

## SAFETY DATA SHEET



# Occidental Chemical Corporation

A subsidiary of Occidental Petroleum Corporation



## METHYLENE CHLORIDE

MSDS No.: M47008

Rev. Date: June-27-2011

Rev. Num. 03

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

<b>Company Identification:</b>	Occidental Chemical Corporation 5005 LBJ Freeway P.O. Box 809050 Dallas, TX 75380-9050
<b>24 Hour Emergency Telephone Number:</b>	1-800-733-3665 or 1-972-404-3228 (U.S.); 32.3.575.55.55 (Europe); 1800-033-111 (Australia)
<b>To Request an SDS:</b>	MSDS@oxy.com or 1-972-404-3245
<b>Customer Service:</b>	1-800-752-5151 or 1-972-404-3700
<b>Trade Name:</b>	Methylene chloride, technical grade; Methylene chloride, decaffeination grade; Methylene chloride, aerosol grade; Methylene chloride, degreasing grade; Methylene chloride, special grade
<b>Synonyms:</b>	Dichloromethane, Methylene Dichloride
<b>Product Use:</b>	paint remover formulations, vapor depressant in aerosol applications, general cleaning solvent, foam blowing agent
<b>Chemical Family:</b>	Saturated aliphatic halogenated solvent
<b>Note:</b>	The Special, Aerosol, and Degreasing Grades contain small amounts of a propylene oxide stabilizer. The Technical and Decaffeination Grades do not.

### 2. HAZARDS IDENTIFICATION

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**EMERGENCY OVERVIEW:**

**Color:** Colorless  
**Physical State:** Liquid  
**Appearance:** Clear  
**Odor:** Mildly sweet odor, Chloroform-like odor

**Signal Word:** **DANGER**

**MAJOR HEALTH HAZARDS:** CAUSES EYE AND SKIN IRRITATION. HARMFUL IF SWALLOWED. CAUSES DAMAGE TO THE RESPIRATORY AND NERVOUS SYSTEMS. MAY CAUSE DROWSINESS OR DIZZINESS. CAUSES DAMAGE TO LIVER AND NERVOUS SYSTEM THROUGH PROLONGED OR REPEATED EXPOSURE. MAY CAUSE CANCER BASED ON ANIMAL DATA.

**AQUATIC TOXICITY:** TOXIC TO AQUATIC LIFE. TOXIC TO AQUATIC LIFE WITH LASTING EFFECTS.

**PRECAUTIONARY STATEMENTS:** Wash thoroughly after handling. Wear protective gloves, protective clothing, eye, and face protection. Do not eat, drink or smoke when using this product. Do not breathe mist, vapours, or spray. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use respiratory protection as required. Avoid release to the environment. Store in a secure manner. Material that cannot be reused or chemically reprocessed should be disposed of in accordance with all applicable federal, state and local health and environmental regulations.

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**POTENTIAL HEALTH EFFECTS:**

**Inhalation:** May cause upper respiratory tract irritation and central nervous system depression with symptoms such as confusion, lightheadedness, nausea, vomiting, headache, and fatigue. Causes formation of carbon monoxide in blood which may affect the cardiovascular system and central nervous system. Continued exposure may cause unconsciousness and even death.

**Skin contact:** May cause effects ranging from mild irritation to severe pain, and possibly burns, depending on the intensity of contact. Skin absorption may occur.

**Eye contact:** Vapors may cause eye irritation. Contact may cause tearing, redness, a stinging or burning feeling, swelling, and blurred vision.

**Ingestion:** May cause nausea or vomiting. If vomiting results in aspiration, chemical pneumonia could occur. Absorption through the gastrointestinal tract may produce central nervous system depression.

**Chronic Effects:** May cause liver damage. May cause cancer based on animal data.

**Interaction with Other Chemicals Which Enhance Toxicity:** Alcohol may enhance toxic effects. Concurrent exposure to carbon monoxide, smoking, or physical activity may increase the level of carboxyhemoglobin in the blood resulting in additive effects.

**Medical Conditions Aggravated by Exposure:** heart or cardiovascular disorders, kidney disorders, liver disorders, nervous system disorders, respiratory system (including asthma and other breathing disorders), skin disorders and allergies.

**See Section 11: TOXICOLOGICAL INFORMATION**

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### 3. COMPOSITION/INFORMATION ON INGREDIENTS

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## 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	%	CAS Number
Methylene chloride	99.97 - 100	75-09-2
Propylene oxide	Proprietary	75-56-9

## 4. FIRST AID MEASURES

**INHALATION:** If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. If respiration or pulse has stopped, have a trained person administer basic life support (Cardio-Pulmonary Resuscitation and/or Automatic External Defibrillator) and CALL FOR EMERGENCY SERVICES IMMEDIATELY.

**SKIN CONTACT:** Immediately flush contaminated areas with water. Remove contaminated clothing, jewelry, and shoes immediately. Wash contaminated areas with soap and water. Thoroughly clean and dry contaminated clothing before reuse. Discard contaminated leather goods. GET MEDICAL ATTENTION IMMEDIATELY.

**EYE CONTACT:** Immediately flush eyes with a directed stream of water for at least 15 minutes, forcibly holding eyelids apart to ensure complete irrigation of all eye and lid tissues. Washing eyes within several seconds is essential to achieve maximum effectiveness. GET MEDICAL ATTENTION IMMEDIATELY.

**INGESTION:** Never give anything by mouth to an unconscious or convulsive person. If swallowed, do not induce vomiting. If vomiting occurs spontaneously, keep airway clear. Do not give fluids. GET MEDICAL ATTENTION IMMEDIATELY.

**Notes to Physician:** This material is an aspiration hazard. Risk of aspiration must be weighed against possible toxicity of the material when determining whether to induce emesis or to perform gastric lavage. This material sensitizes the heart to the effects of sympathomimetic amines. Epinephrine and other sympathomimetic drugs may initiate cardiac arrhythmias in individuals exposed to this material. This material is metabolized to carbon monoxide. Consequently, elevations in carboxyhemoglobin as high as 50% have been reported, and levels may continue to rise for several hours after exposure has ceased. Data in experimental animals suggest there is a narrow margin between concentrations causing anesthesia and death.

## 5. FIRE-FIGHTING MEASURES

**Fire Hazard:** Slight fire hazard.

**Extinguishing Media:** Use foam, dry chemical, CO<sub>2</sub>, or water spray.

**Fire Fighting:** Wear NIOSH approved positive-pressure self-contained breathing apparatus operated in pressure demand mode. Concentrated vapors may be ignited by high intensity source. Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Flood with fine water spray. Do not scatter spilled material with high-pressure water streams. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas. Keep water runoff out of water supplies and sewers (see Section 6 of the MSDS).

**Sensitivity to Mechanical Impact:** Not sensitive.

**Sensitivity to Static Discharge:** Not sensitive.

**Lower Flammability Level (air):** 12% @ 100 C

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**Upper Flammability Level (air):** 19% @100 C

**Flash point:** None

**Autoignition Temperature:** 1033 F (556.1 C)

**Hazardous Combustion Products:** Hydrogen chloride, Chlorine, Phosgene, Oxides of carbon

## 6. ACCIDENTAL RELEASE MEASURES

**Occupational Release:** Evacuation of surrounding area may be necessary for large spills. Shut off ventilation system if needed. Wear appropriate personal protective equipment recommended in Section 8 of the SDS. Completely contain spilled material with dikes, sandbags, etc. Most vapors are heavier than air and will spread along ground and collect in low or confined areas (drains, basements, tanks). Ventilate closed spaces before entering. Stop leak if possible without personal risk. Remove contaminated soil or collect with appropriate absorbent and place into suitable container. Keep container tightly closed. Dispose properly. Liquid material may be removed with a properly rated vacuum truck. Keep out of water supplies, sewers and soil. Avoid discharge into drains, surface water or groundwater. Releases should be reported, if required, to appropriate agencies.

## 7. HANDLING AND STORAGE

**Storage Conditions:** Store and handle in accordance with all current regulations and standards. Keep container tightly closed and properly labeled. Store in a cool, dry area. Store in a well-ventilated area. Prevent water or moist air from entering storage tanks or containers. Do not enter confined spaces unless adequately ventilated. Do not store in aluminum container or use aluminum fittings or transfer lines. To minimize the decomp of dichloromethane, storage containers should be galvanized or lined with a phenolic coating. Protect from sunlight. Do not reuse drum without recycling or reconditioning in accordance with any applicable federal, state or local laws. Do not use cutting or welding torches, open flames or electric arcs on empty or full containers. Keep separated from incompatible substances (see Section 10 of SDS).

**Handling Procedures:** Most vapors are heavier than air and will spread along ground and collect in low or confined areas (drains, basements, tanks). Avoid breathing vapor or mist. Avoid contact with skin, eyes and clothing. Do not taste or swallow. Wash thoroughly after handling. When using, do not eat, drink or smoke.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

### Regulatory Exposure limit(s):

Component	CAS Number	OSHA Final PEL TWA	OSHA Final PEL STEL	OSHA Final PEL Ceiling
Methylene chloride	75-09-2	25 ppm	125 ppm	-----
Propylene oxide	75-56-9	100 ppm 240 mg/m <sup>3</sup>	-----	-----

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OEL: Occupational Exposure Limit; OSHA: United States Occupational Safety and Health Administration; PEL: Permissible Exposure Limit; TWA: Time Weighted Average; STEL: Short Term Exposure Limit

## Non-Regulatory Exposure Limit(s):

Component	CAS Number	ACGIH Full Shift TWA	ACGIH STEL	ACGIH Ceiling	OSHA TWA (Vacated)	OSHA STEL (Vacated)	OSHA Ceiling (Vacated)
Propylene oxide	75-56-9	2 ppm	-----	-----	20 ppm 50 mg/m <sup>3</sup>	-----	-----

- The Non-Regulatory United States Occupational Safety and Health Administration (OSHA) limits shown in the table are the Vacated 1989 PEL's (vacated by 58 FR 35338, June 30, 1993).
- The American Conference of Governmental Industrial Hygienists (ACGIH) is a voluntary organization of professional industrial hygiene personnel in government or educational institutions in the United States. The ACGIH develops and publishes recommended occupational exposure limits each year called Threshold Limit Values (TLVs) for hundreds of chemicals, physical agents, and biological exposure indices.

**ENGINEERING CONTROLS:** Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits. Monitoring should be performed regularly in accordance with 29 CFR 1910.1052(d) to determine exposure level(s).

## PERSONAL PROTECTIVE EQUIPMENT:

**Eye Protection:** Wear safety glasses with side-shields. Wear chemical safety goggles with a faceshield to protect against eye and skin contact when appropriate. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

**Skin and Body Protection:** Wear appropriate chemical resistant clothing.

**Protective Material Types:** Trelchem®, Tychem®, Viton®, Polyvinyl alcohol (PVA)

Component	Immediately Dangerous to Life/ Health (IDLH)
Methylene chloride	2300 ppm
Propylene oxide	400 ppm IDLH

**Respiratory Protection:** Respiratory protection requirements for methylene chloride are in 29 CFR 1910.1052(f). When concentrations are above the IDLH, or are unknown, or during spills and/or emergencies, use any supplied-air respirator that has a 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.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Appearance:	Clear
Color:	Colorless
Odor:	Mildly sweet odor, Chloroform-like odor
Odor Threshold:	200-300 ppm (causes olfactory fatigue)
Molecular Weight:	84.94
Boiling Point/Range:	104 F (40 C)
Freezing Point/Range:	-139 F (-95 C)
Melting Point/Range:	-95 (°C)

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

Vapor Pressure:	350 mmHg @ 20 C and 435 mmHG @ 25 C
Specific Gravity (water=1):	1.31 - 1.32 @ 25 C
Vapor Density (air=1):	2.9
Water Solubility:	1.32% @ 25 C or 13,000 mg/l at 25 °C
pH:	Not applicable
Volatility:	100% by volume
Evaporation Rate (ether=1):	0.7
Flash point:	None
Lower Flammability Level (air):	12% @ 100 C
Upper Flammability Level (air):	19% @100 C
Autoignition Temperature:	1033 F (556.1 C)
Viscosity:	- 0.41 (cps) @ 77F

## 10. STABILITY AND REACTIVITY

**Reactivity/ Stability:** Stable at normal temperatures and pressures.

**Conditions to Avoid:** Avoid heat, flames, sparks and other sources of ignition. Containers may rupture or explode if exposed to heat. Avoid contact with incompatible substances and conditions due to generation of phosgene and other toxic and irritating substances.

**Incompatibilities/ Materials to Avoid:** Bases, Oxygen, Sodium, Potassium, Strong oxidizing agents, Reactive metals

**Hazardous Decomposition Products:** Hydrogen chloride, Chlorine, Phosgene, Oxides of carbon

**Hazardous Polymerization:** Will not occur

## 11. TOXICOLOGICAL INFORMATION

**IRRITATION DATA:** 810 mg/24 hour(s) skin-rabbit severe; 100 mg/24 hour(s) skin-rabbit moderate; 162 mg eyes-rabbit moderate; 10 mg eyes-rabbit mild; 500 mg/24 hour(s) eyes-rabbit mild

### TOXICITY DATA:

Component	LD50 Oral:	LC50 Inhalation:	LD50 Dermal:
Methylene chloride	2000 mg/kg (Rat)	76000 mg/m <sup>3</sup> (4 hr-Rat)	
Propylene oxide	520 mg/kg (Rat)		

**Skin Absorbent:** Dermal exposure results in absorption but at a slower rate than via the oral or inhalation routes of exposure.

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## CHRONIC TOXICITY:

Liver effects have not been reported in humans, but liver changes have been observed in several long-term studies with laboratory animals. Inhalation of 500 to 3,500 ppm methylene chloride for two years produced only minimal, nonproliferative changes in the liver of Sprague Dawley rats (the no-observed-effect level was equal to 200 ppm) and no liver effects in hamsters. Nonproliferative changes were noted in rats in another study after exposure to 1,000 to 4,000 ppm. Liver enlargement has been observed in mice exposed to 2,000 and 4,000 ppm of methylene chloride for 11 days.

**CARCINOGENICITY:** Methylene chloride is carcinogenic in experimental animals at a relatively high dose, by route(s) of administration, at site(s), of histologic type(s), or by mechanism(s) that are not considered relevant to worker exposure. Available epidemiological studies do not confirm an increased risk of cancer in humans. Available evidence suggests that this material is not likely to cause cancer in humans except under uncommon or unlikely routes or levels of exposure.

Component	NTP:	IARC (GROUP 1):	IARC (GROUP 2):	OSHA:
Methylene chloride	Reasonably Anticipated to be Human Carcinogen		Group 2B	Listed
Propylene oxide	Reasonably Anticipated to be Human Carcinogen		Group 2B	Listed

**MUTAGENIC DATA:** Positive results have been observed in the Ames test. In mammalian systems, responses have generally been negative.

**IMMUNOTOXICITY:** A study found there was no evidence of harm to the immune system of laboratory animals or reduced ability to combat disease

**DEVELOPMENTAL TOXICITY:** May cross the placenta. May be excreted in breast milk. No significant developmental effects were observed in female rats and mice exposed to 1,250 ppm during gestation. A similar result was observed in rats exposed to 4,500 ppm before and during gestation. A two-generation inhalation study showed no adverse reproductive effects in rats exposed to as much as 1,500 ppm for 14 weeks.

## 12. ECOLOGICAL INFORMATION

### ECOTOXICITY DATA:

- Freshwater Fish Toxicity:**  
LC50 (Static) Fathead minnow = 310 mg/L 96 hour(s)  
LC50 (Static) Bluegill sunfish = 220 mg/L 96 hour(s)
- Invertebrate Toxicity:**  
LC50 Mysid Shrimp = 256 mg/L 96 hour(s); 224 mg/L 48 hour(s) LC50 Daphnia Magna

### FATE AND TRANSPORT:

**BIODEGRADATION:** Biodegradation may occur in groundwater, but will be very slow compared with evaporation.

**PERSISTENCE:** AIR: This material released to the atmosphere will degrade by reaction with hydroxyl radicals with a half-life of several months. It is not subject to direct photooxidation. SOIL: On land is expected to evaporate rapidly into the atmosphere due to its high vapor pressure. It is poorly adsorbed to soil and can leach into the groundwater. Calculated Adsorption Coefficient (log KOC) is 1. WATER: This material is subject to rapid evaporation, with estimated evaporative half-lives ranging from 3 to 5.6 hours under moderate mixing condition. This material has a negligible rate of hydrolysis.

**BIOCONCENTRATION:** Bioconcentration potential in aquatic organisms is low with BCF of 2.



### 13. DISPOSAL CONSIDERATIONS

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**Waste from material:** Reuse or reprocess, if possible. Keep out of water supplies, sewers and soil. Dispose in accordance with all applicable regulations. May be subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): U080, F001, F002, F024, K009, K010, K0156, K0157, K0158.

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### 14. TRANSPORT INFORMATION

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**U.S. DOT 49 CFR 172.101:**

**PROPER SHIPPING NAME:** Dichloromethane  
**UN NUMBER:** UN1593  
**HAZARD CLASS/ DIVISION:** 6.1  
**PACKING GROUP:** III  
**LABELING** 6.1  
**REQUIREMENTS:**  
**RQ (lbs):** RQ 1,000 Lbs. (Dichloromethane)  
RQ 100 Lbs. (Propylene oxide)

**CANADIAN TRANSPORTATION OF DANGEROUS GOODS:**

**SHIPPING NAME:** Dichloromethane  
**UN NUMBER:** UN1593  
**CLASS OR DIVISION:** 6.1  
**PACKING/RISK GROUP:** III

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### 15. REGULATORY INFORMATION

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**U.S. REGULATIONS**

**OSHA REGULATORY STATUS:**

- This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200) (US)

- **CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4):** If a release is reportable under CERCLA section 103, notify the state emergency response commission and local emergency planning committee. In addition, notify the National Response Center at (800) 424-8802 or (202) 426-2675.

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Component	CERCLA Reportable Quantities:
Methylene chloride	1000 lb (final RQ)
Propylene oxide	100 lb (final RQ)

- **EPCRA EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355.30):** If a release is reportable under EPCRA, notify the state emergency response commission and local emergency planning committee. If the TPQ is met, facilities are subject to reporting requirements under EPCRA Sections 311 and 312.

Component	EPCRA RQs	Threshold Planning Quantity (TPQs)
Methylene chloride	Not listed	Not listed
Propylene oxide	100 lb (EPCRA RQ)	10000 lb (TPQ)

- **EPCRA SECTIONS 311/312 HAZARD CATEGORIES (40 CFR 370.21):**

Acute Health Hazard, Chronic Health Hazard

- **EPCRA SECTION 313 (40 CFR 372.65):** The following chemicals are listed in 40 CFR 372.65 and may be subject to Community Right-to Know Reporting requirements

Component	Status:
Methylene chloride	Listed
Propylene oxide	Listed

- **OSHA SPECIFICALLY REGULATED SUBSTANCES:**

OSHA 29 CFR 1910.1052 (Methylene chloride); The U.S. Department of Labor, Occupational Safety and Health Administration specifically regulates manufacturing, handling and processing of methylene chloride. Such regulations have been published at 29 CFR 1910.1052.

- **OSHA PROCESS SAFETY (PSM) (29 CFR 1910.119):** Not regulated

## NATIONAL INVENTORY STATUS

- **U.S. INVENTORY STATUS: Toxic Substance Control Act (TSCA):** All components are listed or exempt

- **TSCA 12(b):** This product is not subject to export notification

- **Canadian Chemical Inventory:** All components are listed

## STATE REGULATIONS

Methylene chloride	
California Proposition 65 Cancer WARNING:	Listed
California Proposition 65 CRT List - Male reproductive toxin:	Not Listed
California Proposition 65 CRT List - Female reproductive toxin:	Not Listed
Massachusetts Right to Know Hazardous Substance List	Listed
New Jersey Right to Know Hazardous Substance List	sn 1255
New Jersey Special Health Hazards Substance List	Not Listed
New Jersey - Environmental Hazardous Substance List	Listed
Pennsylvania Right to Know Hazardous Substance List	Listed
Pennsylvania Right to Know Special Hazardous Substances	Listed
Pennsylvania Right to Know Environmental Hazard List	Listed
Rhode Island Right to Know Hazardous Substance List	Listed

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Propylene oxide		
	California Proposition 65 Cancer WARNING:	Listed
	California Proposition 65 CRT List - Male reproductive toxin:	Not Listed
	California Proposition 65 CRT List - Female reproductive toxin:	Not Listed
	Massachusetts Right to Know Hazardous Substance List	Listed
	New Jersey Right to Know Hazardous Substance List	sn 1615
	New Jersey Special Health Hazards Substance List	flammable - fourth degree; mutagen; reactive - second degree
	New Jersey - Environmental Hazardous Substance List	Listed
	Pennsylvania Right to Know Hazardous Substance List	Listed
	Pennsylvania Right to Know Special Hazardous Substances	Listed
	Pennsylvania Right to Know Environmental Hazard List	Listed
	Rhode Island Right to Know Hazardous Substance List	Listed

## CANADIAN REGULATIONS

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

## WHMIS - Classifications of Substances

- D1B - Poisonous and Infectious Material; Materials causing immediate and serious toxic effects - Toxic material
- D2A - Poisonous and Infectious Material; Materials causing other toxic effects - Very toxic material
- D2B - Poisonous and Infectious Material; Materials causing other toxic effects - Toxic material

## 16. OTHER INFORMATION

**Prepared by:** OxyChem Corporate HESS - Health Risk Management

**HMIS: (SCALE 0-4)** (Rated using National Paint & Coatings Association HMIS: Rating Instructions, 2nd Edition)

<b>Health:</b> 2*	<b>Flammability:</b> 1	<b>Reactivity:</b> 0
<b>NFPA 704 - Hazard Identification Ratings (SCALE 0-4)</b>		
<b>Health:</b> 2	<b>Flammability:</b> 1	<b>Reactivity:</b> 0

## IMPORTANT:

The information presented herein, while not guaranteed, was prepared by technical personnel and is true and accurate to the best of our knowledge. NO WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE, OR WARRANTY OR GUARANTY OF ANY OTHER KIND, EXPRESS OR IMPLIED, IS MADE REGARDING PERFORMANCE, SAFETY, SUITABILITY, STABILITY OR OTHERWISE. This information is not intended to be all-inclusive as to the manner and conditions of use, handling, storage, disposal and other factors that may involve other or additional legal, environmental, safety or performance considerations, and OxyChem assumes no liability whatsoever for the use of or reliance upon this information. While our technical personnel will be happy to respond to questions, safe handling and use of the product remains the responsibility of the customer. No suggestions for use are intended as, and nothing herein shall be construed as, a recommendation to infringe any existing patents or to violate any Federal, State, local or foreign laws. OSHA Standard 29 CFR 1910.1200 requires that information be provided to employees regarding the hazards of chemicals by means of a hazard communication program including labeling, material safety data sheets, training and access to written records. We request that you, and it is your legal duty to, make all information in this Material Safety Data Sheet available to your employees.