**Product Safety Assessment**

**Glycerine-Propoxylated Polyols**


---

**Select a Topic:**

- Names
- Product Overview
- Manufacture of Product
- Product Description
- Product Uses
- Exposure Potential
- Health Information
- Environmental Information
- Physical Hazard Information
- Regulatory Information
- Additional Information
- References

**Names**

- CAS No. 25791-96-2
- Propylene oxide-glycerine polymer
- Alpha, alpha', alpha″-1,2,3-propanetriyltris[w-hydroxy-poly(oxy-(methyl-1,2-ethanediyl))]
- Glycerine propylene oxide polymer
- Glycerine-propoxylated polyether polyol
- Propoxylated glycerol

Various VORANOL™ polyether polyols, including, for example:

- VORANOL CP 300 polyol
- VORANOL 3150 polyol
- VORANOL 3022J polyol
- VORANOL 230-112 polyol
- VORANOL CP 450 polyol
- VORANOL CP 3055 polyol
- VORANOL 2100 polyol
- VORANOL CP 260 polyol
- VORANOL 2070 polyol
- VORANOL 2070A polyether polyol
- VORANOL 4730N polyether polyol
- VORANOL 230-660 polyether polyol
- VORANOL 755 polyol
- VORANOL 3138 polyol
- VORANOL 1050 polyol

---

**Product Overview**

- Glycerine-propoxylated (polyether) polyols are clear liquids with a mild odor. These products belong to a category of materials called polyether polyols and are produced by reacting glycerine with propylene oxide. The Dow Chemical Company and its global affiliates market a variety of these polyols with different molecular weights and properties under the trade name VORANOL™ polyols.\(^1\) For further details, see **Product Description**.
- Glycerine-propoxylated polyols are used as chemical building blocks in the manufacture of polyurethane products.\(^2\) For further details, see **Product Uses**.
- Exposure can occur either in facilities that manufacture these polyols or in the various industrial or manufacturing facilities that use these products. Glycerine-propoxylated polyols are not sold directly to consumers and are not expected to represent a risk to consumers.\(^3\) For further details, see **Exposure Potential**.

---

\(^1\)Trademark of the Dow Chemical Company (“Dow”) or an affiliated company of Dow

Revised: June 20, 2013  The Dow Chemical Company  Page 1 of 6
**Product Safety Assessment: Glycerine-Propoxylated Polyols**

- Eye contact may cause slight, temporary irritation. Prolonged skin contact is not likely to cause significant irritation or result in absorption of harmful amounts. Exposure to vapor is expected to be minimal due to the low volatility of these products. These products may be harmful if swallowed.\(^4\) For further details, see [Health Information](#).
- Glycerine-propoxylated polyols are expected to biodegrade in the environment. They are nonvolatile and water soluble, so environmental releases would tend to migrate toward or remain in water. These polyols would not persist in the environment and would be removed by biological wastewater-treatment facilities. The bioconcentration potential of these products is low. They are practically nontoxic to aquatic organisms.\(^5\) For further details, see [Environmental Information](#).
- Glycerine-propoxylated polyols are stable under recommended storage and normal use conditions. Avoid contact with oxidizing materials, strong acids, and strong bases.\(^6\) For further details, see [Physical Hazard Information](#).

**Manufacture of Product**\(^7\)

- **Capacity** – The Dow Chemical Company and its global affiliates are major producers of propylene oxide, one of the materials used to manufacture polyether polyols, and is also the world's largest producer of polyether polyols. In 2011, Dow's global capacity to produce polyether polyols was 1,494,000 metric tonnes (3.3 billion pounds) of polyether polyols. Dow polyols are manufactured at facilities in Terneuzen, The Netherlands; Tarragona, Spain; Tertre, Belgium; Cartagena, Columbia; Guaruja, Brazil; San Lorenzo, Argentina; Freeport, Texas, United States; Altona, Australia; Map Ta Phut, Thailand; Nankang, Taiwan; and Ningbo, People’s Republic of China.
- **Process** – Glycerine propoxylated polyols are produced by reacting glycerine with propylene oxide as shown in the reaction below. Glycerine acts as the initiator.

![Chemical Reaction](image)

\[^{R}\text{Glycerine + PO polyether polyol}\]

**Product Description**\(^8\)

Glycerine-propoxylated polyols are clear, slightly viscous liquids. They have a mild odor and are hygroscopic (attract water from the atmosphere and environment). The Dow Chemical Company and its global affiliates market these products under the trade name VORANOL™ polyols.

**Product Uses**\(^9,10\)

Glycerine-propoxylated polyols are reacted with isocyanates to produce polyurethane products. Primary uses include:

- Flexible applications include slabstock and molded materials such as foam
- Rigid applications include coatings, adhesives, sealants, elastomers, building and construction components, insulation, and appliances

Other uses for these polyols are in transesterification and silane capping reactions and for the production of surfactants and lubricants.
Exposure Potential

Glycerine-propoxylated polyols are used in the production of industrial and consumer products. Based on the uses for this product, the public could be exposed through:

- **Workplace exposure** – Exposure can occur either in facilities that manufacture these polyols or in the various industrial or manufacturing facilities that use these polyols. They are produced, distributed, stored, and consumed in closed systems. Those working with glycerine-propoxylated polyols in manufacturing operations could be exposed during maintenance, sampling, testing, or other procedures. Each manufacturing facility should have a thorough training program for employees and appropriate work processes, ventilation, and safety equipment in place to limit exposure. See Health Information.

- **Consumer exposure to products containing glycerine-propoxylated polyols** – These polyols are not sold directly to consumers; however, goods used by consumers may incorporate these products in cured form. Contact with the cured polyurethane product would not be expected to represent a risk. See Health Information.

- **Environmental releases** – In the event of a spill, the focus is on containing the spill to prevent contamination of soil, surface water, or groundwater. Small spills should be absorbed with dirt, sand, or sawdust. Material spilled on concrete and metal surfaces may cause a slipping hazard. These products are nonvolatile and water soluble, so environmental releases would tend to migrate toward or remain in water. They would not persist in the environment and would be removed by biological wastewater-treatment facilities. The bioconcentration potential of these products is low. These products are practically nontoxic to aquatic organisms. See Environmental, Health, and Physical Hazard Information.

- **Large release** – Industrial spills or releases are infrequent and generally contained. If a large spill does occur, the material should be captured, collected, and reprocessed or disposed of according to applicable governmental requirements. An approved respirator is recommended for emergency work. See Environmental, Health, and Physical Hazard Information.

- **In case of fire** – Deny any unnecessary entry into the area and consider the use of unmanned hose holders. Use water spray or fog, carbon-dioxide or dry-chemical extinguishers, or foam to fight the fire. Alcohol-resistant foams are preferred. Use of a direct water stream may spread the fire. Containers may rupture from gas generation during a fire. Firefighters should wear positive-pressure, self-contained breathing apparatus (SCBA) and protective firefighting clothing. Keep fire water out of waterways and sewers to minimize the potential for environmental damage. Follow emergency procedures carefully. See Environmental, Health, and Physical Hazard Information.

For more information, request the relevant Safety Data Sheet from the Dow Customer Information Group.

Health Information

Health information for these polyols is summarized on the relevant Safety Data Sheet. It is important to note that health risks associated with individual products may vary based on their formulation or intended use. These products may also contain minor components or additives that have additional health risks. An overview of health information for these products appears below. However, the Safety Data Sheet is the preferred source for specific health information.

- **Eye contact** – Contact may cause slight, temporary irritation. Corneal injury is unlikely.

- **Skin contact** – Brief contact is essentially nonirritating. Prolonged contact is not likely to result in absorption of harmful amounts.

- **Inhalation** – Exposure to vapor is minimal due to the low volatility of these products. Vapor from heated products may cause respiratory irritation.

- **Ingestion** – Lower molecular weight products have low toxicity if swallowed. Higher molecular weight products (MW range approximately 700-1000) may be harmful if swallowed.

- **Repeated exposure** – Based on available data, repeated exposures are not expected to cause significant adverse effects.

For more information, request the relevant Safety Data Sheet from the Dow Customer Information Group.
Environmental Information
Glycerine-propoxylated polyols are expected to biodegrade in the environment (OECD 302B screening tests show 99% biodegradation at 28 days). They are nonvolatile and water soluble, so environmental releases would tend to migrate toward or remain in water. They would not persist in the environment and would be removed by biological wastewater-treatment facilities. The bioconcentration potential (tendency to accumulate in the food chain) for these products is low.

These polyols are practically nontoxic to aquatic organisms (LC₅₀/EC₅₀ >1000 mg/L for the most sensitive species tested).

For more information, request the relevant Safety Data Sheet from the Dow Customer Information Group.

Physical Hazard Information
Glycerine-propoxylated polyols are stable under recommended storage and normal use conditions. These products can oxidize at elevated temperatures leading to gas generation and possible pressure build up. Avoid contact with oxidizing materials, strong acids, and strong bases. Avoid unintended contact with isocyanates. The reaction of polyols and isocyanates generates heat.

Spills of these products on hot, fibrous insulation may reduce the autoignition temperature, increasing the potential for spontaneous combustion.

For more information, request the relevant Safety Data Sheet from the Dow Customer Information Group.

Regulatory Information
Regulations may exist that govern the manufacture, sale, transportation, use, and/or disposal of glycerine-propoxylated polyols. 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
- Request the Safety Data Sheet from the Dow Customer Information Group (www.dow.com/assistance/dowcig.htm)
- Contact Us (www.dow.com/polyurethane/contact/index.htm)
- Technical Data Sheets (www.dow.com/polyurethane/products/)

For more business information about glycerine-propoxylated-ethoxylated polyols, visit the Dow Polyurethanes website at www.dow.com/polyurethane/.
References


*Back to top*
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.

The information herein is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for their purposes prior to use. In no event will Dow be responsible for damages of any nature whatsoever resulting from the use of or reliance upon the information herein or the product to which that information refers.

Nothing contained herein is to be construed as a recommendation to use any product, process, equipment or formulation in conflict with any patent, and Dow makes no representation or warranty, express or implied, that the use thereof will not infringe any patent.

NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR THE PRODUCT TO WHICH INFORMATION REFERS.

Dow makes no commitment to update or correct any information that appears on the Internet or on its World-Wide Web server. The information contained in this document is supplemental to the Internet Disclaimer, [www.dow.com/homepage/term.asp](http://www.dow.com/homepage/term.asp).

Back to top

Form No. 233-00357-MM-0613