



Technical Data Sheet

ICC-Propoxylated Products

Trade Name: PPG P-2000

Chemical Name: Polyglycol 2000, Polypropylene Glycol

Polypropylene Glycol

PPG P-2000 polyether is a 2000 molecular-weight polypropylene glycol. The terminal end groups are predominantly secondary hydroxyls and have a relatively low reactivity. It is compatible with most polyether polyols and can be blended with other diols or triols to achieve desirable modifications of product properties. Polyglycol P-2000 is a linear polymer produced by controlled, catalyzed reaction between propylene oxide and diol starter. The letter P and the number 2000 indicate that the polymer is propylene oxide based and that the approximate average molecular weight is 2000. PPG P-2000, 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 25°C. It loses its water solubility at higher temperatures. Like all polypropylene glycols, Polyglycol P-2000 is soluble in all proportions with any organic solids and liquids, the main exception being long chain aliphatic hydrocarbons. Polyglycol P-2000 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.

Application

PPG P-2000 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-2000 can also be used as lubricant base, its intrinsic lubricity may be further enhanced by the use of additives. PPG P-2000 polyol is used in a broad range of urethane foam and other applications, including deck coatings, solvent and water-based adhesives, clay pipe sealants, elastomers, defoamers, humectants, plywood patch, seamless and sports flooring, potting compounds, tire fill, inks, lubricants, antistatic agents, crude oil de-emulsifiers, and plasticizers. As with any product, the use of PPG P-2000 polyol in a given application must be tested (including but not limited to field testing) in advance by the user to determine suitability.

Storage and Handling

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 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 polyglycol P-2000 become very viscous at low temperatures.

TEST	STANDARD TEST METHOD	RESULTS
Appearance (%)	—	Liquid
Active content	—	100
Hydroxyl value, mg KOH/g	ASTM D-4252	54-62
Cloud point, °C (10% in 25% BDG)	ASTM D-202	22±1
Density at 25°C, g/ml	ASTM D-1298	1.002±0.01
Viscosity at 25°C, cP	ASTM D-445	260-300

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.

Shelf life: The shelf life of polypropylene glycol stored bulk and unopened drums is, at least, 24 months.

Safety

Polyglycol P-2000 are considered to be low in acute oral toxicity. They cause no significant skin irritation or sensitization and are not reportedly absorbed in any appreciable amount. Direct contact with the eyes may cause slight temporary irritation, similar in character to that caused by mild soap. Consequently, it is recommended that eye protection should be employed and viewed as the minimum level of safety equipment required when working with polypropylene glycols.

Inhalation: Remove victim from exposure to fresh air immediately, if not breathing, give artificial respiration; if breathing is difficult, give medical oxygen. Get medical aid immediately.

Ingestion: Rinse mouth with plenty of milk or water (only if victim is conscious and alert). Get medical aid immediately.

Skin Contact: If skin contact occurs, wash the affected area with plenty of water and a neutral soap for a minimum of 5 minutes.

Eye Contact: If eye contact occurs, wash with plenty of clean water or amphoteric eye solution for a minimum of 15 minutes, holding the eyes open, medical advice should be followed.