Product Safety Assessment

DOWANOL™ PPh Glycol Ether [Propylene Glycol Phenyl Ether]

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Names

- CAS No. 770-35-4 (major isomer)
- Propylene glycol phenyl ether
- PPh
- 1-Phenoxy-2-propanol
- 1-Phenoxypropan-2-ol
- EC No. 212-222-7
- Phenoxyisopropanol
- Propylene phenoacetol
- 2-Propanol, 1-phenoxy-
- DOWANOL™ PPh Glycol Ether

Product Overview

- Propylene glycol phenyl ether or phenoxypropanol (PPh) is a colorless to yellow liquid with a mild odor. PPh evaporates slowly, but once PPh is introduced to water, the compound will tend to remain dissolved because it is slightly soluble in water. The Dow Chemical Company (Dow) markets phenoxypropanol and other propylene oxide-based glycol ethers under the trade name DOWANOL™ Glycol Ethers.¹ For further details, see Product Description.
- PPh is used as a solvent and coalescing agent. PPh is formulated into architectural and industrial coatings, electrodeposition coatings, textile dyes, textile printing pastes, paint removers, latex adhesives and inks for ball-point pens, felt-tip pens, and stamp pads.² For further details, see Product Uses.
- Because PPh is formulated into a broad range of products, consumer contact is possible. Workplace exposure is also possible.¹ For further details, see Exposure Potential.
- Eye contact with PPh may cause severe irritation with slight corneal injury. Prolonged skin contact may cause slight irritation with local redness, but is unlikely to result in absorption of harmful amounts. At room temperature, vapors are minimal due to low volatility. Vapor from heated material or mist may be hazardous.¹ For further details, see Health Information.
- PPh is readily biodegradable, unlikely to accumulate in the food chain, and is practically non-toxic to fish and aquatic organisms. For further details, see Environmental Information.
- PPh is stable at typical use temperatures. PPh is incompatible with strong acids, strong bases, and strong oxidizers and contact should be avoided.¹ For further details, see Physical Hazard Information.

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²Revised: November 28, 2015 The Dow Chemical Company Page 1 of 5
### Manufacture of Product

- **Capacity** – Western Europe is the largest producer and consumer of propylene oxide-based glycol ethers. The Dow Chemical Company ("Dow") produces propylene oxide-based glycol ethers in the United States at facilities in Plaquemine, Louisiana and Seadrift, Texas in Europe in Stade, Germany, and in China at Zhangjiagang Ltd.

- **Process** – Phenoxypropanol is manufactured by reacting propylene oxide with phenol as shown below.

### Product Description

DOWANOL™ PPh Glycol Ether is a colorless to yellow liquid with a mild odor. It evaporates slowly and is hydrophobic. DOWANOL™ PPh Glycol Ether has a minimum purity of 99.5 wt% DOWANOL™ PPh Glycol Ether is a propylene oxide-based, or P-series, glycol ether. The Dow Chemical Company markets PPh and other P-series glycol ethers under the trade name DOWANOL™ Glycol Ethers.

### Product Uses

The main uses for DOWANOL™ PPh Glycol Ether are:

- **Coatings** – for architectural and industrial applications
- **Textiles** – for dyes and printing pastes
- **Cleaners** – for household and industrial cleaners
- **Metal working fluids** – for surface cleaning and fabrication

### Exposure Potential

Phenoxypropanol is used in the production of industrial and consumer products. Based on the uses for PPh, the public could be exposed through:

- **Workplace exposure** – Exposure can occur either in a phenoxypropanol manufacturing facility or in the various industrial or manufacturing facilities that use PPh. Those working with PPh in manufacturing operations could be exposed during maintenance, sampling, testing, or other procedures. PPh is manufactured in closed systems. Products made using PPh are formulated in closed systems as well. Worker exposure is most likely to occur while applying coating products containing PPh to various surfaces. Each manufacturing facility should have a thorough training program for employees and appropriate work processes and safety equipment in place to limit unnecessary exposure. See Health Information.

- **Consumer exposure to products containing PPh** – Dow does not sell PPh for direct consumer use, but consumers can be exposed through the use of paints, ink pens, or other products containing PPh. The typical PPh concentration in paint is 2 to 10%, in cosmetics and soaps 0.1 to 1%. See Health Information.

- **Environmental releases** – PPh may slowly evaporate to air from coatings or other products containing it. Once PPh is introduced to water, the compound will tend to remain dissolved.

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because it is slightly soluble in water. PPh is readily biodegradable, and the compound will be removed by sewage treatment plants.

- **Large release** – Industrial spills or releases are infrequent and generally contained. If a large spill does occur, contain spilled material if possible. Pump the contained material into suitable and properly labeled containers using appropriate safety equipment.

- **In case of fire** – Keep people away and deny unnecessary entry. Wear positive-pressure, self-contained breathing apparatus (SCBA) and protective fire-fighting clothing or fight the fire from a safe distance. *Do not use* a direct water stream; it may spread the fire. Use water fog or fine spray, carbon-dioxide or dry-chemical extinguishers, or foam. Water fog applied gently may be used as a blanket to extinguish the fire. Follow emergency procedures carefully. See Environmental Information, Health Information, and Physical Hazard Information.

For more information, review the relevant Safety Data Sheet.

**Health Information**

Eye contact with PPh may cause severe irritation with slight corneal injury. Prolonged skin contact may cause slight irritation with local redness, but is unlikely to result in absorption of harmful amounts. PPh did not cause sensitization in laboratory animals. At room temperature, vapors are minimal due to low volatility. Vapor from heated material or mist may be hazardous.

PPh has low toxicity if swallowed. Swallowing small amounts incidental to normal handling is unlikely to cause injury. However, swallowing larger amounts may cause injury.

Repeated skin contact caused minor skin effects but did not cause any effects in other tissues. PPh did not affect reproductive performance in laboratory animals, did not cause birth defects nor demonstrate significant genetic toxicity.

For more information, review the relevant Safety Data Sheet.

**Environmental Information**

Phenoxypropanol has a low volatility, and may evaporate slowly from products containing it. Although it is only slightly soluble in water, once dissolved, the compound will tend to remain in water. It has minimal tendency to bind to soil or sediment.

PPh is unlikely to persist in the environment. PPh is readily biodegradable, which suggests the chemical will be rapidly and completely removed from water and soil environments, including biological wastewater treatment plants.

PPh is not likely to accumulate in the food chain (bioconcentration potential is low) and is practically nontoxic to fish and other aquatic organisms on an acute basis.

For more information, review the relevant Safety Data Sheet.

**Physical Hazard Information**

Phenoxypropanol is thermally stable at typical use temperatures. Store PPh in carbon steel, stainless steel, or phenolic-lined steel drums. Do not store in aluminum, copper, galvanized iron, or galvanized steel. PPh can decompose at elevated temperatures. Decomposition products depend upon the
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temperature, air supply, and the presence of other materials, but can include aldehydes, ketones, organic acids, and other compounds.

During a fire, smoke may contain the original material in addition to toxic or irritating combustion products, which may include carbon monoxide and carbon dioxide. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids. For more information, review the relevant Safety Data Sheet.

PPh is incompatible with strong acids, strong bases, and strong oxidizers and contact should be avoided.

Regulatory Information
Regulations may exist that govern the manufacture, sale, transportation, use, and/or disposal of PPh. These regulations may vary by city, state, country, or geographic region. Information may be found by consulting the relevant Safety Data Sheet, Technical Data Sheet, or Contact Us.

Additional Information
- Safety Data Sheet (http://www.dow.com/webapps/msds/msdssearch.aspx)
- Contact Us (http://www.dow.com/oxysolvents/contact/index.htm)
- DOWANOL™ PPh Glycol Ether Technical Data Sheet, The Dow Chemical Company

For more business information about PPh, visit Dow’s Oxygenated Solvents web site. (http://www.dow.com/oxysolvents/)

References
1 DOWANOL™ PPh Glycol Ether Low Phenol Grade Material Safety Data Sheet.
2 DOWANOL PPh Glycol Ether Product Information, The Dow Chemical Company.
4 Dow Oxygenated Solvents website – P-Series Glycol Ethers (http://www.dow.com/oxysolvents/prod/pseries.htm)
6 Estimates by The Dow Chemical Company.
7 Dow Oxygenated Solvents website – Applications Center: (http://www.dow.com/oxysolvents/app/index.htm).
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