

## DIPROPYLENE GLYCOL

Dipropylene Glycol Industrial Grade (DPG) is a co product from the manufacture of monopropylene glycol by hydrolysis of Propylene Oxide (PO) with excess water at the high temperature and high pressure. DPG is a distilled product of greater than 99.5% purity and is a mixture of three isomeric chemical compounds.

DPG is a water white, clear, odorless, hygroscopic liquid having low volatility. DPG is used as a reactive intermediate in the manufacturing of industrial high performance unsaturated polyester resins, polyurethanes and plasticizers.

## Specifications

	Property	Specifications	Test Method
1.	DPG Assay. wt.%	Min. 99.50	ASTM E 202
2.	Specific Gravity @ 20/20 <sup>o</sup>	1.020 – 1.025	ASTM E 202
3.	Acidity , wt.ppm (as Acetic Acid)	Max. 30	ASTM E 202
4.	Water , wt.ppm	Max. 1000	ASTM E 202
5.	Chloride , wt.ppm	Max. 1.0	USP XXX
6.	Iron , wt.ppm	Max. 0.20	ASTM E 394
7.	Residue, wt.ppm	Max. 50	USP XXX
8.	Color , APHA	Max. 10	ASTM E 202
9.	Suspended Matter	Free	Visual
10.	Distillation , °C (IBP / DP)	228 - 240	ASTM E 202

## Applications

DPG is used as a solvent, coupling agent and chemical intermediate.

1. A reactant in unsaturated polyester resins to add flexibility and hydrolytic stability to the finished resin.
2. An initiator for urethane polyol synthesis using epoxides and for the polyol in rigid polyurethane foams.
3. A solvent in printing inks, a solvent in processes to extract aromatics from hydrocarbon mixtures, a solvent and coupling agent in hydraulic fluids and textile lubricants.
4. Esterification with benzoic acid to make dipropylene glycol dibenzoate for plasticizers.

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## Physical Data

	Item	Properties
1.	IUPAC Name	4-oxa-2,6-heptandiol, 2-(2-Hydroxy-propoxy)-propan-1-ol,
2.		2-(2-Hydroxy-1-methyl-ethoxy)-propan-1-ol
3.	Formula	C6H14O3
4.	Molecular Weight (g/mol)	134.2
5.	CAS Number	25265-71-8
6.	EINECS Number	246-770-3
7.	Distillation Range , 101.3 kPa (1atm)	228 - 236 °C(442-457 °F)
8.	Vapor Pressure, 25 °C(77 °F)	0.0021 kPa (0.016 mmHg)
9.	Freezing Point	< -60 °C (< -76 °F )
10.	Pour Point	-39 °C(-38.2 °F)
11.	Specific Gravity, 20/20 °C(68/68 °F)	1.0238
12.	Density, 25 °C(77 °F) 60 °C(140 °F)	1.022 g/cm <sup>3</sup> 0.998 g/cm <sup>3</sup>
13.	Refractive Index, 20 °C(68 °F)	1.439 - 1.442
14.	Viscosity, 25 °C(77 °F) 60 °C(140 °F)	75.0 cPs (mPa.s) 10.9 cPs (mPa.s)
15.	Specific Heat, 25 °C(77 °F)	2.18 J/(goK)(0.52 Btu/lb/°F)
16.	Surface Tension, 25 °C(77 °F)	35 mN/m(dyne/cm)
17.	Flash Point	124 °C(255 °F)
18.	Thermal Conductivity, 25 °C(77 °F)	0.1672 W/(moK)(0.09661 Btu/hr ft °F)
19.	Electrical Conductivity, 25 °C(77 °F)	< 6 micro S/m
20.	Heat of Formation	-628 KJ/mol (-150 Kcal/g-mol)
21.	Heat of Vaporization, 25 °C(77 °F)	45.4 kJ/mol(257 Btu/lb/°F)

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## Viscosity Data

Temperature (°C)	Temperature (°F)	Viscosity (Centipoises)
-10	14	2600
0	32	860
10	50	245
20	68	107
30	86	53
40	104	29
50	122	19
60	140	10.9

## Material Safety Policy

Before handling the product, The Material Safety Data Sheet (MSDS) should always be read and understood thoroughly and adequate safety procedures should be followed. MSDS offers information on the toxicity, environmental and industrial hygiene aspect of our products.

## Handling and Storage

Precautionary measures include: use only with adequate ventilation; avoid breathing vapor, mist or gas; avoid contact with eyes, skin and clothing; keep container closed; and wash thoroughly after handling. DPG has a shelf life of one year when stored below 40°C in closed containers away from UV light

## Container Material

Stainless Steel, aluminum, plastic or carbon steel with phenolic coating are recommended.

## Shipping

Product is available in barges, lined tank cars and dedicated tank truck, and 215kg nonreturnable drums.

DOT Label required: None

Freight classification: Propylene Glycol

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