if stored and handled as prescribed/indicated.

Decomposition products:

No hazardous decomposition products if stored and handled as prescribed/indicated.

Thermal decomposition:

No decomposition if stored and handled as prescribed/indicated.

11. Toxicological information

Repeated dose toxicity

Information on: crystalline silica

Assessment of repeated dose toxicity:

Repeated inhalation exposure may affect certain organs. The substance may cause increase in lung mass and lung tissue changes after repeated inhalation.

This product may contain greater than 0.1% crystalline silica. Repeated exposure to high concentrations results in silicosis, a lung disease characterized by coughing, difficult breathing, wheezing, scarring of the lungs, and repeated, non-specific chest illnesses.

Information on: zeolites

Assessment of repeated dose toxicity:

The substance may cause damage to the lung even after repeated inhalation of low doses, as shown in animal studies. The substance may cause damage to the kidney after repeated ingestion of high doses, as shown in animal studies.

Carcinogenicity

Information on: crystalline silica

In long-term studies in rats and mice in which the substance was given by feed, a carcinogenic effect was not observed. In long-term animal studies in which the substance was given by inhalation in high doses, a carcinogenic effect was observed. The substance and its compounds in the form of respirable dusts/aerosols classified by the German MAK commission as a category 1 carcinogen (substances that cause cancer to humans). A carcinogenic effect cannot safely be ruled out. The inhalation uptake of the alveolar fraction of the fine dust may cause damage to the lungs. The International Agency for Research on Cancer (IARC) has classified this substance as a Group 1 (known) human carcinogen.

The International Agency for Research on Cancer (IARC) has classified this substance as a Group 1 (known) human carcinogen.

NTP listed carcinogen

Information on: Quartz (SiO₂)

The International Agency for Research on Cancer (IARC) has classified this substance as a Group 1 (known) human carcinogen.

Experiences in humans:

Information on: crystalline silica

May cause silicosis.

Other Information:

No reports of ill effects provided product was correctly handled and processed. The product has not been tested. The statements on toxicology have been derived from the properties of the individual components.

12. Ecological Information

Safety Data Sheet

WABOCRETE II AGG

Revision date : 2013/01/14
Version: 2.0

Page: 6/7
(30417627/SDS_GEN_US/EN)

Bioaccumulation

The product will not be readily bioavailable due to its consistency and insolubility in water.

13. Disposal considerations

Waste disposal of substance:

Dispose of in accordance with national, state and local regulations.

Container disposal:

Contaminated packaging should be emptied as far as possible; then it can be passed on for recycling after being thoroughly cleaned.

14. Transport Information

Land transport

USDOT

Not classified as a dangerous good under transport regulations

Sea transport

IMDG

Not classified as a dangerous good under transport regulations

Air transport

IATA/ICAO

Not classified as a dangerous good under transport regulations

15. Regulatory Information

Federal Regulations

Registration status:

Chemical TSCA, US released / listed

Registration status based on supplier confirmation

OSHA hazard category:

IARC 1, 2A or 2B carcinogen; NTP listed carcinogen; Chronic target organ effects reported; OSHA PEL established; ACGIH TLV established

EPCRA 311/312 (Hazard categories):

Acute; Chronic

State regulations

State RTK

MA, NJ, PA
MA, NJ, PA
NJ

CAS Number

14808-60-7
14808-60-7
1318-02-1

Chemical name

crystalline silica
Quartz (SiO₂)
zeolites

CA Prop. 65:

Safety Data Sheet

WABOCRETE II AGG

Revision date : 2013/01/14

Version: 2.0

Page: 7/7

(30417627/SDS_GEN_US/EN)

THIS PRODUCT CONTAINS A CHEMICAL(S) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER.

16. Other Information

HMIS III rating

Health: 1⁺ Flammability: 1 Physical hazard: 0

NFPA and HMIS use a numbering scale ranging from 0 to 4 to indicate the degree of hazard. A value of zero means that the substance possesses essentially no hazard; a rating of four indicates extreme danger. Although similar, the two rating systems are intended for different purposes, and use different criteria. The NFPA system was developed to provide an on-the-spot alert to the hazards of a material, and their severity, to emergency responders. The HMIS system was designed to communicate workplace hazard information to employees who handle hazardous chemicals.

We support worldwide Responsible Care® initiatives. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment to Responsible Care is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.

MSDS Prepared by:

BASF NA Product Regulations

msds@basf.com

MSDS Prepared on: 2013/01/14

IMPORTANT: WHILE THE DESCRIPTIONS, DESIGNS, DATA AND INFORMATION CONTAINED HEREIN ARE PRESENTED IN GOOD FAITH AND BELIEVED TO BE ACCURATE, IT IS PROVIDED FOR YOUR GUIDANCE ONLY. BECAUSE MANY FACTORS MAY AFFECT PROCESSING OR APPLICATION/USE, WE RECOMMEND THAT YOU MAKE TESTS TO DETERMINE THE SUITABILITY OF A PRODUCT FOR YOUR PARTICULAR PURPOSE PRIOR TO USE. NO WARRANTIES OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE MADE REGARDING PRODUCTS DESCRIBED OR DESIGNS, DATA OR INFORMATION SET FORTH, OR THAT THE PRODUCTS, DESIGNS, DATA OR INFORMATION MAY BE USED WITHOUT INFRINGING THE INTELLECTUAL PROPERTY RIGHTS OF OTHERS. IN NO CASE SHALL THE DESCRIPTIONS, INFORMATION, DATA OR DESIGNS PROVIDED BE CONSIDERED A PART OF OUR TERMS AND CONDITIONS OF SALE. FURTHER, YOU EXPRESSLY UNDERSTAND AND AGREE THAT THE DESCRIPTIONS, DESIGNS, DATA, AND INFORMATION FURNISHED BY OUR COMPANY HEREUNDER ARE GIVEN GRATIS AND WE ASSUME NO OBLIGATION OR LIABILITY FOR THE DESCRIPTION, DESIGNS, DATA AND INFORMATION GIVEN OR RESULTS OBTAINED, ALL SUCH BEING GIVEN AND ACCEPTED AT YOUR RISK.

END OF DATA SHEET

Safety Data Sheet

WABO SILICONE SEAL PART A

Revision date : 2012/10/25

Version: 2.0

Page: 1/7

(30574095/SDS_GEN_US/EN)

1. Product and Company Identification

Company

WATSON BOWMAN ACME CORP.
95 Pineview Drive
Amherst, NY 14228 USA

24 Hour Emergency Response Information

CHEMTREC: 1-800-424-9300
BASF HOTLINE: 1-800-832-HELP (4357)

2. Hazards Identification

Emergency overview

WARNING:

MAY CAUSE ALLERGIC SKIN REACTION.

MAY CAUSE EYE, SKIN AND RESPIRATORY TRACT IRRITATION.

CONTAINS MATERIAL THAT MAY CAUSE BIRTH DEFECTS.

CONTAINS MATERIAL WHICH MAY CAUSE CANCER.

Avoid contact with the skin, eyes and clothing.

Wash thoroughly after handling.

Keep container tightly closed.

State of matter: liquid

Colour: white

Odour: aromatic, slight odour

Potential health effects**Primary routes of exposure:**

Routes of entry for solids and liquids include eye and skin contact, ingestion and inhalation. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquified gases.

Acute toxicity:

Ingestion may cause gastrointestinal disturbances. The product has not been tested. The statement has been derived from the properties of the individual components.

Irritation / corrosion:

Irritating to eyes, respiratory system and skin.

Sensitization:

May produce an allergic reaction. Sensitization after skin contact possible. The product has not been tested. The statement has been derived from the properties of the individual components.

Chronic toxicity:

Carcinogenicity: Contains a suspect carcinogen.

Safety Data Sheet

WABO SILICONE SEAL PART A

Revision date : 2012/10/25
Version: 2.0

Page: 2/7
(30574095/SDS_GEN_US/EN)

Repeated dose toxicity: No reliable data was available concerning repeated dose toxicity.

Reproductive toxicity: The chemical structure does not suggest a specific alert for such an effect. The product has not been tested. The statement has been derived from the properties of the individual components.

Teratogenicity: The chemical structure does not suggest a specific alert for such an effect. The product has not been tested. The statement has been derived from the properties of the individual components.

Genotoxicity: The chemical structure does not suggest a specific alert for such an effect. The product has not been tested. The statement has been derived from the properties of the individual components.

Signs and symptoms of overexposure:
skin irritation, allergic symptoms

Potential environmental effects

Aquatic toxicity:

At the present state of knowledge, no negative ecological effects are expected. There is a high probability that the product is not acutely harmful to aquatic organisms. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Bioaccumulation / bioconcentration:
Discharge into the environment must be avoided.

3. Composition / Information on Ingredients

<u>CAS Number</u>	<u>Content (W/W)</u>	<u>Chemical name</u>
1317-65-3	>= 7.0 - <= 13.0 %	Limestone
22984-54-9	>= 3.0 - <= 7.0 %	2-Butanone, O,O',O''-(methylsilyldiyl)trioxime
34206-40-1	>= 1.0 - <= 5.0 %	2-BUTANONE, O,O',O'',O'''-SILANETETRAYLTETRAOXIME
108-88-3	>= 1.0 - <= 5.0 %	Toluene
13463-67-7	>= 0.1 - <= 1.0 %	Titanium dioxide

4. First-Aid Measures

General advice:

First aid personnel should pay attention to their own safety. Remove contaminated clothing.

If inhaled:

Remove victim to fresh air and away from exposure immediately. If not breathing, give artificial respiration. Seek medical attention.

If on skin:

After contact with skin, wash immediately with plenty of water and soap. Under no circumstances should organic solvent be used. If irritation develops, seek medical attention.

If in eyes:

Wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

If swallowed:

Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions. Do not induce vomiting unless told to by a poison control center or doctor. If person is conscious and can swallow, give two glasses of water.

Note to physician

Treatment: Treat according to symptoms (decontamination, vital functions), no known

Safety Data Sheet

WABO SILICONE SEAL PART A

Revision date : 2012/10/25
Version: 2.0

Page: 3/7
(30574095/SDS_GEN_US/EN)

specific antidote.

5. Fire-Fighting Measures

Flash point: approx. 93.34 °C
Flammability: not highly flammable

Suitable extinguishing media:
foam, water spray, dry powder, carbon dioxide

Unsuitable extinguishing media for safety reasons:
water jet

Hazards during fire-fighting:
carbon dioxide, carbon monoxide, harmful vapours, nitrogen oxides, fumes/smoke, carbon black

Protective equipment for fire-fighting:
Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

Further information:
The degree of risk is governed by the burning substance and the fire conditions. Contaminated extinguishing water must be disposed of in accordance with official regulations.

6. Accidental release measures

Personal precautions:
Use personal protective clothing. Do not breathe vapour/aerosol/spray mists. Handle in accordance with good building materials hygiene and safety practice.

Environmental precautions:
Contain contaminated water/firefighting water. Do not discharge into drains/surface waters/groundwater.

Cleanup:
For small amounts: Pick up with inert absorbent material (e.g. sand, earth etc.). Dispose of contaminated material as prescribed.
For large amounts: Pump off product.

7. Handling and Storage

Handling

General advice:
Avoid contact with the skin, eyes and clothing. Ensure thorough ventilation of stores and work areas.

Storage

General advice:
Keep only in the original container in a cool, well-ventilated place. Protect from direct sunlight.

8. Exposure Controls and Personal Protection

Components with occupational exposure limits

Titanium dioxide	OSHA	PEL 15 mg/m3 Total dust ;
	ACGIH	TWA value 10 mg/m3 ;
Toluene	OSHA	TWA value 200 ppm ; CLV 300 ppm ; max. conc. 500 ppm ;

Safety Data Sheet

WABO SILICONE SEAL PART A

Revision date : 2012/10/25

Page: 4/7

Version: 2.0

(30574095/SDS_GEN_US/EN)

Limestone	ACGIH OSHA	TWA value 20 ppm ; PEL 5 mg/m3 Respirable fraction ; PEL 15 mg/m3 Total dust ;
-----------	---------------	--

Personal protective equipment

Respiratory protection:

Wear a NIOSH-certified (or equivalent) respirator as necessary.

Hand protection:

Wear chemical resistant protective gloves., Manufacturer's directions for use should be observed because of great diversity of types.

Eye protection:

Safety glasses with side-shields.

Body protection:

Impermeable protective clothing

General safety and hygiene measures:

Do not inhale gases/vapours/aerosols. In order to prevent contamination while handling, closed working clothes and working gloves should be used. Handle in accordance with good building materials hygiene and safety practice. When using, do not eat, drink or smoke. Hands and/or face should be washed before breaks and at the end of the shift. At the end of the shift the skin should be cleaned and skin-care agents applied. Gloves must be inspected regularly and prior to each use. Replace if necessary (e.g. pinhole leaks).

9. Physical and Chemical Properties

Form:	liquid	
Odour:	aromatic, slight odour	
Colour:	white	
pH value:		not applicable
boiling temperature:	approx. 110 °C	
Density:	approx. 1.08 g/cm3	(20 °C)
Relative density:	approx. 1.08	
Solubility in water:		(20 °C) insoluble
Miscibility with water:		(20 °C) not soluble
Other Information:	If necessary, information on other physical and chemical parameters is indicated in this section.	

10. Stability and Reactivity

Substances to avoid:

strong acids, strong bases, strong oxidizing agents

Hazardous reactions:

The product is stable if stored and handled as prescribed/indicated.

Decomposition products:

No hazardous decomposition products if stored and handled as prescribed/indicated.

Thermal decomposition:

No decomposition if stored and handled as prescribed/indicated.

Corrosion to metals:

Corrosive effects to metal are not anticipated.

Safety Data Sheet

WABO SILICONE SEAL PART A

Revision date : 2012/10/25

Version: 2.0

Page: 5/7

(30574095/SDS_GEN_US/EN)

11. Toxicological information

Acute toxicity

Information on: Toluene

Assessment of acute toxicity:

Virtually nontoxic after a single ingestion. Virtually nontoxic by inhalation. Virtually nontoxic after a single skin contact.

Irritation / corrosion

Information on: Toluene

Assessment of irritating effects:

Skin contact causes irritation. May cause slight irritation to the eyes.

Sensitization:

Can sensitize the skin and/or respiratory tract of allergic persons. May produce an allergic reaction.

Repeated dose toxicity

Information on: Toluene

Assessment of repeated dose toxicity:

The substance may cause damage to the central nervous system after repeated ingestion of high doses. The substance may cause deafness after repeated inhalation.

Carcinogenicity

Information on: Titanium dioxide

IARC (International Agency for Research on Cancer) has classified this substance as group 2B (The agent is possibly carcinogenic to humans). In long-term studies in rats in which the substance was given by inhalation, a carcinogenic effect was observed. Tumors were only observed in rats after chronic inhalative exposure to high concentrations which caused sustained lung inflammation. In long-term studies in rats and mice in which the substance was given by feed, a carcinogenic effect was not observed. Dermal exposure is not expected to be carcinogenic.

Development:

Information on: Toluene

Indications of possible developmental toxicity/teratogenicity were seen in animal studies.

Other Information:

Based on our experience and the information available, no adverse health effects are expected if handled as recommended with suitable precautions for designated uses. The product has not been tested. The statements on toxicology have been derived from products of a similar structure and composition.

12. Ecological Information

Degradability / Persistence

Biological / Abiological Degradation

Evaluation:

Inherently biodegradable.

The insoluble fraction can be removed by mechanical means in suitable waste water treatment plants.

Safety Data Sheet

WABO SILICONE SEAL PART A

Revision date : 2012/10/25
Version: 2.0

Page: 6/7
(30574095/SDS_GEN_US/EN)

Other adverse effects:

Ecological data are not available. Do not allow to enter soil, waterways or waste water channels.

13. Disposal considerations

Waste disposal of substance:

Dispose of in accordance with national, state and local regulations.

14. Transport Information

Land transport USDOT

Not classified as a dangerous good under transport regulations

Sea transport IMDG

Not classified as a dangerous good under transport regulations

Air transport IATA/ICAO

Not classified as a dangerous good under transport regulations

15. Regulatory Information

Federal Regulations

Registration status:

Chemical TSCA, US released / listed

OSHA hazard category:

IARC 1, 2A or 2B carcinogen; Chronic target organ effects reported; OSHA PEL established; ACGIH TLV established

EPCRA 311/312 (Hazard categories):

Acute;

EPCRA 313:

CAS Number
108-88-3

Chemical name
Toluene

CERCLA RQ
1000 LBS

CAS Number
108-88-3

Chemical name
Toluene

State regulations

State RTK
MA, NJ, PA

CAS Number
13463-67-7

Chemical name
Titanium dioxide

CA Prop. 65:

THIS PRODUCT CONTAINS A CHEMICAL(S) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER AND BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.

Safety Data Sheet

WABO SILICONE SEAL PART A

Revision date : 2012/10/25

Version: 2.0

Page: 7/7

(30574095/SDS_GEN_US/EN)

16. Other Information

HMIS III rating

Health: 2 $\frac{+}{-}$ Flammability: 1 Physical hazard: 1

NFPA and HMIS use a numbering scale ranging from 0 to 4 to indicate the degree of hazard. A value of zero means that the substance possesses essentially no hazard; a rating of four indicates extreme danger. Although similar, the two rating systems are intended for different purposes, and use different criteria. The NFPA system was developed to provide an on-the-spot alert to the hazards of a material, and their severity, to emergency responders. The HMIS system was designed to communicate workplace hazard information to employees who handle hazardous chemicals.

We support worldwide Responsible Care® initiatives. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment to Responsible Care is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.

MSDS Prepared by:

BASF NA Product Regulations

msds@basf.com

MSDS Prepared on: 2012/10/25

IMPORTANT: WHILE THE DESCRIPTIONS, DESIGNS, DATA AND INFORMATION CONTAINED HEREIN ARE PRESENTED IN GOOD FAITH AND BELIEVED TO BE ACCURATE, IT IS PROVIDED FOR YOUR GUIDANCE ONLY. BECAUSE MANY FACTORS MAY AFFECT PROCESSING OR APPLICATION/USE, WE RECOMMEND THAT YOU MAKE TESTS TO DETERMINE THE SUITABILITY OF A PRODUCT FOR YOUR PARTICULAR PURPOSE PRIOR TO USE. NO WARRANTIES OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE MADE REGARDING PRODUCTS DESCRIBED OR DESIGNS, DATA OR INFORMATION SET FORTH, OR THAT THE PRODUCTS, DESIGNS, DATA OR INFORMATION MAY BE USED WITHOUT INFRINGING THE INTELLECTUAL PROPERTY RIGHTS OF OTHERS. IN NO CASE SHALL THE DESCRIPTIONS, INFORMATION, DATA OR DESIGNS PROVIDED BE CONSIDERED A PART OF OUR TERMS AND CONDITIONS OF SALE. FURTHER, YOU EXPRESSLY UNDERSTAND AND AGREE THAT THE DESCRIPTIONS, DESIGNS, DATA, AND INFORMATION FURNISHED BY OUR COMPANY HEREUNDER ARE GIVEN GRATIS AND WE ASSUME NO OBLIGATION OR LIABILITY FOR THE DESCRIPTION, DESIGNS, DATA AND INFORMATION GIVEN OR RESULTS OBTAINED, ALL SUCH BEING GIVEN AND ACCEPTED AT YOUR RISK.

END OF DATA SHEET

Safety Data Sheet

WABO 2PT SILICN SLNT PTB

Revision date : 2012/10/25

Version: 2.0

Page: 1/6

(30564917/SDS_GEN_US/EN)

1. Product and Company Identification

Company

WATSON BOWMAN ACME CORP.
95 Pineview Drive
Amherst, NY 14228 USA

24 Hour Emergency Response Information

CHEMTREC: 1-800-424-9300
BASF HOTLINE: 1-800-832-HELP (4357)

2. Hazards Identification

Emergency overview**WARNING:**

MAY CAUSE EYE, SKIN AND RESPIRATORY TRACT IRRITATION.

Ingestion may cause irritation to mucous membranes.

Avoid contact with the skin, eyes and clothing.

Wash thoroughly after handling.

Keep container tightly closed.

State of matter: solid

Colour: grey

Odour: odourless

Potential health effects**Primary routes of exposure:**

Routes of entry for solids and liquids include eye and skin contact, ingestion and inhalation. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquified gases.

Acute toxicity:

Ingestion may cause gastrointestinal disturbances. The product has not been tested. The statement has been derived from the properties of the individual components.

Irritation / corrosion:

May cause slight irritation to the eyes. May cause slight irritation to the skin. May cause slight irritation to the respiratory tract. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Chronic toxicity:

Carcinogenicity: The chemical structure does not suggest a specific alert for such an effect.

Reproductive toxicity: The chemical structure does not suggest a specific alert for such an effect. The product has not been tested. The statement has been derived from the properties of the individual components.

Safety Data Sheet

WABO 2PT SILICN SLNT PTB

Revision date : 2012/10/25
Version: 2.0

Page: 2/6
(30564917/SDS_GEN_US/EN)

Teratogenicity: The chemical structure does not suggest a specific alert for such an effect. The product has not been tested. The statement has been derived from the properties of the individual components.

Genotoxicity: The chemical structure does not suggest a specific alert for such an effect. The product has not been tested. The statement has been derived from the properties of the individual components.

Signs and symptoms of overexposure:

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11.

Potential environmental effects

Aquatic toxicity:

The product has not been tested.

Bioaccumulation / bioconcentration:

Discharge into the environment must be avoided.

3. Composition / Information on Ingredients

<u>CAS Number</u>	<u>Content (W/W)</u>	<u>Chemical name</u>
63148-62-9	>= 30.0 - <= 60.0 %	Dimethyl silicones and siloxanes
1317-65-3	>= 30.0 - <= 60.0 %	Limestone
471-34-1	>= 3.0 - <= 7.0 %	Calcium carbonate
112945-52-5	>= 1.0 - <= 5.0 %	Silica

4. First-Aid Measures

General advice:

First aid personnel should pay attention to their own safety. Remove contaminated clothing.

If inhaled:

Remove victim to fresh air and away from exposure immediately. If not breathing, give artificial respiration. Seek medical attention.

If on skin:

After contact with skin, wash immediately with plenty of water and soap. Under no circumstances should organic solvent be used. If irritation develops, seek medical attention.

If in eyes:

Wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

If swallowed:

Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions. Do not induce vomiting unless told to by a poison control center or doctor. If person is conscious and can swallow, give two glasses of water.

Note to physician

Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

5. Fire-Fighting Measures

Flash point: > 93.34 °C

Autoignition: not applicable

Safety Data Sheet

WABO 2PT SILICN SLNT PTB

Revision date : 2012/10/25

Page: 3/6

Version: 2.0

(30564917/SDS_GEN_US/EN)

Self-ignition temperature: not self-igniting

Suitable extinguishing media:

foam, water spray, dry powder, carbon dioxide

Unsuitable extinguishing media for safety reasons:

water jet

Hazards during fire-fighting:

carbon dioxide, carbon monoxide, harmful vapours, nitrogen oxides, fumes/smoke, carbon black

Protective equipment for fire-fighting:

Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

Further information:

The degree of risk is governed by the burning substance and the fire conditions. Contaminated extinguishing water must be disposed of in accordance with official regulations.

6. Accidental release measures

Personal precautions:

Use personal protective clothing. Do not breathe vapour/aerosol/spray mists. Handle in accordance with good building materials hygiene and safety practice.

Environmental precautions:

Contain contaminated water/firefighting water. Do not discharge into drains/surface waters/groundwater.

Cleanup:

For small amounts: Pick up with inert absorbent material (e.g. sand, earth etc.). Dispose of contaminated material as prescribed.

For large amounts: Pump off product.

7. Handling and Storage

Handling

General advice:

Avoid contact with the skin, eyes and clothing. Ensure thorough ventilation of stores and work areas.

Storage

General advice:

Keep only in the original container in a cool, well-ventilated place. Protect from direct sunlight.

8. Exposure Controls and Personal Protection

Components with occupational exposure limits

Calcium carbonate	OSHA	PEL 5 mg/m3 Respirable fraction ; PEL 15 mg/m3 Total dust ;
-------------------	------	---

Limestone	OSHA	PEL 5 mg/m3 Respirable fraction ; PEL 15 mg/m3 Total dust ;
-----------	------	---

Safety Data Sheet

WABO 2PT SILICN SLNT PTB

Revision date : 2012/10/25

Version: 2.0

Page: 4/6

(30564917/SDS_GEN_US/EN)

Silica

OSHA

; listed
TWA value 20 millions of particles per cubic foot of air ;
TWA value 0.8 mg/m3 ;
The exposure limit is calculated from the equation,
80/(%SiO₂), using a value of 100% SiO₂. Lower
percentages of SiO₂ will yield higher exposure limits.

Personal protective equipment

Respiratory protection:

Wear a NIOSH-certified (or equivalent) respirator as necessary.

Hand protection:

Wear chemical resistant protective gloves., Manufacturer's directions for use should be observed because of great diversity of types.

Eye protection:

Safety glasses with side-shields.

Body protection:

Impermeable protective clothing

General safety and hygiene measures:

Do not inhale gases/vapours/aerosols. In order to prevent contamination while handling, closed working clothes and working gloves should be used. Handle in accordance with good building materials hygiene and safety practice. When using, do not eat, drink or smoke. Hands and/or face should be washed before breaks and at the end of the shift. At the end of the shift the skin should be cleaned and skin-care agents applied. Gloves must be inspected regularly and prior to each use. Replace if necessary (e.g. pinhole leaks).

9. Physical and Chemical Properties

Form:	paste	
Odour:	odourless	
Colour:	grey	
pH value:		not applicable
Freezing point:		not applicable
Boiling point:	150 °C > 302 °F	
Bulk density:	1,800 - 2,400 kg/m3	
Solubility in water:		insoluble
Other Information:	If necessary, information on other physical and chemical parameters is indicated in this section.	

10. Stability and Reactivity

Substances to avoid:

strong acids, strong bases, strong oxidizing agents

Hazardous reactions:

The product is stable if stored and handled as prescribed/indicated.

Decomposition products:

No hazardous decomposition products if stored and handled as prescribed/indicated.

Thermal decomposition:

Safety Data Sheet

WABO 2PT SILICN SLNT PTB

Revision date : 2012/10/25

Page: 5/6

Version: 2.0

(30564917/SDS_GEN_US/EN)

No decomposition if stored and handled as prescribed/indicated.

Oxidizing properties:

Based on its structural properties the product is not classified as oxidizing.

11. Toxicological information

Other Information:

Based on our experience and the information available, no adverse health effects are expected if handled as recommended with suitable precautions for designated uses. The product has not been tested. The statements on toxicology have been derived from products of a similar structure and composition.

12. Ecological Information

Degradability / Persistence Biological / Abiological Degradation

Evaluation: Inherently biodegradable.
The insoluble fraction can be removed by mechanical means in suitable waste water treatment plants.

Other adverse effects:

Ecological data are not available. Do not allow to enter soil, waterways or waste water channels.

13. Disposal considerations

Waste disposal of substance:

Dispose of in accordance with national, state and local regulations.

14. Transport Information

Land transport

USDOT

Not classified as a dangerous good under transport regulations

Sea transport

IMDG

Not classified as a dangerous good under transport regulations

Air transport

IATA/ICAO

Not classified as a dangerous good under transport regulations

15. Regulatory Information

Safety Data Sheet

WABO 2PT SILICN SLNT PTB

Revision date : 2012/10/25

Version: 2.0

Page: 6/6

(30564917/SDS_GEN_US/EN)

Federal Regulations

Registration status:

Chemical TSCA, US released / listed

OSHA hazard category: Chronic target organ effects reported; OSHA PEL established

EPCRA 311/312 (Hazard categories): Acute; Chronic

State regulations

State RTK

MA, NJ, PA

MA, PA

CAS Number

471-34-1

112945-52-5

Chemical name

Calcium carbonate

Silica

CA Prop. 65:

THIS PRODUCT CONTAINS A CHEMICAL(S) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER.

16. Other Information

HMIS III rating

Health: 1 Flammability: 1 Physical hazard: 0

NFPA and HMIS use a numbering scale ranging from 0 to 4 to indicate the degree of hazard. A value of zero means that the substance possesses essentially no hazard; a rating of four indicates extreme danger. Although similar, the two rating systems are intended for different purposes, and use different criteria. The NFPA system was developed to provide an on-the-spot alert to the hazards of a material, and their severity, to emergency responders. The HMIS system was designed to communicate workplace hazard information to employees who handle hazardous chemicals.

We support worldwide Responsible Care® initiatives. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment to Responsible Care is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.

MSDS Prepared by:

BASF NA Product Regulations

msds@basf.com

MSDS Prepared on: 2012/10/25

IMPORTANT: WHILE THE DESCRIPTIONS, DESIGNS, DATA AND INFORMATION CONTAINED HEREIN ARE PRESENTED IN GOOD FAITH AND BELIEVED TO BE ACCURATE, IT IS PROVIDED FOR YOUR GUIDANCE ONLY. BECAUSE MANY FACTORS MAY AFFECT PROCESSING OR APPLICATION/USE, WE RECOMMEND THAT YOU MAKE TESTS TO DETERMINE THE SUITABILITY OF A PRODUCT FOR YOUR PARTICULAR PURPOSE PRIOR TO USE. NO WARRANTIES OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE MADE REGARDING PRODUCTS DESCRIBED OR DESIGNS, DATA OR INFORMATION SET FORTH, OR THAT THE PRODUCTS, DESIGNS, DATA OR INFORMATION MAY BE USED WITHOUT INFRINGING THE INTELLECTUAL PROPERTY RIGHTS OF OTHERS. IN NO CASE SHALL THE DESCRIPTIONS, INFORMATION, DATA OR DESIGNS PROVIDED BE CONSIDERED A PART OF OUR TERMS AND CONDITIONS OF SALE. FURTHER, YOU EXPRESSLY UNDERSTAND AND AGREE THAT THE DESCRIPTIONS, DESIGNS, DATA, AND INFORMATION FURNISHED BY OUR COMPANY HEREUNDER ARE GIVEN GRATIS AND WE ASSUME NO OBLIGATION OR LIABILITY FOR THE DESCRIPTION, DESIGNS, DATA AND INFORMATION GIVEN OR RESULTS OBTAINED, ALL SUCH BEING GIVEN AND ACCEPTED AT YOUR RISK.

END OF DATA SHEET



MATERIAL SAFETY DATA SHEET

Prepared to U.S. OSHA, CMA, ANSI and Canadian WHMIS Standards. This Material Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard (29 CFR 1910.1200). Other government regulations must be reviewed for applicability to these products.

WARNING: PRODUCT COMPONENTS PRESENT HEALTH AND SAFETY HAZARDS. READ AND UNDERSTAND THIS MATERIAL SAFETY DATA SHEET (M.S.D.S.). ALSO, FOLLOW YOUR EMPLOYER'S SAFETY PRACTICES. This product may contain Chromium and/or Nickel which are listed by OSHA, NTP, or IARC as being a carcinogen or potential carcinogen. Use of this product may expose you or others to fumes and gases at levels exceeding those established by the American Conference of Governmental Industrial Hygienists (ACGIH) or the Occupational Safety and Health Administration (OSHA). The information contained herein relates only to the specific product. If the product is combined with other materials, all component properties must be considered. **BE SURE TO CONSULT THE LATEST VERSION OF THE MSDS. MATERIAL SAFETY DATA SHEETS ARE AVAILABLE FROM HARRIS PRODUCTS GROUP** salesinfo@jwharris.com 513-754-2000 www.harrisproductsgroup.com

STATEMENT OF LIABILITY-DISCLAIMER

To the best of the Harris Products Group knowledge, the information and recommendations contained in this publication are reliable and accurate as of the date prepared. However, accuracy, suitability, or completeness are not guaranteed, and no warranty, guarantee, or representation, expressed or implied, is made by Harris Products Group, as to the absolute correctness or sufficiency of any representation contained in this and other publications; Harris Products Group, assumes no responsibility in connection therewith; nor can it be assumed that all acceptable safety measures are contained in this and other publications, or that other or additional measures may not be required under particular or exceptional conditions or circumstances. Data may be changed from time to time.

PART I *What is the material and what do I need to know in an emergency?*

1. PRODUCT IDENTIFICATION

TRADE NAME (AS LABELED):	GAL-VIZ, HARRIS 8 and PASTEWELD SOLDERS
CHEMICAL NAME/CLASS:	Solder Alloy
SYNONYMS:	Not Applicable
PRODUCT USE:	Soldering
DOCUMENT NUMBER:	0002
SUPPLIER/MANUFACTURER'S NAME:	HARRIS PRODUCTS GROUP.
ADDRESS:	4501 Quality Place, Mason, Ohio 45040
EMERGENCY PHONE:	CHEMTREC: 1-800-424-9300
BUSINESS PHONE:	513-754-2000
DATE OF PREPARATION:	September 9, 2010

2. COMPOSITION and INFORMATION ON INGREDIENTS

TRADE NAME	Tin (Sn)	Lead (Pb)	Zinc (Zn)	CHLORIDE	
				ZINC	AMMONIUM
PASTEWELD	35-45%	35-45%		15-25%	5-20%
HARRIS 8	15-20%	45-65%	15-25%		
GAL-VIZ	20-25%	35-55%	15-25%		

2. COMPOSITION and INFORMATION ON INGREDIENTS (Continued)

CHEMICAL NAME	CAS #	EXPOSURE LIMITS IN AIR					
		ACGIH-TLV		OSHA-PEL		NIOSH IDLH mg/m ³	OTHER mg/m ³
		TWA mg/m ³	STEL mg/m ³	TWA mg/m ³	STEL mg/m ³		
Ammonium Chloride Exposure limits are for Ammonium Chloride, fume	12125-02-9	10	20	10 (Vacated 1989 PEL)	20 (Vacated 1989 PEL)	NE	NIOSH REL: TWA = 10 STEL = 20
Zinc Exposure limits given are for Zinc oxide, Fume and Dust	1314-13-2	5 (fume) 10 (dust) 2 (Respirable)	10 (fume) 10 (Respi rable)	5 (fume) 5 (total dust) 15 (dust, respirable dust) 5 (dust, respirable dust, Vacated 1989 PEL)	10 (fume, Vacated 1989 PEL)	500	NIOSH RELs: TWA = 5 (fume & dusts) STEL = 10 (fume), 15 (ceiling, 15 minutes, dusts) DFG MAKs: TWA = 1.5 (Respirable fraction, fume) Carcinogen: EPA-D
Lead Exposure limits are for Lead, elemental & inorganic compounds, as Pb	7439-92-1	0.05 , A3 (Confirmed Animal Carcinogen with Unknown Relevance to Humans))	NE	0.05 (see 29 CFR 1910.1025)	NE	100	NIOSH RELs: TWA = < 0.1 (blood Pb < 0.6 mg/100 g whole blood) DFG MAKs: TWA = 0.1 (Inhalable Fraction) PEAK = 10•MAK 30 min., average value DFG MAK Pregnancy Risk Classification: B Carcinogen: EPA-B2, IARC-2B, TLV- A4
Tin Exposure limits are for Tin, Metal	7440-31-5	2	NE	2	NE	100	NE
Zinc Chloride Exposure limits are for Zinc Chloride, fume	7646-85-7	1	2	1	2 (Vacated 1989 PEL)	50	NIOSH RELs: TWA = 1 STEL = 2 Carcinogen: EPA-D

NE = Not Established.

See Section 16 for Definitions of Terms Used.

NOTE (1): The ACGIH has an established exposure limit for Welding Fumes, Not Otherwise Classified. The Threshold Limit Value is 5 mg/m³. NIOSH classifies welding fumes as carcinogens. Single values shown are maximum, unless otherwise noted.

NOTE (2): ALL WHMIS required information is included in appropriate sections based on the ANSI Z400.1-1998 format. These products have been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.



3. HAZARD IDENTIFICATION

EMERGENCY OVERVIEW: These products consist of Tin/Lead or a Tin/Lead/Zinc alloy with a metallic luster and the Pasteweld in a paste mixture. Contact with the mixture of Pasteweld can result in allergic reaction and sensitization to the skin in susceptible persons. There are no immediate health hazards associated with Gal-Viz and HARRIS 8, as solid alloys. When heated during soldering operations, these products may generate irritating and toxic fumes of Lead oxide, Tin oxides, hydrogen chloride, Zinc oxides, and ammonium compounds. There is a danger of cumulative effects if fumes or dusts from these products are inhaled or ingested. These products are not reactive. If involved in a fire, these products may generate irritating fumes and a variety of metal oxides, as described above. Finely divided dusts of these products may result in explosive air/dust mixtures. Emergency responders must wear personal protective equipment suitable for the situation to which they are responding.

SYMPTOMS OF OVER-EXPOSURE BY ROUTE OF EXPOSURE: During soldering operations, the most significant route of over-exposure is via inhalation of fumes.



3. HAZARD IDENTIFICATION (Continued)

FOR ALLOY

HAZARDOUS MATERIAL IDENTIFICATION SYSTEM			
HEALTH			(BLUE) 0
FLAMMABILITY			(RED) 0
REACTIVITY			(YELLOW) 0
PROTECTIVE EQUIPMENT			X
EYES	RESPIRATORY	HANDS	BODY
	See Section 8		See Section 8
For routine industrial applications for the rods			

See Section 16 for Definition of Ratings

FOR FUMES OR DUSTS & PASTEWELD

HAZARDOUS MATERIAL IDENTIFICATION SYSTEM			
HEALTH			(BLUE) 3
FLAMMABILITY			(RED) 0
REACTIVITY			(YELLOW) 1
PROTECTIVE EQUIPMENT			X
EYES	RESPIRATORY	HANDS	BODY
	See Section 8		See Section 8
For routine industrial applications for the rods			

See Section 16 for Definition of Ratings

INHALATION (Inhalation of large amounts of particulates generated by these products during soldering operations may be physically irritating and cause deposits of dust in nasal passages. Due to the presence of Lead, inhalation of fumes or dusts from these products can result in Lead poisoning. Symptoms of poisoning include headache, fatigue, nausea, metallic taste in the mouth, abdominal cramps, joint pain, metallic taste in the mouth, vomiting, constipation, bloody diarrhea, and harmful effects on the central nervous system. Exposure to Lead can cause significant cumulative toxic effects, effects on the reproductive system and may cause cancer. See information under "Other Health Effects" for additional information. Inhalation of these fumes can result in irritation to the respiratory system.

Exposure to dust or fumes of the Tin components is known to cause a benign pneumoconiosis (stannosis). This form of pneumoconiosis produces distinctive progressive x-ray changes of the lung as long as exposure persists, but there is no distinctive fibrosis, no evidence of disability, and no special complicating factors. In addition, inhalation of Zinc dust and fumes or large amounts of dusts or fumes of these products, can cause metal fume fever. Symptoms of metal fume fever include flu-like symptoms, metallic taste, fever, sweating, chills, cough, weakness, chest pain, muscle pain, cardiac abnormalities, and increased white blood cell count. Damage to lungs can occur. Symptoms of metal fume fever can be delayed 24-48 hours. Refer to Section 10 (Stability and Reactivity) for information on the specific composition of soldering fumes and gases. There is some evidence that inhalation of fumes from the Ammonium Chloride component of these products may cause respiratory sensitization in susceptible individuals. Symptoms may include difficulty breathing, persistent coughing and wheezing.

CONTACT WITH SKIN or EYES: Contact of the wire form of these products with the skin is not anticipated to be irritating. Contact with the wire form of these products can be physically damaging to the eye. Fumes generated during soldering operations can be irritating to the skin and eyes. Symptoms of skin over-exposure may include irritation and redness; prolonged or repeated skin over-exposures may Lead to dermatitis. Contact with the paste flux can result in allergic reaction and skin sensitization in susceptible individuals. Symptoms could include dermatitis, itching and persistent rash. Contact with the molten wire will burn contaminated skin or eyes.

SKIN ABSORPTION: Skin absorption is not known to be a significant route of over-exposure for any component of these products.

INGESTION: Ingestion is not anticipated to be a route of occupational exposure for these products; however, if proper hygiene (e.g. washing of hands) is not followed during handling and use of these products, ingestion of Lead from contamination of the hands can occur, resulting in Lead poisoning.

3. HAZARD IDENTIFICATION (Continued)

INJECTION: Though not a likely route of occupational exposure for these products, injection (via punctures or lacerations in the skin) may cause local reddening, tissue swelling, and discomfort.

OTHER HEALTH EFFECTS: Due to the presence of Lead in these products, exposure to dusts or fumes may result in significant adverse acute and chronic health effects, as follows. Long-term, low-level Lead exposure has resulted in harm to the central nervous system and brain function. Symptoms of chronic, low to moderate levels include forgetfulness, irritability, tiredness, headache, fatigue, impotence, decreased libido, dizziness, altered mood states and depression. Symptoms of chronic exposure to moderate to high Lead levels include disturbances in hand to eye coordination, reaction times, visual motor performance, mental performance, gradual decrease in visual acuity with slow recovery or possible blindness, changes in hearing ability, and in worse cases, encephalopathy (a progressive degeneration of the brain and its functions). Early symptoms of encephalopathy include dullness, irritability, poor attention span, muscular tremor, headache, and loss of memory and hallucinations. Severe, chronic exposure to Lead at high concentration can result in symptoms on the central nervous system, including delirium, lack of coordination, convulsions, paralysis, coma and death.

Exposure to Lead can also result in significant adverse results on the peripheral nervous system, including harm to nerves in hands, legs and feet. These effects can be reversible if exposure is short term (5 months or less) and treatment is received; if not, these effects can become permanent. A syndrome known as "Lead Palsy" can occur, with symptoms such as weakness of legs or arms, weakness and paralysis of the wrist, fingers and ankles. At lower exposure levels decreased hand dexterity has been reported. At higher exposure levels an ability to hold the foot or hand in extended position can occur.

Exposure to Lead can also cause adverse effects on the gastrointestinal system, including loss of appetite, inflammation of the stomach walls (gastritis), colic, severe abdominal pain, cramps, nausea, vomiting, constipation, anorexia, weight loss and decreased urination. In severe cases of Lead poisoning, a deposit of Lead occurs in the gums near the base of the teeth, resulting in a visible blue-gray line. Reversible kidney injury has been observed in some cases of workers exposed to Lead at chronic, low to moderate levels. Death due to kidney failure has occurred to workers chronically exposed to Lead at moderate levels.

Exposure to Lead can cause harmful effects to certain types of blood cells, including reduced hemoglobin production and reduced life-span and function of red blood cells. This harm can cause anemia in workers exposed to moderate levels. Low, moderate and high level exposure to Lead may increase blood pressure, especially in men. Some studies have indicated that moderate exposure to Lead can result in electrocardiographic abnormalities. There is some evidence that low-level exposure to Lead can cause harmful effects on the thyroid and immune systems, including possible susceptibility to colds and flu infections.

Exposure to Lead, especially at high levels, has resulted in significant adverse effects in the reproductive systems of both men and women. Refer to Section 11 (Toxicological Information, Reproductive Toxicity Information) for additional information.

HEALTH EFFECTS OR RISKS FROM EXPOSURE: An Explanation in Lay Terms. Symptoms associated with over-exposure to these products and the fumes generated during soldering operations are as follows:

ACUTE: Inhalation of large amounts of particulates generated by these products during metal processing operations may be physically irritating and cause deposits of dust in nasal passages. Inhalation of dusts and fumes of these products can cause metal fume fever or irritation of the respiratory system. Contact with the molten material will burn contaminated skin or eyes. Significant adverse effects on the blood, kidneys, gastrointestinal system, central and peripheral nervous systems.

CHRONIC: Chronic skin over-exposure to the fumes of these products during soldering operations may produce dermatitis (red, inflamed skin). Repeated or prolonged over-exposures, via inhalation, to the dusts generated by these products may cause pulmonary fibrosis (scarring of lung tissue). Chronic inhalation of fumes or dusts of the components of these products, can result in severe, adverse effects on the blood and heart, kidneys, thyroid and immune systems, and central and periphery nervous system, due to the presence of Lead. Due to the presence of the Ammonium Chloride compound in the flux of some of these products, inhalation of fumes from soldering may cause allergic respiratory reaction and respiratory sensitization in susceptible individuals. Due to the Lead component in these products, contact may result in significant adverse effects on the reproductive system. See Section 11 (Toxicological Information) for additional information.

TARGET ORGANS: For fumes: ACUTE: Skin, eyes, respiratory system, blood system, central nervous system, peripheral nervous system, gastrointestinal system. CHRONIC: Skin, central nervous system, kidneys, heart, blood, central nervous system, thyroid, immune system, reproductive system.

PART II *What should I do if a hazardous situation occurs?*

4. FIRST-AID MEASURES

Victims of chemical exposure must be taken for medical attention. Rescuers should be taken for medical attention, if necessary. Take a copy of label and MSDS to health professional with victim.

SKIN EXPOSURE: If fumes generated by soldering operations involving these products contaminate the skin, begin decontamination with running water. If molten material contaminates the skin, immediately begin decontamination with cold, running water. Minimum flushing is for 15 minutes. Victim must seek medical attention if any adverse reaction occurs.

4. FIRST-AID MEASURES (Continued)

EYE EXPOSURE: If fumes generated by soldering operations involving these products enter the eyes, open victim's eyes while under gently running water. Use sufficient force to open eyelids. Have victim "roll" eyes. Minimum flushing is for 15 minutes. Victim must seek immediate medical attention.

INHALATION: If fumes generated by soldering operations involving these products are inhaled, remove victim to fresh air. If necessary, use artificial respiration to support vital functions.

INGESTION: If swallowed call physician immediately! Do not induce vomiting unless directed by medical personnel. Rinse mouth with water if person is conscious. Never give fluids or induce vomiting if person is unconscious, having convulsions, or not breathing.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Skin, respiratory, blood, central nervous system and peripheral system, and kidney disorders, may be aggravated by prolonged over-exposures to the dusts or fumes generated by these products.

RECOMMENDATIONS TO PHYSICIANS: Basic Treatment: Establish a patent airway. Suction if necessary. Watch for signs of respiratory insufficiency and assist ventilations if necessary. Administer oxygen by non-rebreather mask at 10 to 15 L/minutes. Monitor for shock and treat if necessary. Anticipate seizures and treat if necessary. For eye contamination, flush eyes immediately with water. Irrigate each eye continuously with normal saline during transport. Do not use emetics. For ingestion, rinse mouth and administer 5 mL/kg up to 200 mL of water for dilution if the patient can swallow, has a strong gag reflex, and does not drool. Administer activated charcoal.

Advanced Treatment: Consider orotracheal or nasotracheal intubation for airway control in the patient who is unconscious. Use hyperventilation to help control increased intracranial pressure. Start an IV with lactated Ringer's to support vital signs. For hypotension with signs of hypovolemia, administer fluid cautiously. Watch for signs of fluid overload. Treat seizures with diazepam (Valium). Use proparacaine hydrochloride to assist eye irrigation. The treatment of Lead poisoning is based on the prompt termination of exposure and on the use of chelating agents. The first requirement is categorical. The second is determined by the severity of poisoning; at present, the greatest issue is whether a symptomatic patients should be treated or not. The most commonly used therapeutic chelating agents are CaEDTA, BAL, and D-penicillamine can be given. DMSA should also be considered.

5. FIRE-FIGHTING MEASURES

FLASH POINT: Not flammable.

AUTOIGNITION TEMPERATURE: Not applicable for products. Dust clouds of Lead, a possible main component of these products, have a minimum ignition temperature range of 270-790°C (518-1454°F).

FLAMMABLE LIMITS (in air by volume, %):

Lower (LEL): Not applicable.

Upper (UEL): Not applicable.

FIRE EXTINGUISHING MATERIALS: These products are not flammable; use fire-extinguishing agents appropriate for surrounding materials.

Water Spray: YES

Carbon Dioxide: YES

Halon: YES

Foam: YES

Dry Chemical: YES

Other: Any "ABC" Class

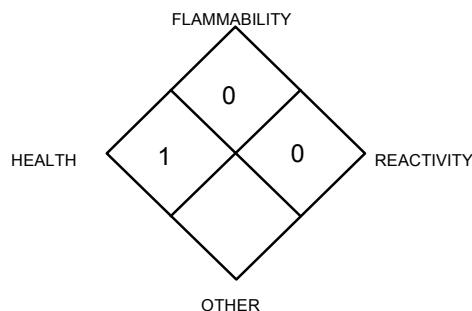
UNUSUAL FIRE AND EXPLOSION HAZARDS When involved in a fire, these products may decompose and produce Lead oxide, Tin oxides, hydrogen chloride, Zinc oxides, and ammonium compounds. The hot material can present a significant thermal hazard to firefighters.

Explosion Sensitivity to Mechanical Impact: Not sensitive.

Explosion Sensitivity to Static Discharge: Although these products are not sensitive to static discharge, dusts of these products can form explosive air/dust mixtures and can be ignited by static discharge.

SPECIAL FIRE-FIGHTING PROCEDURES: Lead and its decomposition products are hazardous to health. Fire-fighters should not enter an area in which a fire involves these products without wearing specialized protective equipment suitable for potential Lead exposure. Normal fire-fighter bunker gear is not adequate to protect against exposure to Lead and its decomposition products. A full-body, encapsulating chemical resistant suit with positive-pressure Self-Contained Breathing Apparatus may be necessary.

NFPA RATING



**See Section 16 for
Definition of Ratings**

6. ACCIDENTAL RELEASE MEASURES

SPILL AND LEAK RESPONSE: Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of a spill, clear the affected area, protect people, and respond with trained personnel.

6. ACCIDENTAL RELEASE MEASURES(Continued)

Incidental releases of this product can be cleaned up by personnel wearing gloves and goggles (or safety glasses). In the event of a non-incident release, minimum Personal Protective Equipment should be **Level B: triple-gloves (rubber gloves and nitrile gloves over latex gloves), chemical resistant suit and boots, hard-hat, and self-contained Breathing Apparatus**. Pick up paste with polypad or other absorbent agent. Rinse area with a soap and water solution. Decontaminate the area thoroughly. Place all spilled residues in a suitable container and seal. Dispose of in accordance with Federal, State, and local hazardous waste disposal regulations (see Section 13, Disposal Considerations).

PART III *How can I prevent hazardous situations from occurring*

7. HANDLING and STORAGE

WORK PRACTICES AND HYGIENE PRACTICES: As with all chemicals, avoid getting these products ON YOU or IN YOU. Wash thoroughly after handling these products. Do not eat or drink while handling these products. Use ventilation and other engineering controls to minimize potential exposure to these products. If dusts or fumes of these products are present, use of a suitable NIOSH approved respirator must commence immediately to protect against possible Lead poisoning. Unprotected workers must avoid all contact with these products.

STORAGE AND HANDLING PRACTICES: All employees who handle these products should be trained to handle it safely, following the requirements of the OSHA Lead Standard (29 CFR 1910.1025). Use in clearly posted areas(s) indicating Lead hazard. Access doors must remain closed while these products are being used or stored. When handling Lead powder on a large scale, closed-handling systems for processes should be used. If this is not possible, use in the smallest possible amounts in appropriate labeled, containment devices (e.g. fume hood). Containment devices should be made of smooth, unbreakable compatible material. Maintain containment devices at appropriate air-flow and negative pressure. Check regularly. Use in a well-ventilated location. Avoid the generation of dusts and prevent the release of fumes to the workplace.

Avoid breathing fumes of these products generated during soldering operations. Open containers on a stable surface. Cover surfaces in which these products are being used with compatible, chemical resistant and/or disposable material for easier containment and clean-up. Good housekeeping is very important. Keep work areas clean. Packages of these products must be properly labeled. When these products are used during soldering operations, follow the requirements of the Federal Occupational Safety and Health Welding and Cutting Standard (29 CFR 1910 Subpart Q) and the safety standards of the American National Standards Institute for welding and cutting (ANSI Z49.1). Store packages in a cool, dry location. Store away from incompatible materials (see Section 10, Stability and Reactivity).

PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT: Not applicable.

8. EXPOSURE CONTROLS - PERSONAL PROTECTION

VENTILATION AND ENGINEERING CONTROLS: As per the OSHA Lead Standard, 29 CFR 1910.1025, the employer shall assure that no employee is exposed to Lead at concentrations greater than 50 µg/cubic meter averaged over an 8-hour period. If an employee is exposed to Lead for more than 8 hours in any work day, the permissible exposure limit, as a TWA for that day, shall be reduced according to the following formula: Maximum permissible limit (in µg/cubic meter) = 400 divided by the number of hours worked in the day. Use with adequate ventilation to ensure exposure levels are maintained below these limits and the limits for Lead and other components of these products provided in Section 2 (Composition and Information on Ingredients). Prudent practice is to ensure eyewash/safety shower stations are available near areas where these products are used.

RESPIRATORY PROTECTION: Maintain airborne contaminant concentrations below guidelines listed in Section 2 (Composition and Information on Ingredients). If respiratory protection is needed (i.e. a Weld Fume Respirator, or Air-Line Respirator for welding in confined spaces), U.S. Federal OSHA Standard (29 CFR 1910.134), applicable U.S. State regulations, or the Canadian CSA Standard Z94.4-93 and applicable standards of Canadian Provinces. Respiratory Protection is recommended to be worn during welding operations. Oxygen levels below 19.5% are considered IDLH by OSHA. In such atmospheres, use of a full-facepiece pressure/demand SCBA or a full facepiece, supplied air respirator with auxiliary self-contained air supply is required under OSHA's Respiratory Protection Standard (1910.134-1998). The following are NIOSH recommendations for respirator selection for Ammonium Chloride, Lead, Welding fumes, Pyrolysis Products, Tin and Zinc Chloride, and are provided for additional information:

LEAD

CONCENTRATION

Up to 0.5 mg/m³:

Up to 1.25 mg/m³:

Up to 2.5 mg/m³:

RESPIRATORY PROTECTION

Any Air-Purifying Respirator with a high-efficiency particulate filter, or any Supplied-Air Respirator (SAR).

Any SAR operated in a continuous-flow mode, or any powered, air-purifying respirator with a high-efficiency particulate filter.

Any Air-Purifying, Full-Facepiece Respirator with a high-efficiency particulate filter, or any SAR that has a tight-fitting facepiece and is operated in a continuous-flow mode, or any powered, air-purifying respirator with a tight-fitting facepiece and a high-efficiency particulate filter, or any Self-Contained Breathing Apparatus (SCBA) with a full facepiece, or any SAR with a full facepiece.

(continued on following page)

8. EXPOSURE CONTROLS - PERSONAL PROTECTION (Continued)

RESPIRATORY PROTECTION (continued): NIOSH recommendations for respiratory protection, continued.

<u>LEAD CONCENTRATION</u>	<u>RESPIRATORY PROTECTION (continued):</u>
----------------------------------	---

Up to 50 mg/m ³ :	Any SAR operated in a pressure-demand or other positive-pressure mode.
Up to 100 mg/m ³ :	Any SAR that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.
Emergency or Planned	Entry into Unknown Concentrations or IDLH Conditions: Any SCBA that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode, or any SAR that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary SCBA operated in pressure-demand or other positive-pressure mode.
Escape:	Any Air-Purifying, Full-Facepiece Respirator with a high-efficiency particulate filter, or any appropriate escape-type, SCBA.

<u>TIN CONCENTRATION</u>	<u>RESPIRATORY PROTECTION</u>
---------------------------------	--------------------------------------

Up to 10 mg/m ³ :	Any dust and mist respirator.
Up to 20 mg/m ³ :	Any dust and mist respirator except single-use and quarter-mask respirators, IF NOT present as a fume, or any Supplied-air Respirator (SAR).
Up to mg/m ³ :	Any SAR operated in a continuous-flow mode, or any Powered, Air-Purifying Respirator with a dust and mist filter, IF NOT present as a fume.
Up to 100 mg/m ³ :	Any Air-Purifying, Full-Facepiece Respirator with a high-efficiency particulate filter, or any Self-Contained Breathing Apparatus (SCBA) with a full facepiece, or any SAR with a full facepiece.
Emergency or Planned	Entry into Unknown Concentrations or IDLH Conditions: Any SCBA that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode, or any SAR that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary SCBA operated in pressure-demand or other positive-pressure mode.
Escape:	Any Air-Purifying, Full-Facepiece Respirator with a high-efficiency particulate filter, or any appropriate escape-type, SCBA

<u>WELDING FUMES</u>	<u>RESPIRATORY EQUIPMENT FOR WELDING FUMES</u>
-----------------------------	---

At Concentrations above	the NIOSH REL, or where there is no REL, at any Detectable Concentration: Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode; or any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.
Escape:	Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister having a high-efficiency particulate filter; or any appropriate escape-type, self-contained breathing apparatus
NOTE:	IDLH Concentration: Potential NIOSH carcinogen. [Not determined yet].

<u>ZINC CHLORIDE</u>	<u>RESPIRATORY PROTECTION</u>
-----------------------------	--------------------------------------

Up to 10 mg/m ³ :	Any dust, mist, and fume respirator, or any Supplied-Air Respirator (SAR).
Up to 25 mg/m ³ :	Any SAR operated in a continuous-flow mode, or any Powered, Air-Purifying Respirator (PAPR) with a dust, mist, and fume filter.
Up to 50 mg/m ³ :	Any Air-Purifying, Full-Facepiece Respirator with a high-efficiency particulate filter, or any PAPR with a tight-fitting facepiece and a high-efficiency particulate filter, or any Self-Contained Breathing Apparatus (SCBA) with a full facepiece, or any SAR with a full facepiece.
Emergency or Planned	Entry into Unknown Concentrations or IDLH Conditions: Any SCBA that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode, or any SAR that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary SCBA operated in pressure-demand or other positive-pressure mode.
Escape:	Any Air-Purifying, Full-Facepiece Respirator with a high-efficiency particulate filter, or any appropriate escape-type, SCBA.

8. EXPOSURE CONTROLS - PERSONAL PROTECTION (Continued)

EYE PROTECTION: Safety glasses. When these products are used in conjunction with soldering, wear safety glasses, goggles, or face-shield with filter lens of appropriate shade number (per ANSI Z49.1-1988, "Safety in Welding and Cutting") and U.S. OSHA 29 CFR 1910.133 and appropriate Canadian Standards.

HAND PROTECTION: Wear gloves for routine industrial use. When these products are used in conjunction with soldering, wear gloves that protect from sparks and flame (per ANSI Z49.1-1988, "Safety in Welding and Cutting"). If necessary, refer to U.S. OSHA 29 CFR 1910.138 and appropriate Standards of Canada.

BODY PROTECTION: Use body protection appropriate for task. If a hazard of injury to the feet exists due to falling objects, rolling objects, where objects may pierce the soles of the feet or where employee's feet may be exposed to electrical hazards, as described in U.S. OSHA 29 CFR 1910.136.

9. PHYSICAL and CHEMICAL PROPERTIES

The following information is for Lead, a possible main component:

RELATIVE VAPOR DENSITY (air = 1): Not applicable. **EVAPORATION RATE (nBuAc = 1):** Not applicable.
SPECIFIC GRAVITY @ 20°C (water = 1): 11.34 **FREEZING/MELTING POINT:** 327.4°C (621.36°F)
SOLUBILITY IN WATER: Insoluble. **pH:** Not applicable.
VAPOR PRESSURE, mm Hg @ 980°C: 1 **BOILING POINT:** 1740°C (3164°F)
ODOR THRESHOLD: Not applicable. **VAPOR DENSITY (air = 1):** 7.14
COEFFICIENT OF OIL/WATER DISTRIBUTION (PARTITION COEFFICIENT): Not applicable.

The following information is for Tin, a possible main component:

RELATIVE VAPOR DENSITY (air = 1): Not applicable. **EVAPORATION RATE (nBuAc = 1):** Not applicable.
SPECIFIC GRAVITY @ 20°C (water = 1): 7.28 **FREEZING/MELTING POINT:** 232°C (4506°F)
SOLUBILITY IN WATER: Insoluble. **pH:** Not applicable.
VAPOR PRESSURE, mm Hg @ 1492°C: 0 **BOILING POINT:** 2270°C (4118°F)
ODOR THRESHOLD: Not applicable. **VAPOR DENSITY (air = 1):** Not applicable.
COEFFICIENT OF OIL/WATER DISTRIBUTION (PARTITION COEFFICIENT): Not applicable.

The following information is for Zinc, a component of some of these products:

RELATIVE VAPOR DENSITY (air = 1): Not applicable. **EVAPORATION RATE (nBuAc = 1):** Not applicable.
SPECIFIC GRAVITY (water = 1): 7.14 **pH:** Not applicable.
SOLUBILITY IN WATER: Insoluble. **ODOR THRESHOLD:** Not applicable.
VAPOR PRESSURE, mm Hg @ 20°C: Not applicable. **BOILING POINT:** 907°C (1665°F)
FREEZING/MELTING POINT: 419°C (786°F)
COEFFICIENT OF OIL/WATER DISTRIBUTION (PARTITION COEFFICIENT): Not applicable

The following information is for the products:

APPEARANCE AND COLOR: These odorless products consist of Tin/Lead or a Tin/Lead/Zinc alloy with a metallic lust and the Pasteweld in a paste mixture

10. STABILITY and REACTIVITY

STABILITY: Normally stable. These products can oxidize rapidly to form an insoluble layer of basic Lead carbonate.

DECOMPOSITION PRODUCTS: Lead oxide, Tin oxides, hydrogen chloride, Zinc oxides, and ammonium compounds.

NOTE: The composition and quality of soldering fumes and gases are dependent upon the metal being soldered, the process, the procedure, and the alloys used. Other conditions that could also influence the composition and quantity of fumes and gases to which workers may be exposed include the following: any coatings on metal being welded (e.g. paint, plating, or galvanizing), the number of work stations and the volume of the work area, the quality of ventilation, the position of the work stations with respect to the fume plume, and the presence of other contaminants in the atmosphere. When the alloy is consumed, the fume and gas decomposition products generated are different in percent and form from the ingredients listed in Section 2 (Composition and Information on Ingredients). Fume and gas decomposition products, and not the ingredients in the solders, are important. Concentration of the given fume or gas component may decrease or increase by many times the original concentration. New compounds may form. Decomposition products of normal operations include not only those originating from volatilization, reaction, or oxidation of the product's components but also those from base metals and any coating (as noted previously). The best method to determine the actual composition of generated fumes and gases is to take an air sample from the breathing zone. For additional information, refer to the American Welding Society Publication, "Fumes and Gases in the Welding Environment".

MATERIALS WITH THESE PRODUCTS ARE INCOMPATIBLE: These products will be attacked or can react with strong acids, strong bases, hydrogen peroxide (52% or greater- in presence of manganese dioxide), sodium azide, ammonium nitrate, sodium acetylides, sodium carbide, zirconium, or chlorine trifluoride. The flux of some of these products are incompatible with potassium, strong acids, alkalis, interhalogens, strong oxidizers, ammonium nitrate, hydrogen cyanide, potassium chlorate and Lead salts (not Lead metal) and silver salts.

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: Avoid uncontrolled exposure to extreme temperatures and incompatible materials.

PART IV *Is there any other useful information about this material?*

11. TOXICOLOGICAL INFORMATION

TOXICITY DATA: Presented below are human toxicological data available for the components of these products present in concentration greater than 1%. Other data for animals are available for the components of these products, but are not presented in this Material Safety Data Sheet.

LEAD:

Cytogenetic Analysis-Human-Unreported 50
µg/m
TCLo (Inhalation-Human) 10 µg/m³:
Gastrointestinal tract effects: LIV
TDLo (Oral-Woman) 450 mg/kg/6 years:
Peripheral nervous system effects: Central
nervous system effects

ZINC CHLORIDE:

TCLo (Inhalation-Man) 4800 mg/m³/30 minutes:
Pulmonary system effects
TCLo (Inhalation-Human) 4800 mg/m³/3 hours
LCLo (Inhalation, human) = 300 µg/m³/ 10
years/ intermittent; systemic effects

ZINC CHLORIDE (continued):

TDLo (Oral-Child) 169 mg/kg: Lungs, Thorax, or
Respiration: dyspnea; Blood: changes in
serum composition (e.g. TP, bilirubin,
cholesterol); Skin and Appendages:
dermatitis, other (after systemic exposure)

ZINC:

Skin Irritancy (human) = 300 µg/ 3 days/
intermittent; mild

TCLo (inhalation, human) = 124 mg/m³/ 50
minutes; pulmonary system, skin effects

SUSPECTED CANCER AGENT: The components of these products are listed as follows:

LEAD: ACGIH TLV-A3 (Confirmed Animal Carcinogen), EPA-B2 (Probable Human Carcinogen - Sufficient Evidence from Animal Studies; inadequate evidence or no data from epidemiologic studies); IARC-2B (Possibly Carcinogenic to Humans)

ZINC CHLORIDE: EPA-D [dusts & mists] (Not Classifiable as to Human Carcinogenicity)

ZINC: EPA-D (Not Classifiable as to Human Carcinogenicity (inadequate human and animal evidence of carcinogenicity or no data available)

The other components of these products are not found on the following lists: FEDERAL OSHA Z LIST, NTP, IARC, and CAL/OSHA and therefore are not considered to be, nor suspected to be, cancer-causing agents by these agencies.

IRRITANCY OF PRODUCT: Dusts or fumes of these products may be irritating to contaminated skin and eyes. Fumes may be irritating to the respiratory system.

SENSITIZATION TO THE PRODUCT: There is some evidence that inhalation of fumes from the Ammonium Chloride component of some of these products may cause respiratory sensitization in susceptible individuals. Symptoms may include difficulty breathing, persistent coughing and wheezing. Contact with the paste flux can result in allergic reaction and skin sensitization in susceptible individuals.

REPRODUCTIVE TOXICITY INFORMATION: Listed below is information concerning the effects of these products and their components on the human reproductive system.

Mutagenicity: These products are not reported to produce mutagenic effects in humans. Cytogenic analysis studies of human cells (cell type and duration of exposure unreported) have produced positive results at a level of 50 µg/mL. In *vitro* assays of human lymphocytes indicate that the Zinc Chloride may cause chromosomal aberrations. In animal studies, positive mutagenic results (chromosome aberrations) have been reported in rats, mice and monkeys exposed orally to the Lead component of these products. Positive results were obtained in chromosomal aberrations tests involving the Ammonium Chloride component of these products using cultured Chinese hamster fibroblast cells, with no metabolic agitation.

Embryotoxicity These products are not reported to produce embryotoxic effects in humans. There is evidence that high Lead levels in human mother's blood can significantly increase the risk of spontaneous abortions. The Lead, and Zinc Chloride components of these products have produced embryotoxic effects in animal studies.

Teratogenicity: These products are not reported to cause teratogenic effects in humans. Lead has an adverse effect on human fetuses, particularly in the later stages of development. Distribution of Lead in fetal tissues was examined in a case in which a woman was exposed during pregnancy. The female worker was exposed to Lead dust for 8 hours daily when conception occurred. Measurements of Lead content were started after the end of the exposure and continued for 6 months until normal values were obtained. Because of half-life of nearly 20 days for Lead elimination from blood, the estimated body burden at the end of exposure was about 1200 ppb. The fetal tissue samples contained between 0.4 (brain) and 7.9 (liver) µg Pb/grams dry weight. The fetal Lead was stored mainly in bone, blood, and liver. The Lead component of this product has produced teratogenic effects in animal studies.

Reproductive Toxicity: These products are not reported to cause reproductive effects in humans; however, the Lead component of this product has produced embryotoxic effects in humans. There is convincing evidence that Lead is transferred to neonates via maternal milk. It appears that maternal milk might be a source of Lead for the neonates, particularly when metal levels are elevated in the mother. Chronic exposure to Lead in human males has been found to produce infertility, germinal epithelium damage, oligospermia and testicular degeneration, decreased sperm motility, and prostatic hyperplasia. The Lead component of this product has produced reproductive effects in animal studies. Injections of the Zinc Chloride component of these products has produced testicular tumors in animal tests.

A mutagen is a chemical, which causes permanent changes to genetic material (DNA) such that the changes will propagate through generational lines. An embryotoxin is a chemical, which causes damage to a developing embryo (i.e., within the first eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A teratogen is a chemical, which causes damage to a developing fetus, but the damage does not propagate across generational lines. A reproductive toxin is any substance, which interferes in any way with the reproductive process.

11. TOXICOLOGICAL INFORMATION (Continued)

BIOLOGICAL EXPOSURE INDICES: The following BEIs are applicable to the Lead component of these products.

CHEMICAL DETERMINANT	SAMPLING TIME	BEI
LEAD <ul style="list-style-type: none">Lead in blood Note: Women of child-bearing potential, whose blood Pb exceeds 10 µg/dl, are at risk of delivering a child with a blood Pb over the current Centers for Disease control guideline of 10 µg/dl. If the blood Pb of such children remains elevated, they may be at increased risk of cognitive deficits. The blood Pb of these children should be closely monitored and appropriate steps should be taken to minimize the child's exposure to environmental Lead.	<ul style="list-style-type: none">Not Critical	<ul style="list-style-type: none">30 µg/100 mL

12. ECOLOGICAL INFORMATION

ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.

ENVIRONMENTAL STABILITY: Components of these products will react with water and air to form a variety of stable metal oxides.

ZINC: Solubility: Insoluble in water. Biological Half-Life for normal humans 162-500 days. Bioconcentration: The Bioconcentration Factor in edible portions of *Crassostrea virginica*, adult oyster is 16,700 (total Zinc).

EFFECT OF MATERIAL ON PLANTS or ANIMALS: Due to the Lead component, adverse effect may occur to animals which come into contact with these products. No data is available on the components of these products and plants

EFFECT OF CHEMICAL ON AQUATIC LIFE: Due to the Lead component of these products, a release of product to an aquatic environment may have a significant adverse effect.

ZINC: Odorless Zinc poisoning causes inflamed gills in fish. Laboratory studies of Atlantic salmon, rainbow trout, carp, and goldfish have shown avoidance reactions by these fish to Zinc in water.

13. DISPOSAL CONSIDERATIONS

PREPARING WASTES FOR DISPOSAL: Waste disposal must be in accordance with appropriate Federal, State, and local regulations. These products, if unaltered by use, may be disposed of by treatment at a permitted facility or as advised by your local hazardous waste regulatory authority.

EPA WASTE NUMBER: Wastes of these products should be tested per the Toxicity Characteristic Leaching Procedures requirements of RCRA to determine if such wastes meet the following characteristics: D008 (Lead).

14. TRANSPORTATION INFORMATION

THESE PRODUCTS ARE NOT HAZARDOUS (Per 49 CFR 172.101) BY THE U.S. DEPARTMENT OF TRANSPORTATION.

PROPER SHIPPING NAME: Not applicable.

HAZARD CLASS NUMBER and DESCRIPTION: Not applicable.

UN IDENTIFICATION NUMBER: Not applicable.

PACKING GROUP: Not applicable.

DOT LABEL(S) REQUIRED: Not applicable.

NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER, 2000: Not applicable.

MARINE POLLUTANT: No component of these products is designated as a marine pollutant by the Department of Transportation (49 CFR 172.101, Appendix B).

TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS: These products are not considered as dangerous goods, per regulations of Transport Canada.

15. REGULATORY INFORMATION

ADDITIONAL U.S. REGULATIONS:

U.S. SARA REPORTING REQUIREMENTS: The components of these products are subject to the reporting requirements of Sections 302, 304 and 313 of Title III of the Superfund Amendments and Reauthorization Act, as follows:

CHEMICAL NAME	SARA 302 (40 CFR 355, Appendix A)	SARA 304 (40 CFR Table 302.4)	SARA 313 (40 CFR 372.65)
Ammonium Chloride	NO	YES	NO
Lead	NO	YES	YES
Zinc	NO	YES	YES (fume or dust)
Zinc Chloride	NO	YES	NO

U.S. SARA THRESHOLD PLANNING QUANTITY: There are no specific Threshold Planning Quantities for any component of these products. The default Federal MSDS submission and inventory requirement filing threshold of 10,000 lb (4,540 kg) may apply, per 40 CFR 370.20.

15. REGULATORY INFORMATION (Continued)

ADDITIONAL U.S. REGULATIONS (continued):

U.S. TSCA INVENTORY STATUS: The components of these products are listed on the TSCA Inventory.

U.S. CERCLA REPORTABLE QUANTITY (RQ): Ammonium Chloride = 5000 lb (2270 kg); Lead = 10 lb (4.540 kg); Zinc Chloride = 1000 lb (454 kg) ;Zinc = 1000 lbs. (for metal particles under 100 micrometers in diameter).

OTHER U.S. FEDERAL REGULATIONS: Components of these products have requirements under other U.S. Federal regulations, as follows:

AMMONIUM CHLORIDE: EPA: Ammonium Chloride is designated as a hazardous substance under Section 311(b)(2)(A) of the Federal Water Pollution Control Act and further regulated by the Clean Water Act Amendments of 1977 and 1978. These regulations apply to discharges of this substance.

LEAD: EPA: Lead is listed as a hazardous air pollutant (HAP) generally known or suspected to cause serious health problems. The Clean Air Act, as amended in 1990, directs EPA to set standards requiring major sources to sharply reduce routine emissions of toxic pollutants. EPA is required to establish and phase in specific performance based standards for all air emission sources that emit one or more of the listed pollutants. Lead is included on this list. Lead is designated as a toxic pollutant, pursuant to Section 307(a)(1) of the Clean Water Act and is subject to effluent limitations. Lead is designated as a hazardous substance under Section 311(b)(2)(A) of the Federal Water Pollution Control Act and further regulated by the Clean Water Act Amendments of 1977 and 1978. These regulations apply to discharges of Lead.

OSHA: Employers are required to follow the exposure limits and other requirements as defined under the Lead Standard, 29 CFR 1910.1025.

ZINC CHLORIDE: EPA: Zinc Chloride is designated as a hazardous substance under Section 311(b)(2)(A) of the Federal Water Pollution Control Act and further regulated by the Clean Water Act Amendments of 1977 and 1978. These regulations apply to discharges of this substance. Zinc Chloride is a designated as a toxic pollutant designated pursuant to Section 307(a)(1) of the Clean Water Act and is subject to effluent limitations.

U.S. STATE REGULATORY INFORMATION: The components of these products are covered under specific State regulations, as denoted below:

Alaska-Designated Toxic and Hazardous Substances: Ammonium Chloride, Lead, and Zinc Chloride.

California-Permissible Exposure Limits for Chemical Contaminants: Ammonium Chloride, Lead, Tin, and Zinc Chloride.

Florida-Substance List: Ammonium Chloride, Lead, Tin, Zinc, and Zinc Chloride.

Illinois-Toxic Substance List: Ammonium Chloride, Lead, Zinc, and Zinc Chloride.

Kansas-Section 302/313 List: Lead and Zinc.

Massachusetts-Substance List: Ammonium Chloride, Lead, Tin, Zinc ,and Zinc Chloride.

Michigan - Critical Materials Register: Lead.

Minnesota-List of Hazardous Substances: Ammonium Chloride, Lead, Tin, and Zinc Chloride.

Missouri-Employer Information/Toxic Substance List: Ammonium Chloride, Lead, Tin, and Zinc Chloride.

New Jersey-Right to Know Hazardous Substance List: Ammonium Chloride, Lead, Tin, Zinc, and Zinc Chloride.

North Dakota-List of Hazardous Chemicals, Reportable Quantities: Ammonium Chloride, Lead, Zinc, and Zinc Chloride.

Pennsylvania-Hazardous Substance List: Ammonium Chloride, Lead, Tin, Zinc ,and Zinc Chloride.

Rhode Island-Hazardous Substance List: Ammonium Chloride, Tin, Zinc, and Zinc Chloride.

Texas-Hazardous Substance List: Lead, Tin, and Zinc Chloride.

West Virginia-Hazardous Substance List: , Tin, Zinc Chloride.

Wisconsin-Toxic and Hazardous Substances: Lead, Tin, and Zinc Chloride.

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65): The Lead component of these products is on the California Proposition 65 Lists. **WARNING: These products contain a chemical that is known to the State of California to cause cancer and reproductive harm. In addition, these products, when used for soldering may produce fumes or gases containing chemicals, known to the State of California to cause cancer, and/or birth defects (or other reproductive harm.)**

LABELING (Precautionary Statements): DANGER OF CUMULATIVE EFFECTS IF DUSTS OR FUMES ARE INHALED! POSSIBLE CANCER AND REPRODUCTIVE HAZARD. CONTAINS POTENTIAL TERATOGEN AND/OR MUTAGEN.

WARNING:

PROTECT yourself and others. Read and understand this information.

FUMES AND GASES can be hazardous to your health.

ARC RAYS can injure your eyes and burn skin.

ELECTRIC SHOCK can kill.

- Before use, read and understand the manufacturer's instructions. Material Safety Data Sheets (MSDSs), and your employer's safety policies.
- Keep your head out of the fumes.
- Use enough ventilation, exhaust at the arc, or both, to keep fumes and gases from your breathing zone and the general area.
- Wear correct eye, ear, and body protection.
- See American National Standard Z49.1 *Safety in Welding, Cutting, and Allied Processes*, published by the American Welding Society, 550 N.W. LeJeune Road, Miami, Florida 33126. OSHA Safety and Health Standards, 29 CFR 1910, available from the U.S. Government Printing Office, Washington, DC 20402.

DO NOT REMOVE THIS INFORMATION

15. REGULATORY INFORMATION (Continued)

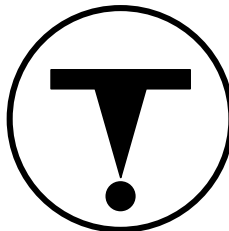
ADDITIONAL CANADIAN REGULATIONS:

CANADIAN DSL/NDL INVENTORY STATUS: The components of these products are on the DSL Inventory.

OTHER CANADIAN REGULATIONS: Not applicable.

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) PRIORITIES SUBSTANCES LISTS: No component of these products are on the CEPA Priority Substances Lists (PSL).

CANADIAN WHMIS SYMBOLS: **D2A:** Poisonous and Infections Material - Other Effects: Very Toxic (chronic toxicity, embryotoxicity, teratogenicity, reproductive toxicity, carcinogenicity); **D2B:** - Poisonous and Infections Material - Other Effects: Toxic (mutagenicity).



16. OTHER INFORMATION

DATE OF PRINTING:

September 8, 2010

This Material Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard (29 CFR 1910.1200). Other government regulations must be reviewed for applicability to these products. The information contained herein relates only to the specific products. If the products are combined with other materials, all component properties must be considered. To the best of the Harris Products Group knowledge, the information and recommendations contained in this publication are reliable and accurate as of the date of issue. However, accuracy, suitability, or completeness are not guaranteed, and no warranty, guarantee, or representation, expressed or implied, is made by Harris Products Group as to the absolute correctness or sufficiency of any representation contained in this and other publications; Harris Products Group assumes no responsibility in connection therewith; nor can it be assumed that all acceptable safety measures may not be required under particular or exceptional conditions or circumstances. Data may be changed from time to time. Be sure to consult the latest edition.

DEFINITIONS OF TERMS

A large number of abbreviations and acronyms appear on a MSDS. Some of these, which are commonly used, include the following:

CAS #: This is the Chemical Abstract Service Number, which uniquely identifies each constituent.

EXPOSURE LIMITS IN AIR:

ACGIH - American Conference of Governmental Industrial Hygienists, a professional association which establishes exposure limits. **TLV** - Threshold Limit Value - an airborne concentration of a substance, which represents conditions under which it is generally believed that nearly all workers, may be repeatedly exposed without adverse effect. The duration must be considered, including the 8-hour Time Weighted Average (**TWA**), the 15-minute Short Term Exposure Limit, and the instantaneous Ceiling Level (**C**). Skin absorption effects must also be considered.

OSHA - U.S. Occupational Safety and Health Administration.

PEL - Permissible Exposure Limit - This exposure value means exactly the same as a TLV, except that it is enforceable by OSHA. The OSHA Permissible Exposure Limits are based in the 1989 PELs and the June, 1993 Air Contaminants Rule (*Federal Register*: 58: 35338-35351 and 58: 40191). Both the current PELs and the vacated PELs are indicated. The phrase, "Vacated 1989 PEL," is placed next to the PEL, which was vacated by Court Order. **IDLH** - Immediately Dangerous to Life and Health - This level represents a concentration from which one can escape within 30-minutes without suffering escape-preventing or permanent injury. **The DFG - MAK** is the Republic of Germany's Maximum Exposure Level, similar to the U.S. PEL. **NIOSH** is the National Institute of Occupational Safety and Health, which is the research arm of the U.S. Occupational Safety and Health Administration (**OSHA**). NIOSH issues exposure guidelines called Recommended Exposure Levels (**RELs**). When no exposure guidelines are established, an entry of **NE** is made for reference.

HAZARD RATINGS:

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM: Health Hazard: **0** (minimal acute or chronic exposure hazard); **1** (slight acute or chronic exposure hazard); **2** (moderate acute or significant chronic exposure

hazard); **3** (severe acute exposure hazard; onetime overexposure can result in permanent injury and may be fatal); **4** (extreme acute exposure hazard; onetime overexposure can be fatal). Flammability Hazard: **0** (minimal hazard); **1** (materials that require substantial pre-heating before burning); **2** (combustible liquid or solids; liquids with a flash point of 38-93°C [100-200°F]); **3** (Class IB and IC flammable liquids with flash points below 38°C [100°F]); **4** (Class IA flammable liquids with flash points below 23°C [73°F] and boiling points below 38°C [100°F]. Reactivity Hazard: **0** (normally stable); **1** (material that can become unstable at elevated temperatures or which can react slightly with water); **2** (materials that are unstable but do not detonate or which can react violently with water); **3** (materials that can detonate when initiated or which can react explosively with water); **4** (materials that can detonate at normal temperatures or pressures).

NATIONAL FIRE PROTECTION ASSOCIATION: Health Hazard: **0** (material that on exposure under fire conditions would offer no hazard beyond that of ordinary combustible materials); **1** (materials that on exposure under fire conditions could cause irritation or minor residual injury); **2** (materials that on intense or continued exposure under fire conditions could cause temporary incapacitation or possible residual injury); **3** (materials that can on short exposure could cause serious temporary or residual injury); **4** (materials that under very short exposure causes death or major residual injury). Flammability Hazard and Reactivity Hazard: Refer to definitions for "Hazardous Materials Identification System".

FLAMMABILITY LIMITS IN AIR:

Much of the information related to fire and explosion is derived from the National Fire Protection Association (**NFPA**). **Flash Point** - Minimum temperature at which a liquid gives off sufficient vapors to form an ignitable mixture with air. **Autoignition Temperature**: The minimum temperature required to initiate combustion in air with no other source of ignition. **LEL** - the lowest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source. **UEL** - the highest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source.

TOXICOLOGICAL INFORMATION:

Human and Animal Toxicology: Possible health hazards as derived from human data, animal studies, or from the results of studies with similar compounds is presented. Definitions of some terms used in this section are: **LD₅₀** - Lethal Dose (solids & liquids) which kills 50% of the exposed animals; **LC₅₀** - Lethal Concentration (gases) which kills 50% of the exposed animals; **ppm** concentration expressed in parts of material per million parts of air or water; **mg/m³** concentration expressed in weight of substance per volume of air; **mg/kg** quantity of material, by weight, administered to a test subject, based on their body weight in kg. Other measures of toxicity include **TDLo**, the lowest dose to cause a symptom and **TCLo** the lowest concentration to cause a symptom; **TDo**, **LDLo**, and **LDo**, or **TC**, **TCo**, **LCLo**, and **LCo**, the lowest dose (or concentration) to cause lethal or toxic effects. **Cancer Information**: The sources are: **IARC** - the International Agency for Research on Cancer; **NTP** - the National Toxicology Program, **RTECS** - the Registry of Toxic Effects of Chemical Substances, **OSHA** and **CAL/OSHA**. IARC and NTP rate chemicals on a scale of decreasing potential to cause human cancer with rankings from 1 to 4. Subrankings (2A, 2B, etc.) are also used. **Other Information**: **BEI** - ACGIH Biological Exposure Indices, represent the levels of determinants which are most likely to be observed in specimens collected from a healthy worker who has been exposed to chemicals to the same extent as a worker with inhalation exposure to the TLV. **Ecological Information**: **EC** is the effect concentration in water. **BCF** = Bioconcentration Factor, which is used to determine if a substance will concentrate in lifeforms which consume contaminated plant or animal matter. Coefficient of Oil/Water Distribution is represented by **log K_{ow}** or **log K_{oc}** and is used to assess a substance's behavior in the environment.

REGULATORY INFORMATION:

This section explains the impact of various laws and regulations on the material. **U.S.**: **EPA** is the U.S. Environmental Protection Agency. **DOT** is the U.S. Department of Transportation. **SARA** is the Superfund Amendments and Reauthorization Act. **TSCA** is the U.S. Toxic Substance Control Act. **CERCLA (or Superfund)** refers to the Comprehensive Environmental Response, Compensation, and Liability Act. Labeling is per the American National Standards Institute (**ANSI Z129.1**). **CANADA**: **CEPA** is the Canadian Environmental Protection Act. **WHMIS** is the Canadian Workplace Hazardous Materials Information System. **TC** is Transport Canada. **DSL/NDL** are the Canadian Domestic/Non-Domestic Substances Lists. **The CPR is the Canadian Product Regulations**. This section also includes information on the precautionary warnings, which appear, on the materials package label.

Material Safety Data Sheet

acc. to ISO/DIS 11014

Printing date 10/18/2012

Reviewed on 10/18/2012

1 Identification of substance

- **Product details**
- **Trade name:** Pro-Poxy™ Type III DOT - Part A
- **Article number:** 87-140302A
- **Application of the substance / the preparation**

- **Manufacturer/Supplier:**

Unitex®
3101 Gardner
Kansas city, MO 64120

Tel: (800) 821-5846

Fax: (816) 483-3149

Emergency Telephone Number: Use only in the event of an emergency involving a spill, leak, fire, exposure, or accident involving chemicals. Within the U.S., Canada, or the U.S. Virgin Islands, call ChemTrec at (800) 424-9300, 24 hours a day. Or, outside these areas, call (703) 527-3887. Collect calls are accepted.

- **Information department:** Environmental, Health, and Safety department.

2 Composition/Data on components

- **Chemical characterization:**
- **CAS No. Description**
25068-38-6 reaction product: bisphenol-A-(epichlorhydrin) epoxy resin
(number average molecular weight = 700)
- **Identification number(s)** Not applicable
- **EINECS Number:** 500-033-5
- **EU Number:** 603-074-00-8

3 Hazards identification

- **Hazard description:** May cause eye and skin irritation. Prolonged contact may cause sensitization.
- **Information pertaining to particular dangers for man and environment:** Not applicable.
- **Classification system:**
- **NFPA ratings (scale 0 - 4)**



- **HMIS-ratings (scale 0 - 4)**

HEALTH	1	Health = 1
FIRE	1	Fire = 1
PHYSICAL HAZARD	0	Reactivity = 0

4 First aid measures

- **After inhalation:**
Supply fresh air and to be sure call for a doctor.
In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:**
Immediately wash with water and soap and rinse thoroughly.
If skin irritation continues, consult a doctor.
- **After eye contact:** Rinse opened eye for several minutes under running water.

(Contd. on page 2)

Material Safety Data Sheet

acc. to ISO/DIS 11014

Printing date 10/18/2012

Reviewed on 10/18/2012

Trade name: **Pro-Poxy™ Type III DOT - Part A**

(Contd. of page 1)

· **After swallowing:** Seek medical treatment.

5 Fire fighting measures

- **Suitable extinguishing agents:**
CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Protective equipment:**
Because fire may produce thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full face piece operated in pressure-demand or positive-pressure mode.

6 Accidental release measures

- **Person-related safety precautions:** Wear protective equipment. Keep unprotected persons away.
- **Measures for environmental protection:**
Inform respective authorities in case of seepage into water course or sewage system.
- **Measures for cleaning/collecting:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

7 Handling and storage

- **Handling:**
- **Information for safe handling:**
Wear appropriate personal protective clothing to prevent eye and skin contact. Avoid breathing vapors or mists of this product. Use with adequate ventilation. Do not take internally.
- **Information about protection against explosions and fires:** No special measures required.
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a cool dry location.
- **Information about storage in one common storage facility:** Store away from incompatible materials.
- **Further information about storage conditions:** Keep receptacle tightly sealed.

8 Exposure controls and personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Components with limit values that require monitoring at the workplace:** Not required.
- **Additional information:** The lists that were valid during the creation were used as basis.
- **Personal protective equipment:**
- **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
- **Breathing equipment:** Not required.
- **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

(Contd. on page 3)

Material Safety Data Sheet

acc. to ISO/DIS 11014

Printing date 10/18/2012

Reviewed on 10/18/2012

Trade name: Pro-Poxy™ Type III DOT - Part A

(Contd. of page 2)

· **Eye protection:** Wear appropriate eye protection to prevent eye contact.

9 Physical and chemical properties

· General Information

Form: Liquid
Color: Clear to Light Amber
Odor: Mild

· Change in condition

Melting point/Melting range: Undetermined.
Boiling point/Boiling range: Undetermined.

· **Flash point:** > 94°C (> 201°F)

· **Danger of explosion:** Product does not present an explosion hazard.

· **Density:** Not determined.

· Solubility in / Miscibility with

Water: Not miscible or difficult to mix.
Organic solvents: 0.0 %

· **Solids content:** 100.0 %

· **Volatile Organic Compounds:** Not determined

10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Dangerous reactions** Reacts with acids, alkalis and oxidizing agents.
- **Dangerous products of decomposition:**
Carbon monoxide and carbon dioxide
Nitrogen oxides

11 Toxicological information

- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** May cause skin irritation.
- **on the eye:** Irritating effect.
- **Sensitization:** Sensitization possible through skin contact.

12 Ecological information

- **Ecotoxicological effects:**
- **Remark:** Toxic for fish
- **General notes:**
Water hazard class 1 (Assessment by list): slightly hazardous for water
Water hazard class 2 (Assessment by list): hazardous for water
Do not allow product to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.
Also poisonous for fish and plankton in water bodies.

(Contd. on page 4)

Material Safety Data Sheet

acc. to ISO/DIS 11014

Printing date 10/18/2012

Reviewed on 10/18/2012

Trade name: Pro-Poxy™ Type III DOT - Part A

(Contd. of page 3)

Toxic for aquatic organisms

13 Disposal considerations

- **Product:**

- **Recommendation:**

Must not be disposed of as normal garbage. Do not allow product to reach sewage system.

It is the generator's responsibility to determine if the waste meets applicable definitions of hazardous waste. State and local regulations may differ from federal disposal regulations. Dispose of waste material according to local, state, federal, and provincial environmental regulations.

- **Uncleaned packagings:**

- **Recommendation:** Disposal must be made according to Federal, State, and Local regulations.

14 Transport information

- **DOT regulations:**

Not Regulated

- **Hazard class:**

N/A

- **Packing group:**

III

- **Remarks:**

Add "Marine Pollutant" to end of proper shipping name if shipping in a bulk container (>119 gallons).

- **Limited Quantity Exemption:**

No Limited Quantity exemption applies for this shipping class.

- **U.S. Domestic Ground Shipments:**

Same as listed for Standard Shipments above.

- **U.S. Domestic Ground Non-Bulk (119 gal or less per container) Shipments:**

Same as listed for Standard Shipments above.

- **Emergency Response Guide (ERG) Number:**

Not determine

- **Land transport ADR/RID (cross-border):**

- **ADR/RID class:**

N/A

- **UN-Number:**

- **Packaging group:**

III

- **Maritime transport IMDG:**



- **IMDG Class:**

9

- **UN Number:**

3082

- **Label**

9

- **Packaging group:**

III

- **Marine pollutant:**

Yes

- **Propper shipping name:**

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(epoxy resin)

- **Air transport ICAO-TI and IATA-DGR:**

- **ICAO/IATA Class:**

-

- **Packaging group:**

III

USA

(Contd. on page 5)

Material Safety Data Sheet

acc. to ISO/DIS 11014

Printing date 10/18/2012

Reviewed on 10/18/2012

Trade name: Pro-Poxy™ Type III DOT - Part A

(Contd. of page 4)

15 Regulations

· Sara

· Section 355 (extremely hazardous substances):

Substance is not listed.

· Section 313 (Specific toxic chemical listings):

This product may contain 1 or more toxic chemicals subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR part 372. If so, the chemicals are listed below.

Substance is not listed.

· TSCA (Toxic Substances Control Act):

Substance is listed.

· Proposition 65

· Chemicals known to the State of California (Prop. 65) to cause cancer:

Substance is listed.

· Chemicals known to cause reproductive toxicity for females:

Substance is not listed.

· Chemicals known to cause reproductive toxicity for males:

Substance is not listed.

· Chemicals known to cause developmental toxicity:

Substance is not listed.

· Cancerogenity categories

· EPA (Environmental Protection Agency)

Substance is not listed.

· IARC (International Agency for Research on Cancer)

Substance is not listed.

· NTP (National Toxicology Program)

Substance is not listed.

· TLV (Threshold Limit Value established by ACGIH)

Substance is not listed.

· MAK (German Maximum Workplace Concentration)

Substance is not listed.

· NIOSH-Ca (National Institute for Occupational Safety and Health)

Substance is not listed.

· OSHA-Ca (Occupational Safety & Health Administration)

Substance is not listed.

· Product related hazard informations:

The product has been classified and marked in accordance with directives on hazardous materials.

· Hazard symbols:

Xi Irritant

N Dangerous for the environment

· Hazard-determining components of labelling:

reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number averagemolecular weight = 700)

(Contd. on page 6)

Material Safety Data Sheet

acc. to ISO/DIS 11014

Printing date 10/18/2012

Reviewed on 10/18/2012

Trade name: Pro-Poxy™ Type III DOT - Part A

(Contd. of page 5)

· Risk phrases:

36/38 Irritating to eyes and skin.

43 May cause sensitisation by skin contact.

51/53 Toxic to aquatic organisms, may cause long-term adverse effects
in the aquatic environment.**· Safety phrases:**

2 Keep out of the reach of children.

28 After contact with skin, wash immediately with plenty of ... (to be
specified by the manufacturer).

37/39 Wear suitable gloves and eye/face protection.

61 Avoid release to the environment. Refer to special
instructions/safety data sheets.**· Special labeling of certain preparations:**Contains epoxy constituents. See information supplied by the
manufacturer.**· National regulations:****· Water hazard class:** Water hazard class 2 (Assessment by list): hazardous for water.**16 Other information**

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Department issuing MSDS: Environmental, Health & Safety Department**· Contact:** Environmental, Health & Safety Manager

Material Safety Data Sheet

acc. to ISO/DIS 11014

Printing date 10/18/2012

Reviewed on 10/18/2012

1 Identification of substance

- **Product details**
- **Trade name:** Pro-Poxy™ Type III DOT - Part B
- **Article number:** 87-140302B
- **Application of the substance / the preparation**

- **Manufacturer/Supplier:**

Unitex®
3101 Gardner
Kansas city, MO 64120

Tel: (800) 821-5846

Fax: (816) 483-3149

Emergency Telephone Number: Use only in the event of an emergency involving a spill, leak, fire, exposure, or accident involving chemicals. Within the U.S., Canada, or the U.S. Virgin Islands, call ChemTrec at (800) 424-9300, 24 hours a day. Or, outside these areas, call (703) 527-3887. Collect calls are accepted.

- **Information department:** Environmental, Health, and Safety department.

2 Composition/Data on components

- **Chemical characterization**
- **Description:** Mixture of the substances listed below with nonhazardous additions.

- **Dangerous components:**

84852-15-3	4-nonylphenol, branched	25-50%
694-83-7	cyclohex-1,2-ylenediamine	10-25%
100-51-6	Benzyl alcohol	10-25%
90-72-2	2,4,6-tris(dimethylaminomethyl)phenol	≤ 10%

- **Additional information:** For the wording of the listed risk phrases refer to section 16.

3 Hazards identification

- **Hazard description:** Not applicable.
- **Information pertaining to particular dangers for man and environment:**
The product has to be labelled due to internationally acknowledged calculation procedures using the latest valid versions.
- **Classification system:**
The classification was made according to the latest editions of international substances lists, and expanded upon from company and literature data.
- **NFPA ratings (scale 0 - 4)**



- **HMIS-ratings (scale 0 - 4)**

HEALTH	3	Health = 3
FIRE	1	Fire = 1
PHYSICAL HAZARD	2	Reactivity = 2

USA

(Contd. on page 2)

Material Safety Data Sheet

acc. to ISO/DIS 11014

Printing date 10/18/2012

Reviewed on 10/18/2012

Trade name: Pro-Poxy™ Type III DOT - Part B

(Contd. of page 1)

4 First aid measures

- **General information:**

Immediately remove any clothing soiled by the product.

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

- **After inhalation:**

Supply fresh air and to be sure call for a doctor.

In case of unconsciousness place patient stably in side position for transportation.

- **After skin contact:**

Immediately wash with water and soap and rinse thoroughly.

If skin irritation continues, consult a doctor.

- **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.

- **After swallowing:**

Immediately call a doctor.

Drink copious amounts of water and provide fresh air. Immediately call a doctor.

Seek medical treatment.

5 Fire fighting measures

- **Suitable extinguishing agents:**

CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

- **Protective equipment:**

Because fire may produce thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full face piece operated in pressure-demand or positive-pressure mode.

6 Accidental release measures

- **Person-related safety precautions:** Wear protective equipment. Keep unprotected persons away.

- **Measures for environmental protection:**

Inform respective authorities in case of seepage into water course or sewage system.

- **Measures for cleaning/collecting:**

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Use neutralizing agent.

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

7 Handling and storage

- **Handling:**

- **Information for safe handling:**

Wear appropriate personal protective clothing to prevent eye and skin contact. Avoid breathing vapors or mists of this product. Use with adequate ventilation. Do not take internally.

- **Information about protection against explosions and fires:** No special measures required.

- **Storage:**

- **Requirements to be met by storerooms and receptacles:** Store in a cool dry location.

- **Information about storage in one common storage facility:** Store away from incompatible materials.

- **Further information about storage conditions:** Keep receptacle tightly sealed.

USA

(Contd. on page 3)

Material Safety Data Sheet

acc. to ISO/DIS 11014

Printing date 10/18/2012

Reviewed on 10/18/2012

Trade name: Pro-Poxy™ Type III DOT - Part B

(Contd. of page 2)

8 Exposure controls and personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Components with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- **Additional information:** The lists that were valid during the creation were used as basis.
- **Personal protective equipment:**
- **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
- **Breathing equipment:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
- **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

- **Eye protection:** Wear appropriate eye protection to prevent eye contact.

9 Physical and chemical properties

· General Information

Form: Liquid
Color: Amber
Odor: Slight Ammonia

· Change in condition

Melting point/Melting range: Undetermined.
Boiling point/Boiling range: Undetermined.

· **Flash point:** > 94°C (> 201°F)

· **Ignition temperature:** 315.0°C (599°F)

· **Auto igniting:** Product is not selfigniting.

· **Danger of explosion:** Product does not present an explosion hazard.

· Explosion limits:

Lower: 1.3 Vol %
Upper: 13.0 Vol %

· **Vapor pressure at 20°C (68°F):** 0.1 hPa (0 mm Hg)

· **Density at 20°C (68°F):** 0.970 g/cm³

· Solubility in / Miscibility with

Water: Not miscible or difficult to mix.

· Solvent content:

Organic solvents: 12.0 %

(Contd. on page 4)

Material Safety Data Sheet

acc. to ISO/DIS 11014

Printing date 10/18/2012

Reviewed on 10/18/2012

Trade name: Pro-Poxy™ Type III DOT - Part B

(Contd. of page 3)

- **Solids content:** 100 %
- **Volatile Organic Compounds:** Not determined

10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Dangerous reactions** No dangerous reactions known.
- **Dangerous products of decomposition:** No dangerous decomposition products known.

11 Toxicological information

- **Acute toxicity:**
- **LD/LC50 values that are relevant for classification:**

140-31-8 2-piperazin-1-ylethylamine

Oral	LD50	2140 mg/kg (rat)
Dermal	LD50	880 mg/kg (rabbit)

- **Primary irritant effect:**
- **on the skin:** Caustic effect on skin and mucous membranes.
- **on the eye:** Strong caustic effect.
- **Sensitization:** Sensitization possible through skin contact.
- **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Harmful
Corrosive
Irritant
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

12 Ecological information

- **Ecotoxicological effects:**
- **Remark:** Very toxic for fish
- **General notes:**
Water hazard class 3 (Self-assessment): extremely hazardous for water
Do not allow product to reach ground water, water course or sewage system, even in small quantities.
Water hazard class 1 (Self-assessment): slightly hazardous for water
Must not reach bodies of water or drainage ditch undiluted or unneutralized.
Also poisonous for fish and plankton in water bodies.
Very toxic for aquatic organisms

13 Disposal considerations

- **Product:**
- **Recommendation:**
Must not be disposed of as normal garbage. Do not allow product to reach sewage system.
It is the generator's responsibility to determine if the waste meets applicable definitions of hazardous waste. State and local regulations may differ from federal disposal regulations. Dispose of waste material according to local, state, federal, and provincial environmental regulations.

(Contd. on page 5)

Material Safety Data Sheet

acc. to ISO/DIS 11014

Printing date 10/18/2012

Reviewed on 10/18/2012

Trade name: Pro-Poxy™ Type III DOT - Part B

(Contd. of page 4)

- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to Federal, State, and Local regulations.

14 Transport information

· DOT regulations:



- **Hazard class:** 8
- **Identification number:** UN1760
- **Packing group:** III
- **Proper shipping name (technical name):** CORROSIVE LIQUID, N.O.S. (Nonyl phenol)
- **Label:** 8
- **Remarks:** Add "Marine Pollutant" to end of proper shipping name if shipping in a bulk container (>119 gallons).
- **Limited Quantity Exemption:** Limited Quantity applies for inner packages 1 gallon or smaller.
- **U.S. Domestic Ground Shipments:** Same as listed for Standard Shipments above.
- **U.S. Domestic Ground Non-Bulk (119 gal or less per container) Shipments:** Same as listed for Standard Shipments above.
- **Emergency Response Guide (ERG) Number:** Not determine

· Land transport ADR/RID (cross-border):



- **ADR/RID class:** 8 Corrosive substances
- **UN-Number:** 1760
- **Packaging group:** III
- **Description of goods:** 1760 CORROSIVE LIQUID, N.O.S. (Nonyl phenol)

· Maritime transport IMDG:



- **IMDG Class:** 8
- **UN Number:** 1760
- **Label:** 8
- **Packaging group:** III
- **Marine pollutant:** Yes
- **Propper shipping name:** CORROSIVE LIQUID, N.O.S. (Nonyl phenol)

· Air transport ICAO-TI and IATA-DGR:



- **ICAO/IATA Class:** 8

(Contd. on page 6)

Material Safety Data Sheet

acc. to ISO/DIS 11014

Printing date 10/18/2012

Reviewed on 10/18/2012

Trade name: Pro-Poxy™ Type III DOT - Part B

(Contd. of page 5)

· UN/ID Number:	1760
· Label	8
· Packaging group:	III
· Propper shipping name:	CORROSIVE LIQUID, N.O.S. (Nonyl phenol)

15 Regulations

· Sara

· **Section 355 (extremely hazardous substances):**

None of the ingredient is listed.

· **Section 313 (Specific toxic chemical listings):**

This product may contain 1 or more toxic chemicals subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR part 372. If so, the chemicals are listed below.

None of the ingredients is listed.

· **TSCA (Toxic Substances Control Act):**

All ingredients are listed.

· **Proposition 65**

· **Chemicals known to the State of California (Prop. 65) to cause cancer:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients is listed.

· **Cancerogenity categories**

· **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

· **IARC (International Agency for Research on Cancer)**

None of the ingredients is listed.

· **NTP (National Toxicology Program)**

None of the ingredients is listed.

· **TLV (Threshold Limit Value established by ACGIH)**

None of the ingredients is listed.

· **MAK (German Maximum Workplace Concentration)**

None of the ingredients is listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

· **Product related hazard informations:**

The product has been classified and marked in accordance with directives on hazardous materials.

(Contd. on page 7)

Material Safety Data Sheet

acc. to ISO/DIS 11014

Printing date 10/18/2012

Reviewed on 10/18/2012

Trade name: **Pro-Poxy™ Type III DOT - Part B**

(Contd. of page 6)

· **Hazard symbols:***C Corrosive**N Dangerous for the environment*· **Hazard-determining components of labelling:***cyclohex-1,2-ylenediamine**2-piperazin-1-ylethylamine**4-nonylphenol, branched*· **Risk phrases:**22 *Harmful if swallowed.*34 *Causes burns.*43 *May cause sensitisation by skin contact.*62 *Possible risk of impaired fertility.*50/53 *Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.*63 *Possible risk of harm to the unborn child.*· **Safety phrases:**2 *Keep out of the reach of children.*13 *Keep away from food, drink and animal feedingstuffs.*20 *When using do not eat or drink.*23 *Do not breathe gas/fumes/vapour/spray (appropriate wording to be specified by the manufacturer).*25 *Avoid contact with eyes.*26 *In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.*27/28 *After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water.*29/56 *Do not empty into drains, dispose of this material and its container at hazardous or special waste collection point.*36/37/39 *Wear suitable protective clothing, gloves and eye/face protection.*45 *In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).*52 *Not recommended for interior use on large surface areas.*57 *Use appropriate container to avoid environmental contamination.*60 *This material and its container must be disposed of as hazardous waste.*64 *If swallowed, rinse mouth with water (only if the person is conscious).*· **National regulations:**· **Water hazard class:** Water hazard class 3 (Self-assessment): extremely hazardous for water.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing MSDS:** Environmental, Health & Safety Department· **Contact:** Environmental, Health & Safety Manager



Material Safety Data Sheet

Expansion Joint Systems

J & JP Series Sealing Systems Adhesive - Part A

Bridges

REV 07/12

SECTION I – Material Identification

Material Name: J & JP Series Sealing Systems Adhesive - Part A

Manufacturer: Erie Metal Specialties, Inc.
13311 Main Road, Akron, NY 14001

Supplier: The D.S. Brown Company
300 East Cherry Street
North Baltimore, Ohio 45872

Emergency Phone: (419) 257-3561

Chem-Trec: (800) 424-9300

SECTION II – Hazardous Ingredients

Hazardous Ingredients	CAS Number	WT%	Exposure Limits OSHA (PEL/TWA)	ACVGIH (TLV/TWA)
Epoxy Resins	25085-99-8	60 to 100	N/A	N/A
Aliphatic Glycidyl Ether	17557-23-2	10 to 30	N/A	N/A
Fumed Amorphous Silica	7631-86-9	3 to 7	N/A	N/A

SECTION III – Hazards Identification

Potential Health Hazards – Acute

Eye: Causes eye irritation. Direct contact with the liquid or exposure to its vapors may cause burning, tearing and redness. Effects of contact may not show for several hours.

Skin: May cause dermatitis. Prolonged or repeated exposure may cause redness and burning, drying and cracking of the skin.

Inhalation: Will result in respiratory tract irritation.

Ingestion: Harmful if swallowed. May cause abdominal pain, vomiting and diarrhea.

Potential Health Effects – Chronic

Not applicable

	NTP	IARC Monographs	OSHA Regulated
Carcinogenicity:	NO	NO	NO
Teratogenicity:	N/A	N/A	N/A

SECTION IV – First Aid Measures

Eye: Immediately flush with plenty of clean water for at least 15 minutes and seek immediate medical attention.

Skin: Remove contaminated clothing. Clean affected area(s) thoroughly with soap and water.

Inhalant: Remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration.

Ingestion: Induce vomiting if large amounts are ingested. Transport to a medical facility.

Seek Medical Attention If Symptoms Persist.

SECTION V – Fire-Fighting Measures

Flammability: No

Flash Point (Setaflash Closed Cup): 177°C

Flammable Limits (% volume in air):

Lower: No data available
Upper: No data available

Auto Ignition Temperature: N/A

J & JP Series Sealing Systems | Expansion Joint Systems

Adhesive - Part A

2 of 3

Extinguishing Media: Extinguish with water spray, water fog, CO₂ or foam.

Hazard Combustion Products: Carbon monoxide, carbon dioxide, phenolics

Fire-Fighting Instructions: Closed containers may rupture violently when exposed to heat. Irritating vapors may be released during a spill. Combustion by-products may be hazardous. Use water only to cool containers to disperse vapors. Do not incinerate closed containers. Do not enter confined fire space without full bunker gear including a positive pressure, NIOSH-approved, self-contained breathing apparatus (SCBA).

SECTION VI – Reactivity Data

Stability: Stable

Incompatibility: N/A

Decomposition Products: Not available

Hazardous Polymerization: May occur with greater than 1 pound of amines.

Conditions to Avoid: N/A

SECTION VII – Toxicological Information

Route of Entry: Skin contact, eye contact, skin absorption, inhalation

Components	Oral LD 50 (Rat)	Inhalation LC50 (Rat)
Epoxy Resins	5000 mg/kg	N/A
Aliphatic Glycidyl Ether	4500 mg/kg	N/A
Fumed Amorphous Silica	N/A	N/A

SECTION VIII – Handling and Storage Precautions

Handling: Avoid inhalation, skin and eye contact. Practice good personal hygiene. Wash repeatedly with soap and water during the work day.

Ventilation: Mechanical and local exhaust should be used for indoor use.

Personal Protection: Wear clean long-sleeved body-covering clothing. Use impervious gloves, chemical splash goggles and full-face shield. When respiratory protection is required, use an approved air purifying respirator.

Storage: Store containers tightly closed with adequate ventilation in a cool dry area.

SECTION IX – Physical and Chemical Properties

Appearance: White liquid

Odor: Epoxy

Boiling Point: 149°C

Melting Point: Not applicable

Vapor Pressure (m/HG): N/A

Vapor Density: (Air = 1): N/A

Solubility in Water: Slight

Specific Gravity (H20=1): 1.17

Evaporation Rate: (n-Butyl Acetate = 1): Not applicable

% Volatiles per Volume: 0.00

SECTION X – Accidental Release Measures

Spill: Remove all sources of ignition (flames, sparks, etc.) Provide adequate ventilation. Avoid prolonged breathing of vapors. Remove to a container or absorb with clay, diatomaceous earth or other suitable inert absorbent.

Disposal: Dispose of in accordance with all federal, state and local regulations. If uncertain of local requirements, contact the proper environmental authorities for information on waste disposal.

SECTION XI – Proper D.O.T. Shipping Information

Not regulated

Cebreg System Adhesive Part A

SECTION XII – U.S. Regulatory Information

OSHA: This material is hazardous by definition of Hazardous Communications Standard (29 CFR 1910.1200)

SARA Title III: Section 311/312 hazard categories acute health, delayed health, fire

SECTION XIII – U.S. Regulatory Information

This MSDS complies with 20 CFR 1910.1200 (THE HAZARD COMMUNICATION STANDARD). Although the information and recommendations set forth herein (hereinafter "information") are presented in good faith and believed to be correct as of the date hereof, The D.S. Brown Company makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that

J & JP Series Sealing Systems | Expansion Joint Systems
Adhesive - Part A

3 of 3

persons receiving same will make their own determination as to its suitability for their purposes prior to use. In no event will The D.S. Brown Company be responsible for damages of any nature whatsoever resulting from the use of, misuse or reliance upon information. No representations or warranties, either expressed or implied, or merchantability, fitness for a particular purpose or any other nature are made hereunder with respect to information or the product to which information refers. Regulatory requirements are subject to change and may differ from one location to another. It is the buyer's responsibility to ensure its activities comply with federal, state or provincial, and local laws and regulations.

Issue Date: 12/11/08**Supersedes:** 1/07/02**Prepared by:** The D.S. Brown Company, 300 East Cherry Street, North Baltimore, Ohio 45872



Material Safety Data Sheet

Expansion Joint Systems

J & JP Series Sealing Systems Adhesive - Part B

Bridges

REV 07/12

SECTION I – Material Identification

Material Name: J & JP Series Sealing Systems Adhesive - Part B

Manufacturer: Erie Metal Specialties, Inc.
13311 Main Road, Akron, NY 14001

Supplier: The D.S. Brown Company
300 East Cherry Street
North Baltimore, Ohio 45872
(419) 257-3561

Emergency Phone: **CHEMTREC:** (800) 424-9300

SECTION II – Hazardous Ingredients

Hazardous Ingredients	CAS Number	WT%	Exposure Limits OSHA (PEL/TWA)	ACVGIH (TLV/TWA)
Polyamide Resin	68410-23-1	60 to 100	N/A	N/A
Nepheline Syenite	37244-96-5	15 to 40	5	10
N-Aminoethylpiperazine	140-31-8	10 to 30	N/A	N/A
Bisphenol "A"	80-05-7	10 to 30	N/A	N/A
Fumes Silica	67762-90-7	3 to 7	N/A	N/A
Benzyltrimethylamine	103833	3 to 7	N/A	N/A
Amino Silane	1760-2403	1 to 5	N/A	N/A
Glycerol	56-81-5	1 to 5	10	N/A
Organophillic Clay	71011-26-2	1 to 5	15	N/A
Propylene Carbonate	108-32-7	0.1 to 1.0	N/A	N/A

SECTION III – Hazards Identification

Potential Health Hazards – Acute

Eye: Will result in severe eye irritation and burns.

Skin: Will result in severe skin irritation and burns.

Inhalation: May result in severe respiratory tract irritation and burns.

Ingestion: Harmful if swallowed. May lead to gastrointestinal irritation and ulceration.

Potential Health Effects – Chronic
N/A

Carcinogenicity: No

Teratogenicity: N/A

Sensitization: Yes; Skin and Respiratory

Reproductive Toxicity: N/A

Mutagenicity: N/A

Synergistic Products: None known

SECTION IV – First Aid Measures

Eye: Immediately flush with plenty of clean water for at least 15 minutes and seek immediate medical attention.

Skin: Remove contaminated clothing. Clean affected area(s) thoroughly with soap and water.

Inhalant: Remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration.

Ingestion: DO NOT INDUCE VOMITING. Administer large amounts of milk or water if available. Transport to a medical facility.

Seek Medical Attention If Symptoms Persist.

J & JP Series Sealing Systems | Expansion Joint Systems

Adhesive - Part B

2 of 3

SECTION V – Fire-Fighting Measures

Flammability: No

Flash Point (Setaflash Closed Cup): 110°C

Extinguishing Media: Extinguish with water fog, CO₂, dry chemical or foam.

Hazard Combustion Products: Carbon monoxide, carbon dioxide, oxides of nitrogen

Fire-Fighting Instructions: Closed containers may rupture violently when exposed to heat. Irritating vapors may be released during a spill. Combustion by-products may be hazardous. Use water only to cool containers to disperse vapors. Do not incinerate closed containers. Do not enter confined fire space without full bunker gear including a positive pressure, NIOSH-approved, self-contained breathing apparatus.

SECTION VI – Reactivity Data

Stability: Stable

Decomposition Products: N/A

Hazardous Polymerization: Will not occur

Conditions to Avoid: N/A

SECTION VII – Toxicological Information

Route of Entry: Skin contact, eye contact, skin absorption, inhalation

Components	Oral LD 50 (Rat)	Inhalation LC50 (Rat)
Polyamide Resin	16000 mg/kg	N/A
Nepheline Syenite	N/A	N/A
N-Aminoethylpiperazine	2150 mg/kg	N/A
Bisphenol "A"	4100 mg/kg	N/A
Fumes Silica	5 mg/kg	N/A
Benzyltrimethylamine	N/A	N/A
Amino Silane	N/A	N/A
Glycerol	4250 mg/kg	N/A
Organophilic Clay	N/A	N/A
Propylene Carbonate	29000	N/A

SECTION VIII – Handling and Storage Precautions

Handling: Avoid inhalation, skin and eye contact. Practice good personal hygiene. Wash repeatedly with soap and water during the work day.

Ventilation: Provide general dilution or local exhaust in volume and pattern to keep TLV of hazardous components below acceptable limits.

Personal Protection: Wear clean long-sleeved body-covering clothing. Use impervious gloves, chemical splash goggles and full-face shield. When respiratory protection is required, use an approved air-purifying respirator.

Storage: Store containers tightly closed with adequate ventilation in a cool dry area.

SECTION IX – Physical and Chemical Properties

Appearance: Light straw

Odor: Ammoniacal

Boiling Point: N/A

Vapor Pressure (m/HG): N/A

Vapor Density: (Air = 1): N/A

Solubility in Water: Slight

Specific Gravity (H20=1): 0.12

Evaporation Rate: (n-Butyl Acetate = 1): N/A

% Volatiles per Volume: 0.00

SECTION X – Accidental Release Measures

Spill: Remove all sources of ignition (flames, sparks, etc.). Provide adequate ventilation. Avoid prolonged breathing of vapors. Remove to a container or absorb with clay, diatomaceous earth or other suitable inert absorbent.

Disposal: Dispose of in accordance with all federal, state and local regulations. If uncertain of local requirements, contact the proper environmental authorities for information on waste disposal.

SECTION XI – Proper D.O.T. Shipping Information

Polyamines, liquid, corrosive, N.O.S. (Diethylenetriamine) Class 8, UN 2735, PG III

SECTION XII – U.S. Regulatory Information

OSHA: This material is hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

SARA Title III: Section 311/312 hazard categories acute health, delayed health, fire

J & JP Series Sealing Systems | Expansion Joint Systems
Adhesive - Part B

3 of 3

SECTION XIII – U.S. Regulatory Information

This MSDS complies with 20 CFR 1910.1200 (THE HAZARD COMMUNICATION STANDARD). Although the information and recommendations set forth herein (hereinafter "information") are presented in good faith and believed to be correct as of the date hereof, The D.S. Brown Company makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that persons receiving same will make their own determination as to its suitability for their purposes prior to use. In no event will The D.S. Brown Company be responsible for damages of any nature whatsoever resulting from the use of, misuse or reliance upon information. No representations or warranties, either expressed or implied, or merchantability, fitness for a particular purpose or any other nature are made hereunder with respect to information or the product to which information refers. Regulatory requirements are subject to change and may differ from one location to another. It is the buyer's responsibility to ensure its activities comply with federal, state or provincial, and local laws and regulations.

Issue Date: 11/28/2011**Supersedes:** 1/05/09**Prepared by:** The D.S. Brown Company, 300 East Cherry Street, North Baltimore, Ohio 45872



Material Safety Data Sheet

Expansion Joint Systems

J & JP Series Sealing Systems Conditioner

Bridges

REV 04/12

SECTION I – Material Identification

Material Name: J & JP Series Sealing Systems - Conditioner

Manufacturer: Erie Metal Specialties, Inc.
13311 Main Road, Akron, NY 14001

Supplier: The D.S. Brown Company
300 East Cherry Street
North Baltimore, Ohio 45872

Emergency Phone: (419) 257-3561

CHEMTREC: (800) 424-9300

SECTION II – Hazardous Ingredients

Hazardous Ingredients	CAS Number	WT%	Exposure Limits OSHA (PEL/TWA)	ACVGIH (TLV/TWA)
Ethyl Acetate	N/A	60 to 100	N/A	N/A
Benzoyl Peroxide	94-36-0	5 to 10	N/A	5
Non Hazardous Components	N/A	5 to 10	N/A	N/A

SECTION III – Hazards Identification

Potential Health Hazards – Acute

Eye: Causes eye irritation. Direct contact with the liquid or exposure to its vapors may cause burning, tearing and redness. Effects of contact may not show for several hours.

Skin: May cause irritation and/or sensitization. Prolonged or repeated exposure may cause redness and burning, drying and cracking of the skin and dermatitis. Persons with pre-existing skin disorders may be more susceptible to the effects of this material.

Inhalation: High vapor concentration may produce nausea, vomiting, headaches, dizziness, unconsciousness and asphyxia in central nervous system.

Ingestion: Harmful if swallowed. May cause abdominal pain, vomiting and diarrhea.

Potential Health Effects – Chronic

Overexposure may result in damage to kidney and liver.

	NTP	IARC Monographs	OSHA Regulated
Carcinogenicity:	NO	NO	NO
Teratogenicity:	NO	NO	NO

SECTION IV – First Aid Measures

Eye: Immediately flush with plenty of clean water for at least 15 minutes and seek immediate medical attention.

Skin: Remove contaminated clothing. Clean affected area(s) thoroughly with soap and water.

Inhalant: Remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration.

Ingestion: DO NOT INDUCE VOMITING. Administer large amounts of milk or water if available. Transport to a medical facility.

Seek Medical Attention If Symptoms Persist.

SECTION V – Fire-Fighting Measures

Flammability: Yes

Flash Point (Setaflash Closed Cup): -4°C

Bridge the World with Leading Infrastructure Solutions

J & JP Series Sealing Systems | Expansion Joint Systems
Conditioner

2 of 3

Flammable Limits (% volume in air):

Lower: No data available

Upper: No data available

Auto Ignition Temperature: No data available**Extinguishing Media:** Extinguish with water fog, CO₂ or foam.**Hazard Combustion Products:** Carbon monoxide, carbon dioxide, oxides of nitrogen**Fire-Fighting Instructions:** Closed containers may rupture violently when exposed to heat. Irritating vapors may be released during a spill. Combustion by-products may be hazardous. Use water only to cool containers to disperse vapors. Do not incinerate closed containers. Do not enter confined fire space without full bunker gear including a positive pressure, NIOSH-approved, self-contained breathing apparatus (SCBA).**SECTION VI – Reactivity Data****Stability:** Avoid excessive heating over long periods of time.**Incompatibility:** N/A**Decomposition Products:** Not available**Hazardous Polymerization:** May occur**Conditions to Avoid:** Heat, open flames and sparks**SECTION VII – Toxicological Information****Route of Entry:** Skin contact, eye contact, skin absorption, inhalation

Components	Oral LD 50 (Rat)	Inhalation LC50 (Rat)
Benzoyl Peroxide	950 mg/kg	N/A
Ethyl Acetate	11000 mg/kg	N/A

SECTION VIII – Handling and Storage Precautions**Handling:** Avoid inhalation, skin and eye contact. Practice good personal hygiene. Wash repeatedly with soap and water during the work day.**Ventilation:** Mechanical and local exhaust should be used for indoor use.**Personal Protection:** Wear clean long-sleeved body-covering clothing. Use impervious gloves, chemical splash goggles and full-face shield. When respiratory protection is required, use an approved air purifying respirator.**Storage:** Store containers tightly closed with adequate ventilation in a cool dry area.**SECTION IX – Physical and Chemical Properties****Appearance:** Waterlike liquid**Odor:** Pungent**Boiling Point:** 77°C**Melting Point:** Not applicable**Vapor Pressure (m/HG):** 100.0**Vapor Density:** (Air = 1): 3.0**Solubility in Water:** Slight**Specific Gravity (H2O=1):** 0.91**Evaporation Rate:** (n-Butyl Acetate = 1): Not applicable**% Volatiles per Volume:** 91.75**SECTION X – Accidental Release Measures****Spill:** Remove all sources of ignition (flames, sparks, etc.). Provide adequate ventilation. Avoid prolonged breathing of vapors. Remove to a container or absorb with clay, diatomaceous earth or other suitable inert absorbent.**Disposal:** Dispose of in accordance with all federal, state and local regulations. If uncertain of local requirements, contact the proper environmental authorities for information on waste disposal.**SECTION XI – Proper D.O.T. Shipping Information**

Flammable Liquid N.O.S. (Methyl Ethyl Ketone) Class 3/UN 1993/P.G. II

SECTION XII – U.S. Regulatory Information**OSHA:** This material is hazardous by definition of Hazardous Communications Standard (29 CFR 1910.1200).**SARA Title III:** Section 311/312 hazard categories acute health, delayed health, fire**SECTION XIII – U.S. Regulatory Information**

This MSDS complies with 20 CFR 1910.1200 (THE HAZARD COMMUNICATION STANDARD). Although the information and recommendations set forth herein (hereinafter "information") are presented in good faith and believed to be correct as of the date hereof, The D.S. Brown Company

J & JP Series Sealing Systems | Expansion Joint Systems
Conditioner

3 of 3

makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that persons receiving same will make their own determination as to its suitability for their purposes prior to use. In no event will The D.S. Brown Company be responsible for damages of any nature whatsoever resulting from the use of, misuse or reliance upon information. No representations or warranties, either expressed or implied, or merchantability, fitness for a particular purpose or any other nature are made hereunder with respect to information or the product to which information refers. Regulatory requirements are subject to change and may differ from one location to another. It is the buyer's responsibility to ensure its activities comply with federal, state or provincial, and local laws and regulations.

Issue Date: 12/11/08**Supersedes:** 12/11/00**Prepared by:** The D.S. Brown Company, 300 East Cherry Street, North Baltimore, Ohio 45872