



# Material Safety Data Sheet

The Dow Chemical Company

**Product Name:** PROPYLENE GLYCOL USP/EP

**Issue Date:** 05/31/2007  
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The Dow Chemical Company 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**  
PROPYLENE GLYCOL USP/EP

### COMPANY IDENTIFICATION

The Dow Chemical Company  
2030 Willard H. Dow Center  
Midland, MI 48674  
USA

Customer Information Number: 800-258-2436

### EMERGENCY TELEPHONE NUMBER

**24-Hour Emergency Contact:** 989-636-4400  
**Local Emergency Contact:** 989-636-4400

## 2. Hazards Identification

### Emergency Overview

**Color:** Colorless  
**Physical State:** Liquid  
**Odor:** Odorless  
**Hazards of product:**

No significant immediate hazards for emergency response are known.

### OSHA Hazard Communication Standard

This product is not a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

### Potential Health Effects

**Eye Contact:** May cause slight temporary eye irritation. Corneal injury is unlikely. Mist may cause eye irritation.  
**Skin Contact:** Prolonged contact is essentially nonirritating to skin. Repeated contact may cause flaking and softening of skin.  
**Skin Absorption:** Prolonged skin contact is unlikely to result in absorption of harmful amounts.

\* Indicates a Trademark

**Inhalation:** At room temperature, exposure to vapor is minimal due to low volatility. Mist may cause irritation of upper respiratory tract (nose and throat).

**Ingestion:** Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

**Effects of Repeated Exposure:** In rare cases, repeated excessive exposure to propylene glycol may cause central nervous system effects.

### 3. Composition Information

| Component        | CAS #   | Amount   |
|------------------|---------|----------|
| Propylene glycol | 57-55-6 | > 99.8 % |

### 4. First-aid measures

**Eye Contact:** Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist.

**Skin Contact:** Wash skin with plenty of water.

**Inhalation:** Move person to fresh air; if effects occur, consult a physician.

**Ingestion:** No emergency medical treatment necessary.

**Notes to Physician:** No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

### 5. Fire Fighting Measures

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

**Fire Fighting Procedures:** Keep people away. Isolate fire and deny unnecessary entry. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Burning liquids may be extinguished by dilution with water. Do not use direct water stream. May spread fire. 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.

**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.

**Unusual Fire and Explosion Hazards:** Container may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.

**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.

### 6. Accidental Release Measures

**Steps to be Taken if Material is Released or Spilled:** Contain spilled material if possible. Small spills: Any absorbent material. Collect in suitable and properly labeled open containers. Wash the spill site with large quantities of water. Large spills: Dike area to contain spill. Pump into suitable and properly labeled containers. See Section 13, Disposal Considerations, for additional information.

**Personal Precautions:** Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection. Keep unnecessary and unprotected personnel from entering the area. Spilled material may cause a slipping hazard.

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

## 7. Handling and Storage

### Handling

**General Handling:** Product handled hot may require additional ventilation or local exhaust. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

**Other Precautions:** Spills of these organic materials on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion.

### Storage

Store away from direct sunlight or ultraviolet light. Keep container tightly closed when not in use. Store in a dry place. Protect from atmospheric moisture. Store in the following material(s): Stainless steel. Aluminum. Plaste 3066 lined container. 316 stainless steel. Opaque HDPE plastic container.

| Shelf life: Use within | Maximum storage temperature |
|------------------------|-----------------------------|
| 24 Months              | 40 °C                       |

## 8. Exposure Controls / Personal Protection

### Exposure Limits

| Component        | List | Type            | Value                |
|------------------|------|-----------------|----------------------|
| Propylene glycol | WEEL | TWA<br>Aerosol. | 10 mg/m <sup>3</sup> |

### Personal Protection

**Eye/Face Protection:** Safety glasses should be sufficient for most operations; however, for misty operations wear chemical goggles.

**Skin Protection:** No precautions other than clean body-covering clothing should be needed.

**Hand protection:** Chemical protective gloves should not be needed when handling this material. Consistent with general hygienic practice for any material, skin contact should be minimized.

**Respiratory Protection:** Atmospheric levels should be maintained below the exposure guideline. When respiratory protection is required for certain operations, use an approved air-purifying respirator. In misty atmospheres, use an approved particulate respirator. The following should be effective types of air-purifying respirators: Organic vapor with acid gas cartridge and particulate pre-filter.

**Ingestion:** Use good personal hygiene. Do not consume or store food in the work area. Wash hands before smoking or eating.

### Engineering Controls

**Ventilation:** Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines.

## 9. Physical and Chemical Properties

|                |           |
|----------------|-----------|
| Physical State | Liquid    |
| Color          | Colorless |
| Odor           | Odorless  |

|   |   |
|---|---|
| <b>Flash Point - Closed Cup</b>             | 103 °C (217 °F) <i>Literature</i> (PMCC)  |
| <b>Flammable Limits In Air</b>              | <b>Lower:</b> 2.6 %(V) <i>Estimated</i><br><b>Upper:</b> 12.5 %(V) <i>Estimated</i> |
| <b>Autoignition Temperature</b>             | 371 °C (700 °F) <i>Literature</i>   |
| <b>Vapor Pressure</b>                       | 0.3 mbar @ 25 °C <i>Literature</i>  |
| <b>Boiling Point (760 mmHg)</b>             | 187.4 °C (369.3 °F) <i>Literature</i> .   |
| <b>Vapor Density (air = 1)</b>              | 2.62 <i>Literature</i>  |
| <b>Specific Gravity (H2O = 1)</b>           | 1.04 20 °C/20 °C <i>Literature</i>  |
| <b>Freezing Point</b>                       | No test data available  |
| <b>Melting Point</b>                        | No test data available  |
| <b>Solubility in Water (by weight)</b>      | 100 % <i>Estimated</i>  |
| <b>pH</b>                                   | Not applicable  |
| <b>Evaporation Rate (Butyl Acetate = 1)</b> | 0.01 <i>Estimated</i>   |
| <b>Dynamic Viscosity</b>                    | 48.6 mPs @ 25 °C <i>Literature</i>  |
| <b>Pour point</b>                           | < -57 °C (< -71 °F) <i>Literature</i>   |

## 10. Stability and Reactivity

### Stability/Instability

Stable under recommended storage conditions. See Storage, Section 7. Hygroscopic.

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

Generation of gas during decomposition can cause pressure in closed systems. Avoid direct sunlight or ultraviolet sources.

**Incompatible Materials:** Avoid contact with: Strong acids. Strong bases. Strong oxidizers.

### Hazardous Polymerization

Will not occur.

### Thermal Decomposition

Decomposition products depend upon temperature, air supply and the presence of other materials.

Decomposition products can include and are not limited to: Aldehydes. Alcohols. Ethers. Organic acids.

## 11. Toxicological Information

### Acute Toxicity

#### Ingestion

LD50, Rat 20,000 - 34,000 mg/kg

#### Skin Absorption

LD50, Rabbit > 20,000 mg/kg

#### Inhalation

The LD50 has not been determined. Typical for this family of materials. Estimated LC50, Aerosol, Rat > 5 mg/l

### Repeated Dose Toxicity

In rare cases, repeated excessive exposure to propylene glycol may cause central nervous system effects.

### Chronic Toxicity and Carcinogenicity

Did not cause cancer in laboratory animals.

### Developmental Toxicity

Did not cause birth defects or any other fetal effects in laboratory animals.

### Reproductive Toxicity

In animal studies, did not interfere with reproduction. In animal studies, did not interfere with fertility.

### Genetic Toxicology

In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

## 12. Ecological Information

### CHEMICAL FATE

Data for Component: **Propylene glycol**

#### Movement & Partitioning

Bioconcentration potential is low (BCF less than 100 or log Pow less than 3). Potential for mobility in soil is very high (Koc between 0 and 50). Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.

**Henry's Law Constant (H):** 1.2E-8 atm\*m3/mole Measured

**Partition coefficient, n-octanol/water (log Pow):** -0.92 Measured

**Partition coefficient, soil organic carbon/water (Koc):** < 1 Estimated

#### Persistence and Degradability

Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

Biodegradation may occur under anaerobic conditions (in the absence of oxygen).

#### Indirect Photodegradation with OH Radicals

| Rate Constant  | Atmospheric Half-life | Method    |
|----------------|-----------------------|-----------|
| 1.28E-11 cm3/s | 10 h                  | Estimated |

#### OECD Biodegradation Tests:

| Biodegradation | Exposure Time | Method         |
|----------------|---------------|----------------|
| 81 %           | 28 d          | OECD 301F Test |
| 95.8 %         | 64 d          | OECD 306 Test  |

#### Biological oxygen demand (BOD):

| BOD 5 | BOD 10 | BOD 20 | BOD 28 |
|-------|--------|--------|--------|
| 69 %  | 70 %   | 86 %   |        |

**Chemical Oxygen Demand:** 1.53 mg/mg

**Theoretical Oxygen Demand:** 1.68 mg/mg

### ECOTOXICITY

Data for Component: **Propylene glycol**

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

#### Fish Acute & Prolonged Toxicity

LC50, rainbow trout (*Oncorhynchus mykiss*), 96 h: 44,000 - 51,600 mg/l

#### Aquatic Invertebrate Acute Toxicity

EC50, water flea *Daphnia magna*, 48 h, immobilization: 4,850 - 34,000 mg/l

LC50, saltwater mysid *Mysidopsis bahia*, static, 96 h: 18,800 mg/l

#### Aquatic Plant Toxicity

EC50, green alga *Selenastrum capricornutum*, biomass growth inhibition: 19,000 mg/l

#### Toxicity to Micro-organisms

EC50, OECD 209 Test; activated sludge, respiration inhibition, 3 h: > 1,000 mg/l

## 13. Disposal Considerations

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. DOW HAS 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: Recycler. Reclaimer. Incinerator or other thermal destruction device. As a service to its customers, Dow can provide names of information resources to help identify waste management companies and other facilities which recycle, reprocess or manage chemicals or plastics, and that manage used drums. Telephone Dow's Customer Information Group at 1-800-258-2436 or 1-989-832-1556 (U.S.), or 1-800-331-6451 (Canada) for further details.

## 14. Transport Information

**DOT Non-Bulk**  
NOT REGULATED

**DOT Bulk**  
NOT REGULATED

**IMDG**  
NOT REGULATED

**ICAO/IATA**  
NOT REGULATED

*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

### OSHA Hazard Communication Standard

This product is not a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

### Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312

|                                   |    |
|-----------------------------------|----|
| Immediate (Acute) Health Hazard   | No |
| Delayed (Chronic) Health Hazard   | No |
| Fire Hazard                       | No |
| Reactive Hazard                   | No |
| Sudden Release of Pressure Hazard | No |

### Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313

To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

### Pennsylvania (Worker and Community Right-To-Know Act): Pennsylvania Hazardous Substances List and/or Pennsylvania Environmental Hazardous Substance List:

The following product components are cited in the Pennsylvania Hazardous Substance List and/or the Pennsylvania Environmental Substance List, and are present at levels which require reporting.

| <u>Component</u> | <u>CAS #</u> | <u>Amount</u> |
|------------------|--------------|---------------|
| Propylene glycol | 57-55-6      | > 99.8 %      |

### Pennsylvania (Worker and Community Right-To-Know Act): Pennsylvania Special Hazardous Substances List:

To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

**Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) Section 103**

To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

**US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A)**

To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

**California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986)**

This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute.

**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

**CEPA - Domestic Substances List (DSL)**

All substances contained in this product are listed on the Canadian Domestic Substances List (DSL) or are not required to be listed.

**European Inventory of Existing Commercial Chemical Substances (EINECS)**

The components of this product are on the EINECS inventory or are exempt from inventory requirements.

**16. Other Information**

**Product Literature**

Additional information on this and other Dow products may be obtained by visiting our web page at [www.dow.com](http://www.dow.com).

**Hazard Rating System**

| <b>NFPA</b> | <b>Health</b> | <b>Fire</b> | <b>Reactivity</b> |
|-------------|---------------|-------------|-------------------|
|             | 0             | 1           | 0                 |

**Recommended Uses and Restrictions**

Dow recommends that you use this product in a manner consistent with the listed use. If your intended use is not consistent with Dow's stated use, please contact Dow's Customer Information Group. Humectant and solvent for: Foodstuffs. Flavours. Fragrances. Cosmetics. Pharmaceuticals. Personal care applications. Not for use in cat food.

**Revision**

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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  |
| Action Level | A value set by OSHA that is lower than the PEL which will trigger the need for activities such as exposure monitoring and medical surveillance if exceeded. |

*The Dow Chemical Company 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.*