



Polytetramethylene Ether Glycol Polyol 650 (PTMEG 650)

CAS Number: 25190-06-1

Empirical Formula: $\text{HO}(\text{C}_4\text{H}_8\text{O})_n\text{H}$

Background

PTMEG 650 is a specialty liquid difunctional polyether polyol with a softening point of about 11 °C. The viscosity of PTMEG 650 is about 160 mPa.s at 40 °C. This differentiates PTMEG 650 from PTMEG 1000 and 2000, which are waxy solids at room temperature. The appearance is a liquid to waxy material at room temperature, and a colorless transparent liquid when fully melted.

PTMEG 650 is stabilized with BHT at 200±50 ppm. In the empirical formula above, $n \sim 7$ for the 650 grade.

Sales Specifications

Molecular Weight	650 ± 25
Hydroxyl Value (mg KOH/g)	166 – 180
Color (Hazen)	≤ 40
Moisture (ppm)	≤ 150
Acid Value (mg KOH/g)	≤ 0.050
Volatile Matter (%)	≤ 0.1

Applications

PTMEG 650 is used as the soft segment of high-performance polyurethane, polyurea, co-polyester and co-polyamide elastomers, where higher Durometer values are required vs. the PTMEG 1000 and 2000 grades. TDI prepolymers based on PTMEG 650, when cured with MOCA or other aromatic diamines, exhibit higher hardness, tensile properties and tear strengths based on the increase in the weight fraction of the hard segment. PTMEG 650 is finding use in low-free isocyanate prepolymers to achieve greater hardness than is possible with low free isocyanates prepolymers based on PTMEG 1000 and 2000.

PTMEG 650 can be used as a chain extender in polyurethanes to achieve greater softness vs. other chain extenders like 1,4-BDO and 1,6-HDO. Solid diamine curatives can be dissolved in PTMEG 650 to produce liquid chain extender blends. When blended with PTMEG 1000, PTMEG 650 can lead to a liquid polyol blend.

The major end-uses for the PTMEG 650 grade are in high performance polyurethane cast elastomers, coatings, adhesives, thermoplastic polyurethanes (TPEs), thermosetting polyurethanes (TPUs), polyester (TPEE) and polyamide (TPEA) modification, and polyurethane prepolymers. Applications are wide ranging, for example, high performance adhesives, sealants and protective coatings, industrial tires, industrial belts and conveyors, medical devices, floor coatings and both cast and molded industrial parts, like cartridge end-caps and seals.

Systems based on the PTMEG polyols, including PTMEG 650, exhibit excellent abrasion and wear properties, superior hydrolytic stability, low-temperature properties like flexibility, high MVT rates, good dynamic properties such as low hysteresis, excellent mechanical properties across a broad temperature spectrum, and microbial resistance. This property set is important in demanding applications. Examples are high performance coatings and adhesives; belts and conveyor components; truck-bed liners and silo liners; tubing and cable jacketing; sports equipment; marine products, etc. The chemical and physical properties exhibit superior performance vs. polyester polyols, particularly in hydrolytic stability, abrasion resistance and low temperature properties.

Safety and Handling

To obtain a Safety Data Sheet (SDS) and other handling information, please contact us using the contact form on www.gantrade.com or call us. Gantrade Corporation encourages customers to have a comprehensive understanding of the health, safety and environmental information on its products before handling the product.

PTG 650 is hygroscopic and absorbs water. Therefore, exposure to atmosphere moisture should be limited.

Packaging

PTMEG polyols is available from Gantrade Corporation in sealed drums with a net weight of 200 MT, 441 lbs. or 20 MT heated ISO Tanks

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