1. IDENTIFICATION OF THE SUBSTANCE OR MIXTURE AND OF THE SUPPLIER

1.1. GHS product identifier.
Propylene Oxide

1.2. Recommended use and restrictions on use.
Recommended: Used primarily as an intermediate in the synthesis of other chemicals and polymers; as a fumigant for specific dried fruits, nuts, herbs, spices, and cocoa; as a mixture with CO₂; as a stabilizer for methylene chloride; acid scavenger; pH control agent; as a treatment chemical for removing residual from crude polyolefin.

Advised Against: Consumer use.

1.3. Supplier’s details.
Name: ABERCO Inc.
c/o Balchem Corporation
Address: 52 Sunrise Park Road
New Hampton, NY 10958
USA
Phone number: +1 845-326-5611
Fax number: +1 845-326-5706 (Cust Serv)
Internet: www.balchem.com
Email: sds@balchem.com

1.4. Emergency phone number.
CHEMTREC: 1 800-424-9300 (USA)
+1 703-527-3887 (International)

2. HAZARDS IDENTIFICATION

2.1. GHS classification of the substance or mixture and any national or regional information.
Flammable Liquid: Category 1
Acute toxicity: Category 4 (Inhalation)
Category 4 (oral)
Category 4 (dermal)
Skin corrosion/irritation: Category 2
Serious eye damage/eye irritation: Category 2
Specific target organ toxicity, single exposure; Respiratory tract irritation: Category 3
Germ cell mutagenicity: Category 1B
Carcinogenicity: Category 1

2.2. GHS label elements, including precautionary statements.

Danger

H224: Extremely flammable liquid and vapour.
H302: Harmful if swallowed
H312: Harmful in contact with skin
H315: Causes skin irritation
H319: Causes serious eye irritation
H332: Harmful if inhaled
H335: May cause respiratory irritation
H340: May cause genetic defects
H350: May cause cancer
P201: Obtain special instructions before use.
P202: Do not handle until all safety precautions have been read and understood.
P210: Keep away from heat/sparks/open flames/hot surfaces. — No smoking.
P233: Keep container tightly closed.
P240: Ground/bond container and receiving equipment.
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>P243: Take precautionary measures against static discharge.</td>
<td>P244: Avoid breathing gas/vapours.</td>
</tr>
<tr>
<td>P245: Wash hands thoroughly after handling.</td>
<td>P246: Do not eat, drink or smoke when using this product.</td>
</tr>
<tr>
<td>P247: Use only outdoors or in a well-ventilated area.</td>
<td>P248: Wear protective gloves/protective clothing/eye protection/face protection.</td>
</tr>
<tr>
<td>P249: Use personal protective equipment as required.</td>
<td>P250: If swallowed: Call a POISON CENTER or doctor/physician if you feel unwell.</td>
</tr>
<tr>
<td>P251: If on skin: Wash with plenty of soap and water.</td>
<td>P252: If on skin (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.</td>
</tr>
<tr>
<td>P253: Take off contaminated clothing and wash before reuse.</td>
<td>P254: If inhaled: Remove person to fresh air and keep comfortable for breathing.</td>
</tr>
<tr>
<td>P255: If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</td>
<td>P256: If eye irritation persists: Get medical advice/attention.</td>
</tr>
<tr>
<td>P257: If skin irritation occurs: Get medical advice/attention.</td>
<td>P258: If exposed or concerned: Get medical advice/attention.</td>
</tr>
<tr>
<td>P259: Specific treatment: See first aid section of SDS.</td>
<td>P260: In case of fire, use carbon dioxide, dry chemical, alcohol resistant foam or water spray for extinction.</td>
</tr>
</tbody>
</table>

2.3. Other hazards which do not result in classification or are not covered by the GHS. None
3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>3.1. Substance:</th>
<th>Propylene Oxide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical identity.</td>
<td>PO; PPO; 1,2-Epoxypropane; Propene Oxide, Methyl Ethylene Oxide, Methyloxirane, Propylene Epoxide, Epoxypropane</td>
</tr>
<tr>
<td>Common name, synonyms, etc.</td>
<td>Propylene Oxide</td>
</tr>
<tr>
<td>CAS number, EC number, etc.</td>
<td>CAS#: 75-56-9; EC#: 200-879-2 (from EINECS)</td>
</tr>
<tr>
<td></td>
<td>Formula: C3H6O</td>
</tr>
<tr>
<td></td>
<td>Molecular Weight: 58.08 g/mol</td>
</tr>
<tr>
<td>Impurities and stabilizing additives which are themselves classified and which contribute to the classification of the substance.</td>
<td>Contains no other components or impurities which will influence the classification of the product.</td>
</tr>
</tbody>
</table>

3.2. Mixture:

<table>
<thead>
<tr>
<th>Chemical Identity:</th>
<th>Concentration</th>
<th>CAS No.:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propylene Oxide</td>
<td>100%</td>
<td>75-56-9</td>
</tr>
</tbody>
</table>


4. FIRST AID MEASURES

4.1. Description of first aid measures.

Eye contact: Immediately flush eyes, including the entire surface of the eyes and under the eyelids, gently but thoroughly with plenty of running water for at least 15 minutes. Obtain medical attention immediately. NOTE: Never wear contact lenses when working with propylene oxide.

Skin contact: Immediately flush skin thoroughly with water for at least 15 minutes while removing contaminated clothing and shoes. Obtain medical attention immediately. Wash clothing before reuse and discard contaminated leather articles such as shoes and belts.

Inhalation: For significant exposure to any nuisance particles (dust or mist), remove to fresh air and, if there is difficulty breathing, get medical attention. If breathing has stopped, give artificial respiration then have qualified personnel administer oxygen, if needed. Get immediate medical attention.

Ingestion: If patient is conscious give plenty of water (minimum of two glasses) but DO NOT INDUCE VOMITING. This material is corrosive. Keep head lower than hips to avoid aspiration, should vomiting occur. Get medical attention immediately.

Medical Conditions Aggravated by Exposure: Persons with pre-existing skin, kidney, liver and respiratory disorders may be at increased risk from exposure to this substance.

4.2. Most important symptoms/effects.

Signs and Symptoms of Overexposure: Effects include severe eye, skin and respiratory irritation or burns, skin rash, blistering. Effects of central nervous system depression include excitement, headache, dizziness, loss of coordination, narcosis, drunkenness, nausea, vomiting, collapse, coma and respiratory arrest. Effects from swallowing may include severe irritation and burns to the gastrointestinal tract, nausea, vomiting, diarrhea, central nervous system depression and difficulty breathing.
4.3. Indication of immediate medical attention and special treatment needed, if necessary. **Note to Physician:** Propylene oxide is an irritant that may cause coughing, dyspnea, noncardiogenic pulmonary edema, or chemical pneumonitis. Cyanosis has occurred. Lung injury has been observed in experimental animals. Respiratory effects may be delayed. Evaluate for respiratory distress. Consider oxygen administration. If a chemical burn is present, decontaminate skin and treat as any thermal burn. No specific antidote is known, however, consider gastric lavage and administration of a charcoal slurry.

5. **FIREFIGHTING MEASURES**

5.1. Suitable (and unsuitable) extinguishing media. Carbon dioxide, dry chemical, alcohol resistant foam or water spray for small fires. Water spray, water for or alcohol resistant foams for large fires. Liquid will float and may reignite on the surface of the water. Water spray can be used to reduce flame intensity, cool fire-exposed containers and dilute spills to render non-flammable.

5.2. Specific hazards arising from the chemical. Extremely flammable vapor. Vapors may cause flash fire and can form explosive mixtures with air. May polymerize explosively when involved in a fire or in contact with incompatible materials. Causes severe eye, skin and gastrointestinal irritation or burns and respiratory tract irritation with central nervous system effects. Harmful if swallowed or absorbed through the skin. UNUSUAL FIRE AND EXPLOSION HAZARDS: Liquid propylene oxide is lighter than water (floats) and vapors are heavier than air and may travel along ground long distances to sources of ignition, and then flash back. Containers are fitted with metallic plugs which melt and release contents when temperature increases to a range of 157-170 °F (69-77 °C). Vapors are extremely flammable and are readily ignited by static charge, sparks and flames at concentrations above 1.7%.

5.3. Special protective equipment and precautions for firefighters. Fire-fighters should wear NIOSH-approved self-contained breathing apparatus (SCBA) operated in the pressure-demand mode and full chemical-resistant protective clothing. Evacuate all personnel from danger area and keep upwind. Immediately cool containers with water spray from maximum safe distance. Remove containers from fire area, if without risk. Refer to the most current edition of the "North American Emergency Response Guidebook" for isolation and evacuation distances.

6. **ACCIDENTAL RELEASE MEASURES**

6.1. Personal precautions, protective equipment and emergency procedures. Wear appropriate protective clothing as described in Section 8. **For non-emergency and emergency personnel:** Treat any propylene oxide leak as an emergency. All cleanup personnel must wear full protective equipment. Evacuate all personnel from the area except those directly engaged in stopping the leak or in cleaning up.
6.2. Environmental precautions.
Dike runoff water, if possible, to prevent contaminated water from entering sewers, ditches, streams and ponds. It is mandatory to call the National Response Center (800-424-8802) if 100 pounds (45.4 kg) or more is spilled or released to the environment.

6.3. Methods and materials for containment and cleaning up.
Eliminate all ignition sources if this can be done safely. Propylene oxide/air mixtures ignite readily and may detonate. Use water fog or spray to disperse vapors. Blanket spill with water fog or alcohol foam to reduce vapors. Collect with an inert absorbent such as dry sand or earth and place into an appropriate container for disposal. Do not use clay-based absorbents or combustible materials. Do not flush to the sewer.

7. HANDLING AND STORAGE

7.1. Precautions for safe handling.
Wear all recommended protective clothing and devices when handling this material. Have established handling and emergency response procedures in place prior to use. Ground and bond shipping container, transfer line, and receiving container. Use non-sparking tools and equipment, including explosion proof ventilation. Empty containers retain product residues and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind or expose empty containers to heat, sparks or open flames. Protect containers from physical damage and regularly inspect them for cracks, leaks or faulty valves.

7.2. Conditions for safe storage, including any incompatibilities.
Storage Segregation: Store propylene oxide in a cool, dry, well-ventilated area away from incompatible chemicals and sources of ignition. Store cylinders and drums upright; secure containers tightly; do not drag or slide; and move in a carefully supervised manner with a suitable hand truck. DO NOT STORE IN DIRECT SUNLIGHT.

Shipping and Storage Containers: (See 49 CFR 173.201 and 173.243) Propylene oxide is shipped and stored in a unique UN 1A1 specification drum, and DOT specification cylinders and portable tanks. Nitrogen is charged into the container after filling with propylene oxide, bringing the total container pressure up to 50 psig. Before returning container to supplier, pressurize container with nitrogen to 50 psig total pressure; close valves and replace valve plugs tightly in outlets. Check container valves and plugs for leaks prior to shipment. In addition, please refer to the most current edition of NFPA Publication NFPA 30, ‘Flammable and Combustible Liquids Code.’

Incompatibilities: Avoid acids, bases, peroxides, oxidizing agents, clay-based absorbents, polymerization catalysts, epoxy resins, anhydrous metal chlorides.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters.

<table>
<thead>
<tr>
<th>Source</th>
<th>TWA (8-hr)</th>
<th>STEL (15-min)</th>
<th>OTHER</th>
</tr>
</thead>
<tbody>
<tr>
<td>OSHA</td>
<td>100 ppm (240 mg/m3)</td>
<td>No applicable information found</td>
<td>No applicable information found</td>
</tr>
</tbody>
</table>
8.2. Appropriate engineering controls.

Propylene oxide is flammable. All electrical devices used in areas processing or handling propylene oxide must be engineered and designed to the applicable local electrical/fire codes. Safeguards can include designing electrical devices as explosion-proof and/or intrinsically safe. When considering engineering controls, users of propylene oxide should consult the current edition of NFPA 30 (Flammable and Combustible Liquids Code).

Ventilation: Install and operate general and local exhaust ventilation systems powerful enough to maintain airborne levels of propylene oxide below the OSHA PEL in the worker’s breathing area. Ventilation systems must be of maximum explosion-proof design. Emission controls must be in compliance with Federal, State and local regulations. See NFPA 30 (Flammable and Combustible Liquids Code).

Safety Showers: Have eyewash stations, emergency deluge showers, and washing facilities available in all work areas.

Design all engineering systems to be explosion-proof in any area where vapor may be present. Container and system must be electrically grounded/bonded before unloading. Practice good personal hygiene; always wash thoroughly after using this material. Do not eat, drink or smoke in work area.

8.3. Individual protection measures, such as personal protective equipment.

Eye protection: Always wear chemical safety glasses. If splashing may occur, wear a full face shield as a supplementary protective measure over safety glasses. NEVER WEAR CONTACT LENSES when working with propylene oxide.

Skin protection: Wear impervious gloves; boots; aprons; head cover; and clean impervious body-covering clothing to prevent any possibility of skin contact. Launder contaminated clothing.

Respiratory protection: Refer to OSHA respirator regulations cited at 29 CFR 1910.134. For short-term or limited single-use situations, an approved air-purifying respirator with a cartridge for organic vapors is recommended. However, the limitations of using air-purifying respirators should be clearly understood. Otherwise, wear a NIOSH-approved supplied air respirator with full face piece or NIOSH-approved self-contained breathing apparatus (SCBA) operated in positive pressure mode.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties.

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance (physical state, color, etc.)</td>
<td>Colorless liquid</td>
</tr>
<tr>
<td>Odor</td>
<td>Sweet, Ether-like odor</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>200 ppm</td>
</tr>
<tr>
<td>pH</td>
<td>7, neutral (100 g/L in water)</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>-169 ºF (-111.9 ºC)</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>94 ºF (34.2 ºC)</td>
</tr>
</tbody>
</table>
### SAFETY DATA SHEET

**Propylene Oxide**  
ABERCO, Inc., Balchem Corporation

<table>
<thead>
<tr>
<th>Effective Date: 01-1-2016</th>
<th>Revision: C</th>
<th>ABERCO</th>
<th>Language: EN</th>
</tr>
</thead>
</table>

#### Flash point.  
Tag Closed Cup: -35 °F (-37.2 °C)

#### Evaporation rate.  
100% volatile by volume

#### Flammability (solid, gas).  
Flammable

#### Upper/lower flammability or explosive limits.  
Upper flammable limit: 38.5% vol/vol  
Lower flammable limit: 1.7% vol/vol

#### Vapor pressure.  
455 mmHg @ 20 ºC

#### Vapor density.  
2.0 (Air = 1)

#### Relative density.  
0.833 at 20 ºC

#### Solubility (ies).  
39.5% in water @ 20 ºC

#### Partition coefficient: n-octanol/water.  
0.03

#### Auto ignition temperature.  
869 °F (465 ºC)

#### Decomposition temperature.  
No applicable information found

#### Viscosity.  
0.29 centipoise at 77 °F

#### Oxidizing properties.  
Not an oxidizer

#### Corrosivity.  
Not Corrosive

### 10. STABILITY AND REACTIVITY

**10.1. Reactivity.**  
Material is stable for extended periods in closed, airtight, pressurized containers at room temperature, under normal storage and handling conditions. Vapors may explode when exposed to common ignition sources.

**10.2. Chemical stability.**  
Stable.

**10.3. Possibility of hazardous reactions.**  
Polymerization reaction can occur when propylene oxide is contaminated or when heated.

**10.4. Conditions to avoid (e.g., static discharge, shock or vibration).**  
Avoid contact of propylene oxide with incompatible chemicals. Prevent exposure to all sources of ignition such as heat, flame, lighted tobacco products or electrical or mechanical sparks.

**10.5. Incompatible materials.**  
See section 7.2

**10.6. Hazardous decomposition products.**  
Propylene oxide undergoes thermal decomposition to form carbon dioxide and carbon monoxide gases.

### 11. TOXICOLOGICAL INFORMATION

**11.1. Information on the likely routes of exposure (inhalation, ingestion, skin and eye contact);**  
Inhalation; eye contact; skin contact/absorption.

**11.2. Symptoms related to the physical, chemical and toxicological characteristics;**  
**Eye Contact:** Liquid propylene oxide is severely irritating and corrosive to the eyes and contact can cause swelling of the conjunctiva and irreversible corneal injury. Vapors may cause eye irritation, tearing, redness and swelling of the conjunctiva.

**Skin Contact:** Prolonged contact with liquid propylene oxide can cause severe irritation with redness, pain, severe burns, and formation of blisters. Propylene oxide may be absorbed by the skin in harmful amounts causing systemic effects similar to those listed under ingestion and inhalation. Propylene oxide is a skin sensitizer and some individuals may suffer an allergic skin reaction. Skin contact may also cause allergic contact dermatitis in some exposed individuals. Dilute solutions may be more irritating than undiluted materials.

**Inhalation:** Inhaling concentrated vapor may cause serious health effects, possibly death. Inhalation may cause mucous membrane and respiratory irritation, CNS depression, nausea, vomiting, lachrimation, dyspnea, changes in salivary glands, iritis, muscle weakness, headaches, dizziness, coughing, narcosis, drunkenness, and loss of coordination.
NOTE: Propylene oxide has a high odor threshold (> 200 ppm) and the sense of smell may not provide adequate protection against its toxic effects.

**Ingestion:** This relatively unlikely route of exposure is expected to cause severe irritation and burns of the mouth and throat, abdominal pain, nausea, vomiting, collapse and coma. Aspiration may occur during swallowing or vomiting, resulting in lung damage.

### 11.3. Delayed and immediate effects and also chronic effects from short- and long-term exposure;

**Eye Contact:** No applicable information found.

**Skin Contact:** Prolonged or repeated exposure may cause delayed secondary burns, ulcers or superficial scarring.

**Inhalation:** Studies with animals have shown chronic effects such as growth depression, lung and slight liver injury.

**Ingestion:** Studies with animals have shown chronic effects such as loss of body weight, gastric irritation and slight liver injury.

**Carcinogenicity:**

**OSHA:** Not classified.

**ACGIH** classifies propylene oxide as “A3” — confirmed animal carcinogen with unknown relevance to humans.

**NTP** classifies propylene oxide as “RAHC” (reasonably anticipated to be a human carcinogen).

**IARC** classifies propylene oxide in Group 2B (possibly carcinogenic to humans).

**NIOSH** classifies propylene oxide as a potential occupational carcinogen.

### 11.4. Numerical measures of toxicity (such as acute toxicity estimates).

**Inhalation:**

- **LC50 (4 hr. exposure):** 4000 ppm (male rat)
- Various mammalian species exposed to lethal concentrations of propylene oxide had symptoms of mucous membrane irritation, central nervous system depression, lacrimation, dyspnea, changes in salivary glands, nausea, vomiting, iritis and muscle weakness.
- **Chronic Inhalation:** Symptoms of chronic exposure are similar to those observed in acute studies.

**Acute Dermal:** Standard Draize test, rabbit – 50 mg/6 minutes – severe irritation. The acute dermal rabbit LD50 for this product is 1245 mg/kg.

**Chronic Dermal:** No chronic dermal toxicity datum is available on this product.

**Eye:** Standard Draize test, rabbit – 20 mg – severe irritation.

**Acute Ingestion:** The acute oral LD50 for this product is: 380 mg/kg, rat

**Chronic Ingestion:** A single oral study in rats showed changes in the brain, liver and lung.

**Carcinogenicity:** Propylene oxide appears to induce cancers at the site of exposure in experimental animals. Sarcomas occurred at injection sites, and nasal and GI cancers occurred with chronic exposure.

**Mutagenicity:** Propylene oxide has been found to be mutagenic in experimental animals including salmonella typhimurium, escherichia coli, drosophila spermatozoa and spermatids, and neurospora crassa assays. Human data on mutagenicity is inconclusive although propylene oxide causes DNA strand breaks in human diploid fibroblasts in vitro. The mean chromosome aberration rate in workers with more than 20 years exposure to propylene oxides was significantly increased compared to controls.
**Neurotoxicity:** In high concentrations propylene oxide has caused CNS effects, including CNS depression, headache, motor weakness, loss of coordination, ataxia, coma, and neuropathy in experimental animal studies. Peripheral neuropathy has been reported in chronic studies with experimental animals.

**Reproductive Effects:** Effects on fertility and paternal effects have been noted in experimental animals.

**Teratology:** Inhalation development toxicity studies with rats exposed to propylene oxide vapor at concentrations of 500 ppm showed fetotoxicity and developmental abnormalities.

**Target Organs:** Overexposure to this product may affect the skin, eyes, respiratory system, reproductive system and central nervous system.

### 12. ECOLOGICAL INFORMATION

| 12.1. Ecotoxicity (aquatic and terrestrial, where available). | Acute LC$_{50}$ data:  
170 mg/L/24 hr, goldfish (Carassius auratus)  
89 ppm/96 hr, mullet |
| --- | --- |

| 12.2. Persistence and degradability. | **Chemical Fate Information:**  
BODT (BOD Theoretical): 8%.  
If released to the atmosphere, propylene oxide will react in the vapor phase with photochemically produced hydroxyl radicals with an estimated half-life of approximately 30 days. Atmospheric removal by rainfall may occur. If released to water, propylene oxide will hydrolyze at estimated half-life rates of 11.6 days (at pHs 7-9) and 6.6 days (at pH 5) at 25 deg C.) Adsorption to sediment and reaction with photochemically produced hydroxyl radicals in water are not expected to be environmentally important fate processes. |
| --- | --- |

<table>
<thead>
<tr>
<th>12.3. Bioaccumulative potential.</th>
<th>Log octanol/water partition coefficient (log Kow) is low. Partitioning from water to oil is low. Bioconcentration is not expected to occur due to high water solubility and a low log Kow. Bioconcentration in aquatic organisms is not expected to be an environmentally important fate process.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>12.4. Mobility in soil.</th>
<th>If released to soil, propylene oxide is expected to be susceptible to leaching and chemical hydrolysis in moist soils. It is expected to evaporate relatively rapidly from dry soil surfaces.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>12.5. Results of PBT and vPvB</th>
<th>No applicable information found.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>12.6. Other adverse effects.</th>
<th>No applicable information found.</th>
</tr>
</thead>
</table>

### 13. DISPOSAL CONSIDERATIONS

<table>
<thead>
<tr>
<th>13.1. Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging.</th>
<th>When disposed, propylene oxide is a RCRA hazardous waste with waste code D001 (ignitability). <strong>DO NOT INCINERATE ANY PROPYLENE OXIDE CONTAINERS.</strong> Dispose of waste materials in accordance with all applicable Federal, State and local laws and regulations.</th>
</tr>
</thead>
</table>

### 14. TRANSPORT INFORMATION

<table>
<thead>
<tr>
<th>14.1. UN number.</th>
<th>1280</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>14.2. UN proper shipping name.</th>
<th>Propylene Oxide</th>
</tr>
</thead>
</table>
### 14.3. Transport hazard class(es).

<table>
<thead>
<tr>
<th>DOT</th>
<th>Primary: 3 (Flammable Liquid); Reportable Quantity 100 lb (45.4 kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMO</td>
<td>Primary: 3 (Flammable Liquid)</td>
</tr>
<tr>
<td>TDG (from or within Canada)</td>
<td>Primary: 3 (Flammable Liquid)</td>
</tr>
</tbody>
</table>

Shipment of residual amounts of propylene oxide are considered hazardous material. All facilities shipping or receiving propylene oxide are subject to registration as a shipper of hazardous material (49 CFR 107, Subpart G). All facilities handling propylene oxide in containers greater than 3,000 liters (792 gallons) must also maintain a written security plan (49 CFR 172.00 – 804, 49 CFR 172.704).

### 14.4. Packing group, if applicable.

I

### 14.5. Marine pollutant (Yes/No).

No

### 14.6. Special precautions which a user needs to be aware of or needs to comply with in connection with transport or conveyance either within or outside their premises.

See Section 7.2

### 14.7. Transportation in bulk according to Annex II of MARPOL 73/78 and the IBC Code.

No applicable information found.

### 15. REGULATORY INFORMATION

#### 15.1. Safety, health and environmental regulations specific for the product in question.

<table>
<thead>
<tr>
<th>US Federal:</th>
<th>CERCLA: Reportable Quantity – 100 lb – Section 103 (40 CFR 302.4)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CWA: Release into a waterway may require reporting to the National Response Center @ 800-424-8802 (40 CFR 116.4).</td>
</tr>
<tr>
<td></td>
<td>FDA/USDA: Follow Good Manufacturing Practice (GMP).</td>
</tr>
<tr>
<td></td>
<td>FIFRA: This chemical is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information, including directions for use.</td>
</tr>
<tr>
<td></td>
<td>EPA Registration No. 47870-1 DANGER! Skull and crossbones CORROSIVE. Fatal if swallowed. Fatal if absorbed through skin. Fatal if inhaled. Causes irreversible eye damage. Causes skin burns. Do not get in eyes, on skin, or on clothing. Do not breathe vapor or spray mist. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Exposure may cause suffocation and death. Do not breathe vapors or fumes.</td>
</tr>
<tr>
<td></td>
<td>OSHA: This product is considered hazardous under the GHS guidelines of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.</td>
</tr>
<tr>
<td></td>
<td>PSM: This product is subject to Process Safety Management (29 CFR 1910.119).</td>
</tr>
<tr>
<td></td>
<td>RCRA: If discarded in purchased form, this product is not a listed or characteristic hazardous waste. 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 (40 CFR 261.20-24).</td>
</tr>
</tbody>
</table>
## SAFETY DATA SHEET

<table>
<thead>
<tr>
<th>Effective Date: 01-1-2016</th>
<th>Revision: C</th>
<th>ABERCO</th>
<th>Language: EN</th>
</tr>
</thead>
</table>

### PART 1: MANUFACTURER/SELLER/SHIPPER/TRANSPORTER INFORMATION
- **Name:** Propylene Oxide
- **Address:** Balchem Corporation

### PART 2: PRODUCT IDENTIFICATION
- **Product Name:** Propylene Oxide
- **Product Code:** ABERCO

### PART 3: HAZARD IDENTIFICATION
- **UN Number:** 1715
- **DOT Classification:** 3, 2, 5
- **Risk Phrases:** See Section 2
- **Hazard Ratings:** See Section 2

### PART 4: PRECAUTIONARY MEASURES
- **Precautions:** See Section 2
- **First Aid Measures:** See Section 2
- **Spill Containment:** See Section 2
- **Disposal:** See Section 2
- **Stability and Reactivity:** See Section 2
- **Incompatibility:** See Section 2
- **Firefighting:** See Section 2
- **Exposure Controls:** See Section 2
- **Personal Protection:** See Section 2
- **First Aid Measures:** See Section 2
- **Environmental Information:** See Section 2

### PART 5: PHYSICAL PROPERTIES
- **Appearance:** Clear liquid
- **Odor:** Slight
- **Odor Threshold Value (OTV):** 0.00015
- **Odor Reference Value (ORV):** 0.0003
- **Specific Gravity:** 0.925 at 25°C
- **Flash Point:** 100°C
- **Boiling Point:** 94°C
- **Vapor Density:** 0.7
- **Vapor Pressure:** 0.000001
- **Acute Toxicity:** Not Applicable
- **Reactivity:** Not Applicable
- **Stability:** Stable
- **Hazardous Decompolymerization:** Not Applicable

### PART 6: ACCIDENTAL RELEASE MEASURES
- **Spill Containment:** See Section 2
- **Environmental Hazards:** Not Applicable
- **Hazardous Combustion Products:** Not Applicable
- **Unstable Decomposition Products:** Not Applicable

### PART 7: HANDLING AND STORAGE
- **Handling:** See Section 2
- **Storage:** See Section 2
- **Incompatibilities:** See Section 2
- **Hazardous Decompolymerization:** Not Applicable
- **Decomposition Temperature:** Not Applicable
- **Hazardous Combustion Products:** Not Applicable
- **Unstable Decomposition Products:** Not Applicable

### PART 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION
- **Engineering Controls:** See Section 2
- **Hygiene Practices:** See Section 2
- **Safety Equipment:** See Section 2
- **Respiratory Protection:** See Section 2
- **Skin Protection:** See Section 2
- **Eye Protection:** See Section 2
- **Hand Protection:** See Section 2
- **Foot Protection:** See Section 2
- **Personal Protective Equipment:** See Section 2

### PART 9: PHYSICAL AND CHEMICAL PROPERTIES
- **Flash Point:** 100°C
- **Boiling Point:** 94°C
- **Vapor Density:** 0.7
- **Vapor Pressure:** 0.000001
- **Acute Toxicity:** Not Applicable
- **Reactivity:** Not Applicable
- **Stability:** Stable
- **Hazardous Decompolymerization:** Not Applicable

### PART 10: STABILITY AND REACTIVITY
- **Stability:** Stable
- **Hazardous Decompolymerization:** Not Applicable
- **Decomposition Temperature:** Not Applicable
- **Hazardous Combustion Products:** Not Applicable
- **Unstable Decomposition Products:** Not Applicable

### PART 11: FIRE FIGHTING MEASURES
- **Extinguishing Media:** Not Applicable
- **Special Firefighting Procedures:** Not Applicable
- **Fire Fighting Extinguisher:** Class A
- **Special Hazards:** Not Applicable

### PART 12: EXPOSURE CONTROLS AND PERSONAL PROTECTION
- **Engineering Controls:** See Section 2
- **Hygiene Practices:** See Section 2
- **Safety Equipment:** See Section 2
- **Respiratory Protection:** See Section 2
- **Skin Protection:** See Section 2
- **Eye Protection:** See Section 2
- **Hand Protection:** See Section 2
- **Foot Protection:** See Section 2
- **Personal Protective Equipment:** See Section 2

### PART 13: ACCIDENTAL RELEASE MEASURES
- **Spill Containment:** See Section 2
- **Environmental Hazards:** Not Applicable
- **Hazardous Combustion Products:** Not Applicable
- **Unstable Decomposition Products:** Not Applicable

### PART 14: HANDLING AND STORAGE
- **Handling:** See Section 2
- **Storage:** See Section 2
- **Incompatibilities:** See Section 2
- **Hazardous Decompolymerization:** Not Applicable
- **Decomposition Temperature:** Not Applicable
- **Hazardous Combustion Products:** Not Applicable
- **Unstable Decomposition Products:** Not Applicable

### PART 15: EXPOSURE CONTROLS AND PERSONAL PROTECTION
- **Engineering Controls:** See Section 2
- **Hygiene Practices:** See Section 2
- **Safety Equipment:** See Section 2
- **Respiratory Protection:** See Section 2
- **Skin Protection:** See Section 2
- **Eye Protection:** See Section 2
- **Hand Protection:** See Section 2
- **Foot Protection:** See Section 2
- **Personal Protective Equipment:** See Section 2

### PART 16: OTHER INFORMATION INCLUDING INFORMATION ON PREPARATION AND REVISION
- **Reason for Issue:** New
- **Revision Date:** 1/18/2016
- **Risk Phrases Used:** See Section 2
- **Hazard Ratings:** See Section 2
- **For safe handling, refer to NFPA 654, Standard for the prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids.**

### PART 17: ADDITIONAL INFORMATION
- **The following abbreviations may be used in this document:**

### Appendix A: Abbreviations
- **ACGIH:** American Council of Governmental Industrial Hygienists
- **AICS:** Australian Inventory of Chemical Substances

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The following abbreviations may be used in this document: ACGIH, American Council of Governmental Industrial Hygienists; AICS, Australian Inventory of Chemical Substances.
<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS</td>
<td>Chemical Abstract Service</td>
</tr>
<tr>
<td>CERCLA</td>
<td>Comprehensive Environmental Response, Compensation and Liability Act</td>
</tr>
<tr>
<td>CFR</td>
<td>Code of Federal Regulations</td>
</tr>
<tr>
<td>CLP</td>
<td>Classification, Labeling and Packaging</td>
</tr>
<tr>
<td>CWA</td>
<td>Clean Water Act</td>
</tr>
<tr>
<td>D.O.T.</td>
<td>Department of Transportation</td>
</tr>
<tr>
<td>DSL</td>
<td>Domestic Substance List (Canada)</td>
</tr>
<tr>
<td>EC</td>
<td>Effective concentration which induces a response halfway between the baseline and maximum</td>
</tr>
<tr>
<td>EC</td>
<td>European Community</td>
</tr>
<tr>
<td>ECL</td>
<td>Existing Chemicals List (Korea)</td>
</tr>
<tr>
<td>EINECS</td>
<td>European Inventory of Existing Commercial Substances</td>
</tr>
<tr>
<td>EU</td>
<td>European Union</td>
</tr>
<tr>
<td>FDA</td>
<td>Food and Drug Administration</td>
</tr>
<tr>
<td>FIFRA</td>
<td>Federal Insecticide, Fungicide and Rodenticide Act</td>
</tr>
<tr>
<td>GHS</td>
<td>Globally Harmonized System</td>
</tr>
<tr>
<td>IBC</td>
<td>International Bulk Chemical Code</td>
</tr>
<tr>
<td>IDLH</td>
<td>Immediately Dangerous to Life and Health</td>
</tr>
<tr>
<td>Kst</td>
<td>Deflagration Index</td>
</tr>
<tr>
<td>LC50</td>
<td>Lethal concentration for 50% mortality of subject species</td>
</tr>
<tr>
<td>LD50</td>
<td>Lethal dose for 50% mortality of subject species</td>
</tr>
<tr>
<td>LDLo</td>
<td>Lethal dose low; the lowest dose of a substance introduced by any route other than inhalation reported to have caused death in humans or animals</td>
</tr>
<tr>
<td>LEL / LFL</td>
<td>Lower Explosive Limit / Lower Flammable Limit</td>
</tr>
<tr>
<td>MARPOL</td>
<td>International Convention for the Prevention of Pollution from Ships</td>
</tr>
<tr>
<td>MSHA</td>
<td>Mine Safety Health Administration</td>
</tr>
<tr>
<td>NFPA</td>
<td>National Fire Protection Association</td>
</tr>
<tr>
<td>NIOSH</td>
<td>National Institute of Occupational Safety and Health</td>
</tr>
<tr>
<td>OSHA</td>
<td>Occupational Safety and Health Administration</td>
</tr>
<tr>
<td>PBT</td>
<td>Persistent Bioaccumulative Toxic</td>
</tr>
<tr>
<td>PEL</td>
<td>Permissible Exposure Limit (default 8 hour day, 40 hour week TWA)</td>
</tr>
<tr>
<td>PSM</td>
<td>Process Safety Management</td>
</tr>
<tr>
<td>RCRA</td>
<td>Resource Conservation and Recovery Act</td>
</tr>
<tr>
<td>REACH</td>
<td>Registration, Evaluation, Authorization and Restriction of Chemical Substances</td>
</tr>
<tr>
<td>REL</td>
<td>Recommended Exposure Limit (default 10 hour day, 40 hour week TWA)</td>
</tr>
<tr>
<td>RMP</td>
<td>Risk Management Plan</td>
</tr>
<tr>
<td>SARA</td>
<td>Superfund Amendment and Reauthorization Act</td>
</tr>
<tr>
<td>STEL</td>
<td>Short Term Exposure Limit (default 15 minute TWA)</td>
</tr>
<tr>
<td>TDLo</td>
<td>Lowest dose to which humans or animals have been exposed and reported to produce a toxic effect other than cancer</td>
</tr>
<tr>
<td>TSCA</td>
<td>Toxic Substance Control Act</td>
</tr>
<tr>
<td>TWA</td>
<td>Time Weighted Average</td>
</tr>
<tr>
<td>UFL</td>
<td>Upper Flammable Limit</td>
</tr>
<tr>
<td>USDA</td>
<td>United States Department of Agriculture</td>
</tr>
<tr>
<td>vPvB</td>
<td>Very Persistent, Very Bioaccumulative</td>
</tr>
</tbody>
</table>

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 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.