



VORANOL™ 222-029 Polyol

Description VORANOL™ 222-029 Polyol is a nominal 4000 molecular weight polyether diol based on propylene oxide with ethylene oxide capping. It is well suited for use in the production of high performance polyurethane elastomers, prepolymers and other applications.

Benefits VORANOL™ 222-029 Polyol has high molecular weight and enhanced reactivity due to its high primary hydroxyl content.

Typical Properties	Nominal Value	Unit	Test Method
Hydroxyl Number, as KOH	28.7	mg KOH/g	ASTM D4274
Viscosity (Kinematic) (38°C)	413	cSt	ASTM D445
Water, max.	0.030	wt%	ASTM D4672
Colour, max. (APHA)	50		ASTM D4890
Specific Gravity (25°C)	1.02		ASTM D4669

Notes

These are typical properties only and are not to be construed as specifications. Users should confirm results by their own tests.

For other physical properties including, but not limited to: Boiling and Melting point, Vapor Pressure, Flash Point and Thermal Expansion, please see section 9 of the Material Safety Data Sheet (MSDS). For Storage / shelf life information see section 7 of the MSDS and for CAS numbers see section 3.

Safety Considerations

Before working with Dow polyurethane materials it is necessary to understand the hazards involved in handling all of the components and to establish and follow safe work procedures. Safety Data Sheets (SDS), product literature, and safe handling and storage information are available for the polyurethane materials supplied by Dow. Recommendations for handling, storage and disposal of any ingredient not furnished by Dow should be acquired from the supplier.

Safety Data Sheets are available from The Dow Chemical Company (Dow) to help customers satisfy their own handling, safety and disposal needs, and those required by locally applicable health and safety regulations. SDS are updated regularly. Therefore, please request and review the most current SDS before handling or using any product. Copies of the SDS are available on request through Dow Customer Information Group (CIG) CUSTINFOGRP@dow.com or through the nearest Dow Sales office.

Safety Precautions

Most Dow Polyols generally present no significant hazard during use when simple precautions are followed. However, some polyols may present certain hazards.

All persons who work with these materials must know and follow proper safe handling procedures.

Handling

Avoid contact with eyes, skin, or clothing. Workers should wear appropriate eye protection. Safety glasses are considered a minimum requirement. If there is the possibility of exposure to the eyes, chemical workers' goggles must be worn.

When working with Dow polyols, avoid contact of polyol with eyes or skin. Safety glasses are suggested for use with most polyols. However, some Dow polyols require that chemical workers' goggles be worn.

Please review the SDS for the specific product and your country for this information.

Toxicity

Most Dow polyols generally present no significant hazard during use when simple precautions are followed. However, some polyols may present certain hazards. See SDS for specific information.

Fire and Explosion

Polyols are stable under normal conditions. Hazardous polymerization may occur with isocyanates. Polyols are organic materials that will burn under the right conditions of heat and oxygen supply. Store and handle polyols away from open flame or high heat sources. While polyols have no known explosion limits, if heated to decomposition in a confined area, they may generate sufficient volatile gases to be an explosion hazard. Fires can be extinguished with water, fog or other conventional means. Fire fighters should wear positive pressure, self-contained breathing apparatus.

Caution: Polyurethanes or polyisocyanurates produced from this product may present a fire risk in certain applications if exposed to fire and/or excessive heat, e.g. welding and cutting torches, in the presence of oxygen or air.

Spills and Disposal

Spills can be covered with a commercial absorbent or sand, shoveled into open, properly labeled containers and removed from the work area for decontamination.

The preferred method of disposal is to incinerate under controlled conditions in accordance with all local and national environmental laws and regulations.

First Aid Procedure

Inhalation

Alone, Dow polyols typically do not present a significant problem from inhalation. If any ill effects should occur, get the affected person to fresh air and obtain prompt medical attention.

Eye contact

Flush eyes with water for at least 15 minutes. Obtain prompt medical attention.

Skin contact

Skin contaminated with polyols should be washed with soap and plenty of water. If irritation occurs from contact with polyols, get prompt medical attention.

Ingestion

If a polyol is swallowed, give large amounts of water to dilute, but never give fluids or induce vomiting if patient is unconscious or is having convulsions. Obtain medical attention.

Product Stewardship

The Dow Chemical Company and its subsidiaries ("Dow") has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our Product Stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our Product Stewardship program rests with each and every individual involved with Dow products — from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

Customer Notice

Dow strongly encourages its customers to review both their manufacturing processes and their applications of Dow products from the standpoint of human health and environmental quality to ensure that Dow products are not used in ways for which they are not intended or tested. Dow personnel are available to answer your questions and to provide reasonable technical support. Dow product literature, including safety data sheets, should be consulted prior to use of Dow products. Current safety data sheets are available from Dow.

Medical Applications Policy

NOTICE REGARDING MEDICAL APPLICATION RESTRICTIONS: Dow will not knowingly sell or sample any product or service ("Product") into any commercial or developmental application that is intended for:

- long-term or permanent contact with internal bodily fluids or tissues. "Long-term" is contact which exceeds 72 continuous hours;
- use in cardiac prosthetic devices regardless of the length of time involved ("cardiac prosthetic devices" include, but are not limited to, pacemaker leads and devices, artificial hearts, heart valves, intra-aortic balloons and control systems, and ventricular bypass-assisted devices);
- use as a critical component in medical devices that support or sustain human life; or
- use specifically by pregnant women or in applications designed specifically to promote or interfere with human reproduction.

Dow requests that customers considering use of Dow products in medical applications notify Dow so that appropriate assessments may be conducted. Dow does not endorse or claim suitability of its products for specific medical applications. It is the responsibility of the medical device or pharmaceutical manufacturer to determine that the Dow product is safe, lawful, and technically suitable for the intended use. **DOW MAKES NO WARRANTIES, EXPRESS OR IMPLIED, CONCERNING THE SUITABILITY OF ANY DOW PRODUCT FOR USE IN MEDICAL APPLICATIONS.**

Disclaimer

NOTICE: No freedom from infringement of any patent owned by Dow or others is to be inferred. Because use conditions and applicable laws may differ from one location to another and may change with time, the Customer is responsible for determining whether products and the information in this document are appropriate for the Customer's use and for ensuring that the Customer's workplace and disposal practices are in compliance with applicable laws and other governmental enactments. Dow assumes no obligation or liability for the information in this document. **NO WARRANTIES ARE GIVEN; ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED.**

NOTICE: If products are described as "experimental" or "developmental": (1) product specifications may not be fully determined; (2) analysis of hazards and caution in handling and use are required; (3) there is greater potential for Dow to change specifications and/or discontinue production; and (4) although Dow may from time to time provide samples of such products, Dow is not obligated to supply or otherwise commercialize such products for any use or application whatsoever.

NOTICE: This data is based on information Dow believes to be reliable, as demonstrated in controlled laboratory testing. They are offered in good faith, but without guarantee, as conditions and method of use of Dow products are beyond Dow's control. Dow recommends that the prospective user determine the suitability of these materials and suggestions before adopting them on a commercial scale.

To the best of our knowledge, the information contained herein is accurate and reliable as of the date of publication, however we do not assume any liability for the accuracy and completeness of such information.

Additional Information

North America		Europe/Middle East	+800-3694-6367
U.S. & Canada:	1-800-441-4369		+31-11567-2626
	1-989-832-1426	Italy:	+800-783-825
Mexico:	+1-800-441-4369		
Latin America		South Africa	+800-99-5078
Argentina:	+54-11-4319-0100		
Brazil:	+55-11-5188-9000		
Colombia:	+57-1-219-6000	Asia Pacific	+800-7776-7776
Mexico:	+52-55-5201-4700		+603-7965-5392

www.dowpolyurethanes.com

This document is intended for use within North America

Published: 2007-04-23

© 2018 The Dow Chemical Company

