# Material Safety Data Sheet
**Dow Chemical (NZ) Ltd**

**Product Name:** Propanol

**Issue Date:** 27.11.2012
**Print Date:** 03 Jan 2013

Dow Chemical (NZ) Ltd encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

## 1. Product and Company Identification

**Product Name**
Propanol

**Identified uses**
Industrial solvent. Chemical intermediate. We recommend that you use this product in a manner consistent with the listed use. If your intended use is not consistent with the stated use, please contact your sales or technical service representative.

**COMPANY IDENTIFICATION**
Dow Chemical (NZ) Ltd
A Subsidiary of The Dow Chemical Company
Level 13
7 City Road
Auckland 1010
New Zealand

Customer Information Number: 0800-504-567
SDSQuestion@dow.com

**EMERGENCY TELEPHONE NUMBER**

**24-Hour Emergency Contact:** 0800-243-622
**Local Emergency Contact:** 0800-243-622
For medical advice, contact the New Zealand Poisons Information Centre: 0800 POISON (0800 764766)

## 2. Hazards Identification

**Classification of the substance or mixture** NEW ZEALAND HAZARDOUS SUBSTANCES CLASSIFICATION: Classified as hazardous according to criteria in the New Zealand Hazardous Substances (Minimum Degrees of Hazard) Regulations 2001. Refer to Section 15 for HSNO Approval Number.

**Hazard Class:**

| | |
|---|---|
| Class 3.1: Flammability - Liquids | Category B |
| Class 6.1: Toxicity - Acutely toxic (Oral) | Category E |
| Class 6.1: Toxicity - Acutely toxic (Dermal) | Category E |

| | |
|---|---|
| Class 6.1: Toxicity - Acutely toxic (Aspiration hazard) | Category E |
| Class 8.3: Corrosiveness - Eye corrosive | Category A |

**Label elements**
**Hazard Symbol:**

**Signal Word: Danger**
**Hazards of product:**

**Highly flammable liquid and vapour.**
**May be harmful if swallowed.**
**May be harmful in contact with skin.**
**Causes serious eye damage.**
**May cause drowsiness or dizziness.**
**May be harmful if swallowed and enters airways.**

**Precautionary Statements:**

**Prevention:** Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Avoid breathing vapor. Wear protective gloves/ protective clothing/ eye protection/ face protection.
**Response:** In case of fire: Use water fog or fine spray, foam, carbon dioxide fire extinguishers, or dry chemical fire extinguishers for extinction. IF SWALLOWED: rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor/ physician. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
**Storage:** Store in a well-ventilated place. Keep container tightly closed.
**Disposal:** Dispose of contents and container to licensed, permitted incinerator, or other thermal destruction device.

**Transport Information:** Hazard Class: 3 ID Number: UN1274 Packing Group: III

## 3. Composition Information

| Component | CAS # | Amount |
|---|---|---|
| Propanol | 71-23-8 | 100.0 % |

## 4. First Aid Procedures

### Description of first aid measures

**General advice:** First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.
**Inhalation:** Move person to fresh air. If not breathing, give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc). If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.
**Skin Contact:** Wash skin with plenty of water.
**Eye Contact:** Wash immediately and continuously with flowing water for at least 30 minutes. Remove contact lenses after the first 5 minutes and continue washing. Obtain prompt medical consultation, preferably from an ophthalmologist.
**Ingestion:** Do not induce vomiting. Call a physician and/or transport to emergency facility immediately.

### Most important symptoms and effects, both acute and delayed

Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), no additional symptoms and effects are anticipated.

### Indication of immediate medical attention and special treatment needed

Maintain adequate ventilation and oxygenation of the patient. Chemical eye burns may require extended irrigation. Obtain prompt consultation, preferably from an ophthalmologist. Because rapid absorption may occur through the lungs if aspirated and cause systemic effects, the decision of whether to induce vomiting or not should be made by a physician. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.
Skin contact may aggravate preexisting dermatitis.

## 5. Fire Fighting Measures

### Suitable extinguishing media

Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.
**Extinguishing Media to Avoid:** Do not use direct water stream. Straight or direct water streams may not be effective to extinguish fire.

### Special hazards arising from the substance or mixture

**Hazardous Combustion Products:** During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Carbon monoxide. Carbon dioxide.
**Unusual Fire and Explosion Hazards:** Container may vent and/or rupture due to fire. When product is stored in closed containers, a flammable atmosphere can develop. Electrically ground and bond all equipment. Flammable mixtures of this product are readily ignited even by static discharge. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur. Flammable mixtures may exist within the vapor space of containers at room temperature. Flammable concentrations of vapor can accumulate at temperatures above flash point; see Section 9.

### Advice for firefighters

**Fire Fighting Procedures:** Keep people away. Isolate fire and deny unnecessary entry. Stay upwind. Keep out of low areas where gases (fumes) can accumulate. Water may not be effective in extinguishing fire. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Burning liquids may be extinguished by dilution with water. Do not use direct water stream. May spread fire. Eliminate ignition sources. Move container from fire area if this is possible without hazard. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Use caution and test if material is burning before entering area. Material burns with invisible flame.
**Special Protective Equipment for Firefighters:** Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

See Section 9 for related Physical Properties

## 6. Accidental Release Measures

**Personal precautions, protective equipment and emergency procedures:** Evacuate area. Refer to Section 7, Handling, for additional precautionary measures. Only trained and properly protected personnel must be involved in clean-up operations. Keep personnel out of low areas. Keep upwind of spill. Ventilate area of leak or spill. No smoking in area. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Vapor explosion hazard. Keep out of sewers. For large spills, warn public of downwind explosion hazard. Check area with combustible gas detector before reentering area. Ground and bond all containers and handling equipment. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

**Environmental precautions:** Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

**Methods and materials for containment and cleaning up:** Contain spilled material if possible. Collect in suitable and properly labeled containers. Large spills: Pump with explosion-proof equipment. If available, use foam to smother or suppress. Ground and bond all containers and handling equipment. See Section 13, Disposal Considerations, for additional information.

## 7. Handling and Storage

### Handling

**General Handling:** Keep away from heat, sparks and flame. Do not get in eyes. Do not swallow. Avoid contact with skin and clothing. Avoid breathing vapor. Wash thoroughly after handling. Keep container closed. Use only with adequate ventilation. Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. No smoking, open flames or sources of ignition in handling and storage area. Electrically bond and ground all containers, personnel and equipment before transfer or use of material. Use of non-sparking or explosion-proof equipment may be necessary, depending upon the type of operation. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur. Never use air pressure for transferring product. Handling operations that can promote accumulation of static charges include but are not limited to mixing, filtering, pumping at high flow rates, splash filling, creating mists or sprays, tank and container filling, tank cleaning, sampling, gauging, switch loading, vacuum truck operations. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

### Storage

Minimize sources of ignition, such as static build-up, heat, spark or flame. Keep container closed.

**Storage Period:**

**Steel drums.**

24 Months

**Bulk**

12 Months

## 8. Exposure Controls / Personal Protection

### Exposure Limits

| Component | List | Type | Value |
|---|---|---|---|
| **Propanol** | NZ OEL | TWA | 492 mg/m3 200 ppm SKIN |
| | NZ OEL | STEL | 614 mg/m3 250 ppm SKIN |
| | ACGIH | TWA | 100 ppm |

A "skin" notation following the inhalation exposure guideline refers to the potential for dermal absorption of the material including mucous membranes and the eyes either by contact with vapors or by direct skin contact.
It is intended to alert the reader that inhalation may not be the only route of exposure and that measures to minimize dermal exposures should be considered.

## Personal Protection

**Eye/Face Protection:** Use chemical goggles. Eye wash fountain should be located in immediate work area. If exposure causes eye discomfort, use a full-face respirator.
**Skin Protection:** Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task. Remove contaminated clothing immediately, wash skin area with soap and water, and launder clothing before reuse or dispose of properly.

> **Hand protection:** Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl chloride ("PVC" or "vinyl"). Viton. Avoid gloves made of: Polyvinyl alcohol ("PVA"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier. Use chemical resistant gloves classified under standard AS/NZS 2161.10: Protective gloves against chemicals and micro-organisms. Examples of preferred glove barrier materials include: Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl chloride ("PVC" or "vinyl"). Viton. Avoid gloves made of: Polyvinyl alcohol ("PVA"). When prolonged or frequently repeated contact may occur, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to AS/NZS 2161.10) is recommended. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

**Respiratory Protection:** Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use an approved respirator. Selection of air-purifying or positive-pressure supplied-air will depend on the specific operation and the potential airborne concentration of the material. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus. The following should be effective types of air-purifying respirators: Organic vapor cartridge.
**Ingestion:** Avoid ingestion of even very small amounts; do not consume or store food or tobacco in the work area; wash hands and face before smoking or eating.

## Engineering Controls

**Ventilation:** Use engineering controls to maintain airborne level below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations.

## Other Information

Selection and use of personal protective equipment should be in accordance with the recommendations in one or more of the relevant Australian/New Zealand Standards, including:
AS/NZS 1336: Recommended practices for eye protection in the industrial environment.
AS/NZS 1337: Eye protectors for industrial applications.
AS/NZS 1715: Selection, use and maintenance of respiratory protective devices.
AS/NZS 2161: Occupational protective gloves.
AS/NZS 2210: Occupational protective footwear.
AS 2919: Industrial clothing.

## 9. Physical and Chemical Properties

| | |
|---|---|
| **Appearance** | |
| **Physical State** | Liquid. |
| **Color** | Colorless |
| **Odor** | Mild |
| **Odor Threshold** | No test data available |
| **pH** | No test data available |
| **Melting Point** | -127 °C *Literature* |
| **Freezing Point** | -127 °C *Literature* |
| **Boiling Point (760 mmHg)** | 97 °C *Literature* . |
| **Flash Point - Closed Cup** | 24 °C *DIN 51755* |
| **Evaporation Rate (Butyl Acetate = 1)** | 1.3 *Literature* |
| **Flammability (solid, gas)** | Not applicable to liquids |
| **Flammable Limits In Air** | **Lower**: 2.1 %(V) *Literature*<br>**Upper**: 13.7 %(V) *Literature* |
| **Vapor Pressure** | 15 mmHg @ 20 °C *Literature* |
| **Vapor Density (air = 1)** | 2.1 *Literature* |
| **Specific Gravity (H2O = 1)** | 0.805 20 °C/20 °C *Literature* |
| **Solubility in water (by weight)** | 100 % @ 20 °C *Literature* |
| **Partition coefficient, n-octanol/water (log Pow)** | 0.25 *Measured* |
| **Autoignition Temperature** | 1,013 hPa 400 °C *Literature* |
| **Decomposition Temperature** | No test data available |
| **Kinematic Viscosity** | 2.3 mm2/s @ 25 °C *Literature* |
| **Explosive properties** | no data available |
| **Oxidizing properties** | no data available |
| **Molecular Formula** | C3H7OH |
| **Percent Volatiles** | No test data available |
| **Saturated Vapor Concentration** | No test data available |
| **Volatile Organic Compounds** | 805 g/l |
| **Henry's Law Constant (H)** | 7.41E-06 atm*m3/mole; 25 °C Measured |

## 10. Stability and Reactivity

**Reactivity**
No dangerous reaction known under conditions of normal use.

**Chemical stability**
Stable.

**Possibility of hazardous reactions**
Polymerization will not occur.

**Conditions to Avoid:** Exposure to elevated temperatures can cause product to decompose. Avoid static discharge.

**Incompatible Materials:** Avoid contact with: Aldehydes. Halides. Halogenated organics. Halogens. Strong acids. Strong oxidizers.

**Hazardous decomposition products**

Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Carbon monoxide. Carbon dioxide.

## 11. Toxicological Information

### Acute Toxicity

**Ingestion**

Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.
LD50, rat > 1,870 mg/kg

**Aspiration hazard**

Aspiration into the lungs may occur during ingestion or vomiting, causing lung damage or even death due to chemical pneumonia.

**Dermal**

Prolonged skin contact is unlikely to result in absorption of harmful amounts.
LD50, rabbit, male 4,032 mg/kg

**Inhalation**

Prolonged excessive exposure may cause adverse effects. May cause respiratory irritation and central nervous system depression. Symptoms may include headache, dizziness and drowsiness, progressing to incoordination and unconsciousness.
LC50, 4 h, Vapor, rat, male and female > 33.8 mg/l

### Eye damage/eye irritation

May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur. Vapor may cause eye irritation experienced as mild discomfort and redness.

### Skin corrosion/irritation

Prolonged exposure not likely to cause significant skin irritation. May cause drying and flaking of the skin. May cause more severe response on covered skin (under clothing, gloves).

### Sensitization

**Skin**

Did not cause allergic skin reactions when tested in guinea pigs. Did not cause allergic skin reactions when tested in humans.

**Respiratory**

No relevant data found.

### Repeated Dose Toxicity

In animals, effects have been reported on the following organs: Central nervous system. Liver.

### Chronic Toxicity and Carcinogenicity

Available data are inadequate to evaluate carcinogenicity. Did not cause cancer in animal skin painting studies.

### Developmental Toxicity

At extremely high concentrations, n-propanol has been reported to cause birth defects in rats. At progressively lower concentrations there were no birth defects. These concentrations exceed relevant human dose levels.

### Reproductive Toxicity

In animal studies, has been shown to interfere with fertility in males. Effects are reversible. These concentrations exceed relevant human dose levels.

### Genetic Toxicology

In vitro genetic toxicity studies were negative in some cases and positive in other cases. Animal genetic toxicity studies were inconclusive

# 12. Ecological Information

## Toxicity

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

**Fish Acute & Prolonged Toxicity**
LC50, Pimephales promelas (fathead minnow), flow-through test, 96 h: 4,555 mg/l
**Aquatic Invertebrate Acute Toxicity**
LC50, scud Gammarus sp., static test, 48 h, mortality: 1,000 mg/l
EC50, Daphnia magna (Water flea), static test, 48 h, immobilization: 3,644 mg/l
**Aquatic Plant Toxicity**
EC50, Pseudokirchneriella subcapitata (green algae), static test, Growth rate inhibition, 48 h: 9,170 mg/l
**Toxicity to Micro-organisms**
IC50, OECD 209 Test; activated sludge, static test, 3 h: > 1,000 mg/l
**Aquatic Invertebrates Chronic Toxicity Value**
Daphnia magna (Water flea), 21 d, number of offspring, NOEC: > 100 mg/l

## Persistence and Degradability

Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.
**OECD Biodegradation Tests:**

| Biodegradation | Exposure Time | Method | 10 Day Window |
|---|---|---|---|
| 83 % | 5 d | OECD 301D Test | pass |
| 83 - 92 % | 28 d | OECD 301F Test | pass |

**Indirect Photodegradation with OH Radicals**

| Rate Constant | Atmospheric Half-life | Method |
|---|---|---|
| 5.48E-12 cm3/s | 23 h | Estimated. |

**Biological oxygen demand (BOD):**

| BOD 5 | BOD 10 | BOD 20 | BOD 28 |
|---|---|---|---|
| 58 - 64 % | 76 % | 75 - 94 % | |

**Theoretical Oxygen Demand:** 2.40 mg/mg

## Bioaccumulative potential

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
**Partition coefficient, n-octanol/water (log Pow):** 0.25 Measured

## Mobility in soil

**Mobility in soil:** Potential for mobility in soil is very high (Koc between 0 and 50).
**Partition coefficient, soil organic carbon/water (Koc):** 3 Estimated.
**Henry's Law Constant (H):** 7.41E-06 atm*m3/mole; 25 °C Measured
**Distribution in Environment: Mackay Level 1 Fugacity Model:**

| Air | Water. | Biota | Soil | Sediment |
|---|---|---|---|---|
| 24.1 % | 75.9 % | 0 % | 0 % | 0 % |

## Results of PBT and vPvB assessment

This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

## Other adverse effects

This substance is not in Annex I of Regulation (EC) 2037/2000 on substances that deplete the ozone layer.

## 13. Disposal Considerations

**Disposal methods**
DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition Information. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Incinerator or other thermal destruction device.

Waste handling, treatment and disposal practices must be in compliance with the New Zealand Hazardous Substances (Disposal) Regulations 2001. Additional local requirements may be applicable in accordance with planning controls under the Resource Management Act. Regulations concerning waste management may vary in different locations.

This product when disposed of in its unused and uncontaminated state should be treated as a hazardous waste.

## 14. Transport Information

**ROAD & RAIL**
**Proper Shipping Name:** N-PROPANOL
**Hazard Class:** 3 **ID Number:** UN1274 **Packing Group:** PG III

**IMDG**
**Proper Shipping Name:** N-PROPANOL
**Hazard Class:** 3 **ID Number:** UN1274 **Packing Group:** PG III
**EMS Number:** F-E,S-D

**ICAO/IATA**
**Proper Shipping Name:** N-PROPANOL
**Hazard Class:** 3 **ID Number:** UN1274 **Packing Group:** PG III
**Cargo Packing Instruction:** 366
**Passenger Packing Instruction:** 355

**HAZCHEM CODE:** 2Y

*This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.*

## 15. Regulatory Information

**New Zealand. Inventory of Chemicals (NZIoC), as published by ERMA New Zealand**
The hazardous components of this product are listed in the New Zealand Inventory of Chemicals (NZIoC) or the product otherwise complies with the requirements of the Hazardous Substances and New Organisms (HSNO) Act 1996.
**US. Toxic Substances Control Act**
All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.30

**HSNO Approval Number**
HSR002650
**Group Standard Name**
Solvents (Flammable) Group Standard 2006
ADVICE TO PRODUCT USERS REGARDING HSNO CONTROLS: Users of this product should make reference to the New Zealand Hazardous Substances and New Organisms Act and Regulations for relevant risk management controls. Additional local requirements may be applicable in accordance with planning controls under the Resource Management Act. Refer Environment Risk Management Authority publications (1) ER-UG-05-1 11/01 User Guide for HSNO Controls; and (2) ER-QG-31-1 Group Standards Quick Guide available from the web site http://www.ermanz.govt.nz/hs/index.html

## 16. Other Information

**Hazard Rating System**

| NFPA | Health | Fire | Reactivity |
|---|---|---|---|
| | 2 | 3 | 0 |

**Revision**
Identification Number: 1544 / 4076 / Issue Date 27.11.2012 / Version: 3.0
Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

**Legend**

| | |
|---|---|
| N/A | Not available |
| W/W | Weight/Weight |
| OEL | Occupational Exposure Limit |
| STEL | Short Term Exposure Limit |
| TWA | Time Weighted Average |
| ACGIH | American Conference of Governmental Industrial Hygienists, Inc. |
| DOW IHG | Dow Industrial Hygiene Guideline |
| WEEL | Workplace Environmental Exposure Level |
| HAZ_DES | Hazard Designation |

*Dow Chemical (NZ) Ltd urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.*