

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 glycol with excess water.

The product is available from The Sadara Chemical Company in bulk quantities as a distilled material with a high purity. See Sales Specification for details. TPG is a colorless, water soluble, medium viscosity, hygroscopic liquid with a low vapor pressure, low toxicity and a faint glycol-specific odor.

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	<p>Tripropylene Glycol, Regular Grade, is a versatile chemical intermediate and solvent used in a variety of application areas.</p> <p>Glycols such as TPG are typically used as initiators for urethane polyol synthesis from epoxides and as a component in some polyurethane foam systems.</p> <p>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. In personal care applications, the low toxicity, non-irritating nature, solvency and compatibilizing power of Tripropylene Glycol, Regular Grade, are important characteristics in applications such as stick deodorants</p>
Storage and Handling	<p>TPG is stable for at least six months when stored at ambient temperatures in closed containers and away from sunlight and other sources of UV light.</p> <p>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 Sadara recommends heating up to not more than 40° C. Nitrogen padding is recommended.</p> <p>For more details about product handling and safety information, please refer to the Sadara Material Safety Data Sheet (MSDS).</p>
Product Stewardship	<p>Sadara Chemical Company 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 Sadara products – from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.</p>
Safety Considerations	<p>Material Safety Data (MSD) sheets are available from Sadara 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 Sadara sales office.</p>
Customer Notice	<p>Sadara strongly encourages its customers to review both their manufacturing processes and their applications of Sadara products from the standpoint of human health and environmental quality to help ensure that Sadara products are not used in ways for which they are not intended or tested. Sadara personnel will assist customers in dealing with ecological and product safety considerations. Sadara product literature, including safety data sheets, should be consulted prior to use of Sadara products. Current safety data sheet are available from Sadara.</p>

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