



Dow Tripropylene Glycol, Regular Grade

General Description

Tripropylene Glycol, Regular Grade is a co-product from the manufacture of monopropylene glycol, involving the high temperature and pressure hydrolysis of propylene oxide with excess water.

The product is available from The Dow Chemical Company in bulk quantities as a distilled material with a high purity. See Sales Specification for details.

Our tightly controlled manufacturing process defines the consistent composition and isomer distribution of the product, comprising the following isomers:

1,1'-[(1-methyl-1,2-ethanediyl)bis(oxy)]bis-2-propanol (CAS 1638-16-0)
(sec, sec-tripropylene glycol)
2,2'-[(1-methyl-1,2-ethanediyl)bis(oxy)]bis-1-propanol (pri, pri-tripropylene glycol)
2-[1-(2-hydroxypropoxy)-2-propoxy]-1-propanol (pri, sec-tripropylene glycol)
2-[2-(2-hydroxypropoxy)-propoxy]-1-propanol (CAS 45096-22-8) (pri, sec-tripropylene glycol)

Typical Component Properties⁽¹⁾

Chemical Name	[(1-methyl-1,2-ethanediyl)bis(oxy)]bispropanol
Formula	C ₉ H ₂₀ O ₄
Molecular Weight (g/mol)	192.3
CAS Number	24800-44-0
EINECS Number	246-466-0
Distillation Range, 101.3 kPa (1 atm)	265 - 275°C (509 - 527°F)
Vapor Pressure, 25°C (77°F)	0.0003 kPa (0.002 mm Hg)
Freezing Point	Super cools
Pour Point	-41°C (-42°F)
Density, 25°C (77°F)	1.019 g/cm ³
60°C (140°F)	0.991 g/cm ³
Refractive Index, 20°C (68°F)	1.415 – 1.4425
Viscosity, 25°C (77°F)	57.2 centipoise (mPa.s)
60°C (140°F)	9.7 centipoise (mPa.s)
Specific Heat, 25°C (77°F)	1.96 J/(g°K) (0.52 Btu/lb/°F)
Surface Tension, 25°C (77°F)	34 mN/m (dynes/cm)
Flash Point, Pensky-Martens Closed Cup	143°C (289.4°F)
Thermal Conductivity, 25°C (77°F)	0.158 W/(m°K) (0.0914 Btu/hr ft°K)
Heat of Formation	-831 kJ/mol (-199 Kcal /g-mol)
Heat of Vaporization, 25°C (77°F)	35.36 kJ/mol (200 Btu/lb/°F)

1. These are typical values and should not be construed as specifications.

Applications

Tripropylene Glycol, Regular Grade, is a versatile chemical intermediate and solvent used in a variety of application areas.

Glycols such as TPG are typically used as initiators for urethane polyol synthesis from epoxides and as a component in some polyurethane foam systems.

The broad solvency of Tripropylene Glycol, Regular Grade, for both hydrophilic and hydrophobic products makes it an excellent choice as a solvent. The combination of water solubility, solvency power for many organic compounds, low volatility and high boiling point lends TPG for use in textile soaps and lubricants, cutting oil concentrates, and similar products. Many ink removal creams use Tripropylene Glycol, Regular Grade, as part of their formulation, taking advantage of its ability to dissolve inks.

Tripropylene Glycol, Regular Grade is for technical applications only.

Storage and Handling

TPG is stable for at least 12 months when stored at ambient temperatures in closed containers and away from sunlight and other sources of UV light.

Where product heating is utilized (i.e. for bulk storage and/or transport containers) the product temperature should be controlled to prevent unintentional overheating over extended periods as this may potentially lead to accelerated oxidative degradation of the product. As a general guide Dow recommends heating up to not more than 40° C. Nitrogen padding is recommended.

For more details about product handling and safety information, please refer to the Dow Material Safety Data Sheet (MSDS).

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.

Safety Considerations

Material Safety Data (MSD) sheets are available from The Dow Chemical Company. MSD sheets are provided to help customers satisfy their own handling, safety and disposal needs and those that may be required by locally applicable health and safety regulations. MSD sheets are updated regularly, therefore, please request and review the most current MSD sheet before handling or using any product. These are available from the nearest Dow sales office.

Customer Notice

Dow encourages its customers to review their application of Dow products from the standpoint of human health and environmental quality. To help ensure that Dow products are not used in ways for which they were not intended or tested, Dow personnel will assist customers in dealing with ecological and products safety. Your Dow sales representative can arrange the proper contacts.

Contact information:

For more information about this product please call The Dow Chemical Company.

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<http://www.dow.com/propyleneglycol/>

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