**Introduction**

POLYMEG® polyols are diols produced through the polymerization of tetrahydrofuran. They are linear in structure with a backbone of repeating tetramethylene units connected by ether linkages. The chains are capped with primary hydroxyl units.

POLYMEG polyols are characteristically white, waxy solids at room temperature. They do not have sharp melting or solidification points. At slightly elevated temperatures (38°C, 100°F), they liquefy to low-viscosity, water white liquids with a tendency to supercool. The hygroscopic nature of polyols requires limiting exposure to atmospheric moisture. An antioxidant is added to POLYMEG polyols to improve the stability of the polyol against thermal and oxidative degradation during normal storage and handling.

POLYMEG polyols are soluble in most organic solvents (alcohols, esters, ketones, plus aromatic and chlorinated hydrocarbons), but they are essentially insoluble in aliphatic hydrocarbons and water.

<table>
<thead>
<tr>
<th>Physical Properties</th>
<th>650</th>
<th>1000</th>
<th>2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Molecular Weight</td>
<td>625-675</td>
<td>950-1050</td>
<td>1900-2100</td>
</tr>
<tr>
<td>Hydroxyl #, mg. KOH/g.</td>
<td>166.2-179.5</td>
<td>106.9-118.1</td>
<td>54.7-57.5</td>
</tr>
<tr>
<td>Water, ppm max.</td>
<td>150</td>
<td>150</td>
<td>150</td>
</tr>
<tr>
<td>Color, APHA max.</td>
<td>40</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>Viscosity, cP at 40°C</td>
<td>100-200</td>
<td>240-360</td>
<td>1180-1650</td>
</tr>
<tr>
<td>Iron, ppm max.</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Specific gravity, 40°C</td>
<td>0.98</td>
<td>0.975</td>
<td>0.972</td>
</tr>
</tbody>
</table>

**Applications**

The major application uses for POLYMEG polyols include: as a component of thermoplastic and thermoset urethane elastomers; in spandex fibers; and in copolymer thermoplastic elastomers. High performance elastomers made with POLYMEG polyols are also used in a large number of commercial applications to form soft segment polyurethane, copolymer polyester and copolymer polyamide elastomers. Thermoplastic elastomers made with POLYMEG can be processed into finished articles by injection molding or extrusion. Polyurethane articles can also be made via low-pressure processes (casting or compression molding) by filling a mold before the polymer viscosity increases from the curing reaction. Common application markets include:

- Automotive
- Adhesives and sealants
- Coatings
- Engineered components
- Industrial
- Sports
- Clothing
Technical Data

Polymeg® Polyols
Polytetramethylene ether glycol (PTMEG)

Benefits
Elastomers prepared from POLYMEG polyols are high performance products with these outstanding characteristics:

- Superior hydrolytic stability (high temperature and humidity)
- High fungus resistance
- Low temperature flexibility
- Superior dynamic properties
- Excellent abrasion resistance
- High moisture vapor transmission
- Good tear strength

FDA Status
POLYMEG polyols, listed as α-hydro-ω-hydroxy poly(oxytetramethylene), are acceptable indirect food additives in the following regulation standards:

- 21 CFR 177.1680 Polyurethane resins
- 21 CFR 175.105 Adhesives
- 21 CFR 177.1590 Polyester elastomers
- 21 CFR 177.2600 Rubber articles intended for repeated use

Safety and Health Hazards
POLYMEG polyols are stable, non-hazardous materials with a low order of toxicity and a high flash point. Eye and skin exposure may cause some mild irritation. More detailed safety and disposal information about this product is contained in the Material Safety Data Sheet (MSDS). All users of our products are urged to retain and use the MSDS.

A MSDS is automatically distributed upon customer purchase/order execution. You may request an advance or replacement copy by going to our website: www.lyondell.com or by calling our MSDS hotline at (800) 700-0946 (U.S. and Canada).