Product Safety Assessment

DOWANOL™ PGDA [Propylene Glycol Diacetate]

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Names
- CAS No. 623-84-7
- EC No. 210-817-6
- Propylene glycol diacetate
- Diacetoxypropane
- DOWANOL™ PGDA
- Propylene Glycol Diacetate
- 1,2-Propanediol, diacetate
- PGDA
- DOWANOL PGDA

Product Overview
- Propylene glycol diacetate (PGDA) is a colorless low-viscosity solvent with a slight ether-like odor. The Dow Chemical Company (Dow) manufactures and sells PGDA and other propylene oxide-based glycol ethers under the trade name DOWANOL™ Glycol Ethers.¹ For further details, see Product Description.
- DOWANOL PGDA is mainly used as a solvent for paints and coatings. It is formulated into acrylic paints, coatings, varnishes, inks, certain plasticizers, and agricultural products.²⁻³ For further details, see Product Uses.
- Because PGDA 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 PGDA is essentially nonirritating. Prolonged or repeated skin contact with PGDA may cause slight irritation. No adverse health effects are anticipated from a single inhalation exposure to PGDA vapor.¹ For further details, see Health Information.
- PGDA is readily biodegradable, unlikely to accumulate in the food chain, and is slightly toxic to fish and aquatic organisms.
- PGDA is combustible. Store away from sources of heat, spark, or flame. PGDA is stable under recommended storage conditions. PGDA is incompatible with acids, bases, and strong oxidizers and contact should be avoided.¹ For further details, see Physical Hazard Information.

Manufacture of Product¹
- 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

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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** – Propylene glycol diacetate is produced by the reaction of propylene oxide with acetic acid using a catalyst. Propylene glycol monoacetate is the intermediate. The reaction sequence is shown below.

![Reaction sequence diagram]

**Product Description**

Propylene glycol diacetate (PGDA) is a colorless liquid with a slight ether-like odor. It is a low-viscosity solvent with a comparatively high boiling point. PGDA is a propylene oxide-based, or P-series, glycol ether acetate. The Dow Chemical Company manufactures and sells PGDA and other P-series glycol ethers under the trade name DOWANOL™ Glycol Ethers. DOWANOL PGDA is highly pure, containing minimum 99.7% PGDA.

**Product Uses**

PGDA is a carrier solvent for resins and inks that are not compatible with water. It is used with acrylics, epoxies, and other types of coatings. DOWANOL™ PGDA is used for the following industrial applications:

- Metal-coil and can coatings
- Silk-screen and other printing inks
- Plasticizers for cellulose acetate
- Agricultural products
- Evaporation retardant for a wide range of products

**Exposure Potential**

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

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• **Workplace exposure** – Exposure can occur either in a PGDA manufacturing facility or in the various industrial or manufacturing facilities that use PGDA. Those working with PGDA in manufacturing operations could be exposed during maintenance, sampling, testing, or other procedures. The primary modes of occupational exposure to PGDA are skin contact or vapor inhalation. PGDA exposure is minimized through proper design and the use of protective equipment. Each manufacturing facility should have a thorough training program for employees and appropriate work processes, ventilation, and safety equipment in place to limit unnecessary exposure. See [Health Information](#).

• **Consumer exposure to products containing PGDA** – PGDA is not sold for direct consumer use, but it is used in household cleaning formulations, paints, and other products with which consumers may come into contact. See [Health Information](#).

• **Environmental releases** – PGDA may be released to air by evaporation from cleaning formulations, paints and other products containing it. Because it has moderate solubility in water, once PGDA is introduced into water, the compound will tend to remain dissolved in water. Because PGDA is readily biodegradable, the compound will be removed by sewage treatment plants. See [Environmental, Health, and Physical Hazard Information](#).

• **Large release** – Industrial spills or releases are infrequent and generally contained. If a large spill does occur, isolate and ventilate the area. Eliminate all sources of ignition and ground and bond all containers and handling equipment. Use appropriate safety equipment. Dike and contain spilled material if possible. Pump recovered material with explosion-proof equipment into suitable and properly labeled containers. See [Environmental, Health, and Physical Hazard Information](#).

• **In case of fire** – Keep people away and deny any unnecessary entry. Firefighters should wear positive-pressure, self-contained breathing apparatus (SCBA) and protective firefighting clothing or fight the fire from a safe distance. Use water fog or fine spray, dry-chemical or carbon-dioxide extinguishers, or foam. Use of a direct water stream may spread fire. Violent steam generation or eruption may also occur upon application of direct water stream to hot liquids. Follow all emergency procedures carefully. See [Physical Hazard Information](#).

For more information, see the [Safety Data Sheet](#).

**Health Information**

Eye contact with PGDA is essentially nonirritating. Prolonged or repeated skin contact may cause slight irritation. Prolonged skin contact is not likely to result in absorption of harmful amounts. PGDA does not appear to have any skin sensitization potential. No adverse effects are anticipated from a single inhalation exposure to PGDA.

PGDA has very low toxicity if swallowed. Swallowing small amounts incidental to normal handling is not likely to cause injury. Repeated exposures to PGDA are not anticipated to cause significant adverse effects and are not anticipated to cause cancer, birth defects or reproductive effects. Genetic toxicity studies were negative.

For specific health information, review the [Safety Data Sheet](#).

**Environmental Information**

PGDA has a low volatility, and may evaporate slowly from products containing it. However, because it is moderately soluble in water, once introduced, it has a tendency to remain in water. It has minimal tendency to bind to soil or sediment.
PGDA is unlikely to persist in the environment. PGDA is readily biodegradable, which suggests the chemical will be rapidly and completely removed from water and soil environments, including biological wastewater treatment plants.

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

Additional environmental information is available on the Safety Data Sheet.

Physical Hazard Information

PGDA is combustible. Store away from sources of ignition such as static build up, heat, spark, or flame. PGDA is stable under recommended storage conditions. It can oxidize at elevated temperatures, and flammable vapors can be released. PGDA is incompatible with acids, bases, and strong oxidizers; contact should be avoided.

During a fire, smoke may contain the original material in addition to varying compositions of toxic or irritating combustion products such as carbon monoxide and carbon dioxide.

Additional physical hazard information for PGDA is available on the Safety Data Sheet.

Regulatory Information

Regulations may exist that govern the manufacture, sale, transportation, use, and/or disposal of PGDA. 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™ PGDA Technical Data Sheet, The Dow Chemical Company
- Glycol Ethers, The Dow Chemical Company Form No. 110-00965-1101.

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References

1 DOWANOL™ PGDA Propylene Glycol Diacetate Material Safety Data Sheet, The Dow Chemical Company.
2 DOWANOL PGDA Product Information Datasheet, The Dow Chemical Company.
3 Dow Oxygenated Solvents website – Applications Center (http://www.dow.com/oxysolvents/app/index.htm)
5 Dow Oxygenated Solvents website: P-Series Glycol Ethers (http://www.dow.com/oxysolvents/prod/pseries.htm)
6 Dow Oxygenated Solvents website: Applications Center (http://www.dow.com/oxysolvents/app/index.htm)
7 Estimates by The Dow Chemical Company.

NOTICES:

As part of its 2015 Sustainability Goals, Dow has committed to make publicly available safety assessments for its products globally. This product safety assessment is intended to give general information about the chemical (or categories of chemicals) addressed. It is not intended to provide an in-depth discussion of health and safety information. Additional information is available through the relevant Safety Data Sheet, which should be consulted before use of the chemical. This product safety assessment does not replace required communication documents such as the Safety Data Sheet.

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