

Technical Datasheet of PTMEG

Polytetramethylene-Ether-Glycol(PTMEG,PTG) is a regularly linear polyether. It has excellent features in elasticity, low-temperature property and resistance-to-hydrolysis. The main applications are spandex, elastomers, artificial and synthesized leathers, paints and coating materials.

Specifications a of Polytetramethylene-Ether-Glycol(PTMEG,PTG)						
Grade	850	1000	1400	1800	2000	3000
Hydroxyl Number (OH)(mgKOH/g)	126~140	107~117	77~84	60~65	53~59	35~39
Molecular Weight	801~890	959~1049	1336~1457	1726~1870	1901~2117	2877~3206
Color	Max. 50	Max. 50	Max. 50	Max. 50	Max. 50	Max. 50
Acid Number (mgKOH/g)	Max.0.05	Max.0.05	Max.0.05	Max.0.05	Max.0.05	Max.0.05
Water (%)	Max. 0.02	Max. 0.02	Max. 0.02	Max. 0.02	Max. 0.02	Max. 0.02

■ PTMEG 1000

Physical and Chemical Properties

Form:	liquid to waxy, wax	
Odour:	odourless	
Odour threshold:	No data available.	
Colour:	colourless	
pH value:		No data available.
Melting point:	26 °C	
Boiling point:	> 250 °C	
Vapour pressure:	< 0.1 mbar	(20 °C)
Density:	0.982 g/cm ³	(30 °C)
Bulk density:	0.982 g/cm ³	(30 °C)
Partitioning coefficient n-octanol/water (log Pow):	18.9	(25 °C) (calculated)
Viscosity, dynamic:	440 mPa.s	(30 °C)
Solubility in water:	< 10 g/l	(20 °C)
Solubility in other solvents:		organic solvents soluble
Flash point:	240 °C	(DIN ISO 2592)
Autoignition:	> 245 °C	(DIN 51794)

Applications

PTMEG are widely used in elastomeric segmented polymers. Characteristic for these elastomeric segmented polymers is their two phase morphology with a hard (or rigid) segment and a soft segment. Compared with other soft segments, such as polyesterdiols or polylactones PolyTHF[®] provides low temperature flexibility, low content of extractable substances, microbial resistance and hydrolytic stability.

The most important applications for PTMEG are:

Thermoplastic Polyurethanes (TPU)

Thermoplastic polyurethanes containing PTMEG as the soft segment have excellent resistance to hydrolysis and microbes and very good mechanical properties. They have extremely high elasticity, even at very low temperatures, and are used in catheters, dashboards, radiator grills, ski-boots, hoses, pipes and many other applications.

Thermoplastic Polyetheresters (TPEE)

Polyetheresters have excellent mechanical properties over a wide temperature range and good resistance to solvents (except chlorinated hydrocarbons), oils and fats. PEEs are used in a wide variety of applications, such as in the machinery (gearwheels, springs, etc.), shoe and automotive industries. Other uses include fiber optics, leather replacement, household appliances and sports articles.

Thermoplastic Polyetheramides (TPEA)

Superior product qualities make polyetheramides suitable for demanding applications such as ski boots, swimming goggles, hearing aid components, watch straps and, generally, all kinds of articles that come into direct contact with the skin.

Polyurethane Fibers (Spandex)

Due to their excellent resistance to hydrolysis and microbes, the largest fields of application for elastomeric fibers of PTMEG are articles that come into direct contact with the skin, such as swimwear, underwear, hosiery, bandages and diapers.

Cast Elastomers

PTMEG cast elastomers can possess mechanical properties superior to both polyesterdiols and TPU. Typical applications consist of roller skate wheels, drive units, friction bearings, conveyer belts and others.

Storage and Handling

PTG is hygroscopic and needs to be protected from moisture and air.

A dry nitrogen blanket should be applied to open containers before resealing.

Always refer to the Material Safety Data Sheet (MSDS) for detailed information on handling and disposal.