



Polyglycol P-4000
Polypropylene Glycol

Product Description

CAS # 25322-69-4
CTFA NOMENCLATURE — PPG-34

Polyglycol P-4000 is a linear polymer produced by controlled, catalysed reaction between propylene oxide and water. The letter P and the number 4000 indicate that the polymer is propylene oxide based and that the approximate average molecular weight is 4000.

PPG P-4000, as this product is also known, is a clear, viscous liquid at room temperature. It has a higher pour point and unlike the lower molecular weight PPGs, is partially soluble in water at 77°F (25°C). It loses its water solubility at higher temperatures.

Like all polypropylene glycols, Polyglycol P4000 is soluble in all proportions with any organic solids and liquids, the main exception being long chain aliphatic hydrocarbons.

Polyglycol P4000 possesses excellent lubricity and has a low vapor pressure. Under extreme heating conditions it does not form coke nor does it form a varnish. Decomposition products are low boiling products that are either lost as volatiles or soluble in the polypropylene glycol.

Typical Physical Properties

<u>Property (Unit)</u>	<u>Typical Value</u>	<u>Test Method</u>
Flash point	>302°F (>150°C)	ASTM D 92 (COC)
Viscosity @ 77°F (25°C) (cSt)	1110	ASTM D 445 / D 446
Viscosity @ 212°F (100°C) (cSt)	73	ASTM D 445 / D 446
Specific Gravity (g/cm ³ @ 77°F (25°C)/ 77°F (25°C))	1.004	ASTM D 892
Pour point	-4°F (-20°C)	ASTM D 97

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Applications

PPG P-4000 is suitable as an antifoam agent in latex formulations, paper and pulp processing, emulsion paints, sugar beet processing, fermentation vats in the manufacture of various products. Other applications include its use as a cosmetic ingredient, a mould release agent, an intermediate for e.g. resin and as plasticizer. PPG P-4000 can also be used as lubricant base, its intrinsic lubricity may be further enhanced by the use of additives.

Safe Use and Handling

Dow polypropylene glycols are relatively easy to store and handle. They can be stored in bulk in steel tanks, which should be padded with nitrogen or any other inert gas to prevent air from entering the tank. If slight iron pickup and color changes cannot be tolerated then the storage tanks should be constructed from stainless steel.

To ease the handling of polypropylene glycols somewhat, higher storage temperatures should be considered to keep the viscosity of the polyglycols within limits suitable for the pumping equipment available. The maximum storage temperature should not exceed 104°F (40°C) to avoid the risk of product degradation. Pipelines may also require insulation and/or tracing to maintain suitable product temperatures.

Although PPGs have very low pour points, especially polyglycols P2000 and P4000 become very viscous at low temperatures. Consequently, it is recommended that they be stored in tanks which are well insulated and heated. Externally located heating devices are preferable to internally sited ones. With external heating the risk of accelerating product deterioration is greatly reduced.

Similarly drums should be stored under cover or preferably inside a warehouse, to maintain the temperature of the polyglycol at a level which allows for easy discharge.

The shelf life of properly stored bulk and unopened drums is, at least, 24 months.

Product Stewardship

Dow encourages its customers and potential users to review their applications from the standpoint of human health and environmental aspects. To help ensure that Dow products are not used in ways for which they are not intended or tested, Dow personnel will assist customers in dealing with environmental and product safety considerations. Dow literature, including Material Safety Data Sheets, should be consulted prior to use.

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