

## Dipropylene Glycol, Regular Grade

### General Description

Dipropylene Glycol (DPG), Regular Grade, is a co-product from the manufacture of monopropylene glycol, involving the high temperature and high pressure hydrolysis of propylene oxide (PO) with excess water. Dipropylene glycol regular grade is a distilled product of greater than 99% purity (as DPG), and is available from Sadara Chemical Company in drum and bulk quantities.

The colorless, practically odorless, water soluble, medium viscosity and hygroscopic liquid with low vapor pressure and low toxicity, is a mixture of structural isomers (oxybispropanol CAS 25265-71-8, EINECS 246-770-3), defined by the manufacturing process, and comprising:

1,1'-oxybis-2-propanol (CAS 110-98-5, EINECS 203-821-4)  
 2,2'-oxybis-1-propanol (CAS 108-61-2)  
 2-(2-hydroxypropoxy)-1-propanol (CAS 106-62-7)

### Typical Component Properties<sup>(1)</sup>

Chemical Name	Oxybispropanol
Formula	$C_6H_{14}O_3$
Molecular Weight (g/mol) CAS	134.2
Number	25265-71-8
EINECS Number	246-770-3
Distillation Range, 101.3 kPa (1 atm)	228–236°C (442–457°F)
Vapor Pressure, 25°C (77°F) Freezing	0.0021 kPa (0.016 mm Hg)
Point	Super cools
Pour Point	-39°C (-38.2°F)
Density, 25°C (77°F)	1.022 g/cm <sup>3</sup>
60°C (140°F)	0.998 g/cm <sup>3</sup>
Refractive Index, 20°C (68°F)	1.439–1.442
Viscosity, 25°C (77°F)	75.0 centipoise (mPa.s)
60°C (140°F)	10.9 centipoise (mPa.s)
Specific Heat, 25°C (77°F) Surface	2.18 J/(g°K) (0.52 Btu/lb/°F)
Tension, 25°C (77°F)	35 mN/m (dynes/cm)
Flash Point, Pensky-Martens Closed Cup	124°C (255°F)
Thermal Conductivity, 25°C (77°F) Electrical	0.1672 W/(m°K) (0.09661 Btu/hr ft°F)
Conductivity, 25°C (77°F)	< 6 micro S/m
Heat of Formation	-628 kJ/mol (-150 Kcal /g-mol)
Heat of Vaporization, 25°C (77°F)	45.4 kJ/mol (257 Btu/lb°F)

<sup>1</sup>. These are typical values and should not be construed as specifications

## Applications

Dipropylene Glycol, Regular Grade, is used as a solvent, coupling agent and chemical intermediate. Typical applications include:

1. Esterification with benzoic acid to make dipropylene glycol dibenzoate for plasticizers.
2. A reactant in unsaturated polyester resins to add flexibility and hydrolytic stability to the finished resin.
3. Esterification with acrylic acid to make dipropylene glycol diacrylate for radiation cured resin formulations.
4. In dicyclopentadiene-based unsaturated polyester resin systems to add flexibility.
5. An initiator for urethane polyol synthesis using epoxides, and for the polyol in rigid polyurethane foams.

Dipropylene Glycol's excellent solvency for certain oils, low evaporation rate and low toxicity lend its use in brake fluid formulations, cuttings oils, textile lubricants, printing inks, coatings, industrial soaps and as a solvent for agricultural and insecticidal formulations.

## Storage and Handling

Dipropylene Glycol, Regular Grade is stable for at least one year 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 Sadara recommends heating up to not more than 40° C.

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

## Product Stewardship

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.

## Safety Considerations

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.

## Customer Notice

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.

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Published: 2016-09-20

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