1. IDENTIFICATION

Product name: DOWANOL™ EPH GLYCOL ETHER

Recommended use of the chemical and restrictions on use
Identified uses: Solvent for consumer and industrial applications.

COMPANY IDENTIFICATION
THE DOW CHEMICAL COMPANY
2030 WILLARD H DOW CENTER
MIDLAND MI 48674-0000
UNITED STATES

Customer Information Number: 800-258-2436
SDSQuestion@dow.com

EMERGENCY TELEPHONE NUMBER
24-Hour Emergency Contact: 800-424-9300
Local Emergency Contact: 800-424-9300

2. HAZARDS IDENTIFICATION

Hazard classification
This material is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200.
Acute toxicity - Category 4 - Oral
Eye irritation - Category 2A

Label elements
Hazard pictograms

!
Signal word: **WARNING!**

**Hazards**
Harmful if swallowed.
Causes serious eye irritation.

**Precautionary statements**

**Prevention**
Wash skin thoroughly after handling.
Do not eat, drink or smoke when using this product.
Wear eye protection/ face protection.

**Response**
IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/ attention.

**Disposal**
Dispose of contents/ container to an approved waste disposal plant.

**Other hazards**
no data available

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

**Synonyms:** 2-phenoxyethanol
This product is a substance.

<table>
<thead>
<tr>
<th>Component</th>
<th>CASRN</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylene glycol monophenyl ether</td>
<td>122-99-6</td>
<td>&gt; 99.5 %</td>
</tr>
</tbody>
</table>

### 4. FIRST AID MEASURES

**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 effects occur, consult a physician.

**Skin contact:** Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Obtain medical attention without delay. Wash clothing before reuse. Properly dispose of contaminated leather items, such as shoes, belts, and watchbands. Suitable emergency eye wash facility should be immediately available. In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
Eye contact: Immediately flush eyes with water; remove contact lenses, if present, after the first 5 minutes, then continue flushing eyes for at least 15 minutes. Obtain medical attention without delay, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.

Ingestion: If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel. If swallowed, DO NOT induce vomiting.

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), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed

Notes to physician: Maintain adequate ventilation and oxygenation of the patient. If hemolysis is suspected, monitor hemoglobin, hematocrit, plasma free hemoglobin, and urinalysis. Whole blood or packed RBC transfusion may be required in severe cases. Alkalization of urine with bicarbonate may prevent renal damage. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Excessive exposure may aggravate preexisting liver and kidney disease.

5. FIREFIGHTING 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. Water fog, applied gently may be used as a blanket for fire extinguishment.

Unsuitable extinguishing media: Do not use direct water stream. May spread 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 rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.

Advice for firefighters

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. 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. Water fog, applied gently may be used as a blanket for fire extinguishment.

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.
6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Isolate area. Refer to section 7, Handling, for additional precautionary measures. Keep unnecessary and unprotected personnel from entering the area. 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: Small spills: Absorb with materials such as: Sand. Vermiculite. Collect in suitable and properly labeled containers. Large spills: Contain spilled material if possible. Pump into suitable and properly labeled containers. See Section 13, Disposal Considerations, for additional information.

7. HANDLING AND STORAGE

Precautions for safe handling: Do not swallow. Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

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


Storage stability

<table>
<thead>
<tr>
<th>Storage Period:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel drums.</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>24 Month</td>
</tr>
<tr>
<td>Bulk</td>
</tr>
<tr>
<td>6 Month</td>
</tr>
</tbody>
</table>

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

<table>
<thead>
<tr>
<th>Component</th>
<th>Regulation</th>
<th>Type of listing</th>
<th>Value/Notation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylene glycol monophenyl ether</td>
<td>Dow IHG</td>
<td>TWA</td>
<td>5 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Absorbed via skin</td>
</tr>
</tbody>
</table>

Exposure controls

Engineering controls: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.
Individual protection measures

**Eye/face protection:** Use chemical goggles.

**Skin protection**

**Hand protection:** Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Butyl rubber. Polyethylene. Chlorinated polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Viton. Natural rubber ("latex"). Polyvinyl chloride ("PVC" or "vinyl"). Nitrile/butadiene rubber ("nitrile" or "NBR"). 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.

**Other 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.

**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, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions, no respiratory protection should be needed; however, if handling at elevated temperatures without sufficient ventilation, use an approved air-purifying respirator.

The following should be effective types of air-purifying respirators: Organic vapor cartridge.

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### 9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Appearance</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid.</td>
</tr>
<tr>
<td>Color</td>
<td>Colorless</td>
</tr>
<tr>
<td>Odor</td>
<td>Mild</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No test data available</td>
</tr>
<tr>
<td>pH</td>
<td>No test data available</td>
</tr>
<tr>
<td>Melting point/range</td>
<td>Not applicable to liquids</td>
</tr>
<tr>
<td>Freezing point</td>
<td>9.1 °C (48.4 °F) <em>Literature</em></td>
</tr>
<tr>
<td>Boiling point (760 mmHg)</td>
<td>244.3 °C (471.7 °F) <em>Measured</em></td>
</tr>
<tr>
<td>Flash point</td>
<td><em>closed cup</em> 126 °C (259 °F) <em>Literature</em></td>
</tr>
<tr>
<td>Evaporation Rate (Butyl Acetate = 1)</td>
<td>&lt; 0.01 <em>Literature</em></td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Lower explosion limit</td>
<td>0.95 % vol <em>Literature</em></td>
</tr>
<tr>
<td>Upper explosion limit</td>
<td>No test data available</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>0.01 hPa at 20 °C (68 °F) <em>Literature</em></td>
</tr>
<tr>
<td>Relative Vapor Density (air = 1)</td>
<td>4.77 at 25 °C (77 °F) <em>Literature</em></td>
</tr>
<tr>
<td>Relative Density (water = 1)</td>
<td>1.109 at 25 °C (77 °F) / 25 °C <em>ASTM D4052</em></td>
</tr>
</tbody>
</table>
Water solubility: 25 g/L at 20 °C (68 °F) \(\text{Literature}\)

Partition coefficient: n-octanol/water
- log Pow: 1.2 \(\text{Measured}\)

Auto-ignition temperature: 475 °C (887 °F) at 999 hPa \(\text{Literature}\)

Decomposition temperature: No test data available

Dynamic Viscosity: 21.5 mPa.s at 25 °C (77 °F) \(\text{Literature}\)

Kinematic Viscosity: 19.39 mm²/s at 25 °C (77 °F) \(\text{Literature}\)

Explosive properties: Not explosive

Oxidizing properties: No

Liquid Density: 9.26 lb/gln at 25 °C (77 °F) \(\text{Literature}\)

Molecular weight: 138.2 g/mol \(\text{Literature}\)

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Reactivity: no data available

Chemical stability: Thermally stable at typical use temperatures.

Possibility of hazardous reactions: Polymerization will not occur.

Conditions to avoid: Do not distill to dryness. Product can oxidize at elevated temperatures. Generation of gas during decomposition can cause pressure in closed systems.


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: Aldehydes. Ketones. Organic acids.

11. TOXICOLOGICAL INFORMATION

Toxicological information on this product or its components appear in this section when such data is available.

Acute toxicity
- Acute oral toxicity
  - 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, 1,840 mg/kg

- Acute dermal toxicity
Prolonged skin contact is unlikely to result in absorption of harmful amounts. Repeated skin contact may result in absorption of harmful amounts. Excessive exposure may cause hemolysis, thereby impairing the blood's ability to transport oxygen.

*LD50, Rabbit, > 2.214 mg/kg*

**Acute inhalation toxicity**
At room temperature, exposure to vapor is minimal due to low volatility. Vapor from heated material may cause respiratory irritation and other effects.

*LC50, Rat, 6 Hour, dust/mist, > 1 mg/l* No deaths occurred at this concentration.

**Skin corrosion/irritation**
Prolonged exposure not likely to cause significant skin irritation. May cause more severe response on covered skin (under clothing, gloves).

**Serious eye damage/eye irritation**
May cause moderate eye irritation. May cause moderate corneal injury.

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

For respiratory sensitization:
No relevant data found.

**Specific Target Organ Systemic Toxicity (Single Exposure)**
Evaluation of available data suggests that this material is not an STOT-SE toxicant.

**Specific Target Organ Systemic Toxicity (Repeated Exposure)**
In animals, effects have been reported on the following organs:
- Blood.
- Kidney.
- Liver.
- Thyroid.
- Respiratory tract.

**Carcinogenicity**
No relevant data found.

**Teratogenicity**
Did not cause birth defects or other effects in the fetus even at doses which caused toxic effects in the mother.

**Reproductive toxicity**
In animal studies, repeated exposures did not have any effects on reproductive organs.

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

**Aspiration Hazard**
Based on physical properties, not likely to be an aspiration hazard.
12. ECOLOGICAL INFORMATION

Ecotoxicological information on this product or its components appear in this section when such data is available.

Toxicity

Acute toxicity to fish
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).

LC50, Pimephales promelas (fathead minnow), flow-through test, 96 Hour, 344 mg/l

Acute toxicity to aquatic invertebrates
EC50, Daphnia magna (Water flea), 48 Hour, > 500 mg/l

Acute toxicity to algae/aquatic plants
EbC50, Desmodesmus subspicatus (green algae), static test, 72 Hour, Biomass, > 500 mg/l

Toxicity to bacteria
EC50, Bacteria, 17 Hour, 880 mg/l

Chronic aquatic toxicity

Chronic toxicity to fish
NOEC, Pimephales promelas (fathead minnow), flow-through test, 34 d, mortality, 23 mg/l
LOEC, Pimephales promelas (fathead minnow), flow-through test, 34 d, mortality, 50 mg/l

Chronic toxicity to aquatic invertebrates
NOEC, Daphnia magna (Water flea), semi-static test, 21 d, number of offspring, 9.43 mg/l
LOEC, Daphnia magna (Water flea), semi-static test, 21 d, number of offspring, 22.5 mg/l

Persistence and degradability

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.
10-day Window: Pass
Biodegradation: 90 %
Exposure time: 28 d
Method: OECD Test Guideline 301F or Equivalent
10-day Window: Pass
Biodegradation: > 90 %
Exposure time: 15 d
Method: OECD Test Guideline 301A or Equivalent

Theoretical Oxygen Demand: 2.18 mg/mg

Chemical Oxygen Demand: 2.12 mg/mg Dichromate

Biological oxygen demand (BOD)
<table>
<thead>
<tr>
<th>Time</th>
<th>Stability in Water (1/2-life)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 d</td>
<td>Hydrolysis, half-life, &gt; 1 year, pH 7, Half-life Temperature 50 °C, Estimated.</td>
</tr>
<tr>
<td>10 d</td>
<td>71 %</td>
</tr>
<tr>
<td>20 d</td>
<td>80 %</td>
</tr>
</tbody>
</table>

**Bioaccumulative potential**

- **Bioaccumulation**: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
- **Partition coefficient**: n-octanol/water(log Pow): 1.2 at 23 °C Measured
- **Bioconcentration factor (BCF)**: 0.35

**Mobility in soil**

- Potential for mobility in soil is very high (Koc between 0 and 50).
- **Partition coefficient(Koc)**: 40.74 Measured

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### 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.

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### 14. TRANSPORT INFORMATION

**DOT**

Not regulated for transport

**Classification for SEA transport (IMO-IMDG):**

- **Transport in bulk**
  - Not regulated for transport
  - Consult IMO regulations before transporting ocean bulk

**Classification for AIR transport (IATA/ICAO):**

- Not regulated for transport
This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. 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 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
Acute Health Hazard
Chronic Health Hazard

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313
This product contains the following substances which are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and which are listed in 40 CFR 372.

<table>
<thead>
<tr>
<th>Components</th>
<th>CASRN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycol Ethers</td>
<td>Not available</td>
</tr>
</tbody>
</table>

Pennsylvania Worker and Community Right-To-Know Act:
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.

United States TSCA Inventory (TSCA)
All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

16. OTHER INFORMATION

Hazard Rating System

<table>
<thead>
<tr>
<th>NFPA</th>
<th>Health</th>
<th>Fire</th>
<th>Reactivity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tbody>
</table>


Revision
Identification Number: 101213696 / A001 / Issue Date: 04/15/2015 / Version: 7.0
Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend
<table>
<thead>
<tr>
<th>Legend</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Absorbed via skin</td>
<td>Absorbed via skin</td>
</tr>
<tr>
<td>Dow IHG</td>
<td>Dow Industrial Hygiene Guideline</td>
</tr>
<tr>
<td>TWA</td>
<td>Time Weighted Average (TWA):</td>
</tr>
</tbody>
</table>

Information Source and References
This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

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.