

# Technical Bulletin

## HUNTSMAN

### E-GRADE<sup>®</sup> EG GLYCOL

**GENERIC NAMES** 1,2-ethanediol; ethylene glycol; monoethylene glycol; MEG

**DESCRIPTION** Product is a straight-chain aliphatic compound terminated on both ends by a hydroxyl group. It is a clear, moderately viscous, hygroscopic liquid at room temperature.

**APPLICATIONS**

- heat transfer agents
- chemical intermediates
- humectants
- unsaturated polyester resins
- plasticizers
- solvents

Large volumes of ethylene glycol are consumed as an automotive engine antifreeze/coolant. Its hygroscopicity makes it useful as a conditioning agent in adhesives, cork, vinyl floor tiles, synthetic rubber, cellulose sponges, printing inks and paper products. Additionally, it is used in the production of alkyd-type resins having linear chain structures and unsaturated polyester resins. It is also used in the dehydration of natural gas.

The guaranteed low trace metals content and high specific resistance (low conductivity) of E-GRADE<sup>®</sup> EG GLYCOL make it especially suitable for electronics applications.

### SALES SPECIFICATIONS

<u>Property</u>	<u>Specifications</u>	<u>Test Method *</u>
Acidity (as acetic acid), wt%	0.001 max.	ST-31.46, B
Appearance	Clear and substantially free of suspended matter	ST-30.1
Ash, wt. %	0.001 max.	ST-31.12
Chlorides, ppm	None detectable	ST-4.7
Color, Pt-Co	5 max.	ST-30.12
Diethylene glycol, wt. %	0.04 max.	ST-35.7
Ethylene glycol, wt. %	99.9 min.	ST-35.7
Specific resistance, 25°C, ohm-cm	3.0 x 10 <sup>6</sup> min.	ST-4.79
Trace Metals, ppb		ASTME-E1184
Aluminum (Al)	100 max.	
Copper (Cu)	100 max.	
Iron (Fe)	100 max.	
Lead (Pb)	100 max.	
Magnesium (Mg)	100 max.	
Manganese (Mn)	100 max.	
Nickel (Ni)	100 max.	
Potassium (K)	100 max.	
Sodium (Na)	100 max.	
Water, wt%	0.04 max.	ST-31.53

Test methods are available upon request.

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EGRADEEG-0106

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**Main Sales Office:** Huntsman Corporation / 10003 Woodloch Forest Drive / The Woodlands, Texas 77380 / Tel: 281-719-6000 / Fax: 281-719-6416  
**Technical Services Section:** 8600 Gosling Rd. / The Woodlands, Texas 77381 / Tel: 281-719-7780 / Fax: 281-719-7555

## E-GRADE® EG GLYCOL

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### TYPICAL PROPERTIES

#### Chemical Properties

Structure	HOCH <sub>2</sub> CH <sub>2</sub> OH
Molecular Weight	62.07

#### Physical Properties

Boiling point, 760 mm Hg, °C	197.2
Flash point, open cup, °F	240
Freezing point, °C	-13
Refractive index, n <sup>20</sup> <sub>D</sub>	1.4318
Specific gravity, 20/20°C	1.1155
Specific heat, 0°C, cal/gm/°C	0.544
Vapor pressure, 20°C, mm Hg	0.1
Viscosity, 20°C, cp	20.9
Water solubility	Complete
Weight, 20 °C, lb/gal	9.28

#### Regulatory Information

DOT Classification	not regulated
Freight Classification	ethylene glycol
HMIS Code	2-1-0
CAS Number	107-21-1
TSCA Inventory	Yes
WHMIS Classification	D1B, D2A
Canadian DSL	Yes
European EINECS	Yes
Australian AICS	Yes
Japanese MITI	Yes

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### PRODUCT SAFETY POLICY

It is the product safety policy of Huntsman Petrochemical Corporation to provide our customers with information on the safe handling and use of our products. The Material Safety Data Sheet (MSDS) should always be read and understood thoroughly before handling the product, and adequate safety procedures should be followed. Information on the toxicity, environmental and industrial hygiene aspects of our products may be found in the MSDS. Precautionary measures include: use only with adequate ventilation; avoid breathing vapor, mist or gas; avoid contact with eyes, skin and clothing; keep container closed; wash thoroughly after handling.

### HANDLING AND STORAGE

Ethylene glycol is a stable, non-corrosive chemical with high flash point. Since it is hygroscopic, storage vessels must be designed to minimize moisture pickup. Other possible contaminants are iron and oxygen. For longer-term storage, or where iron contamination and color are objectionable, resin linings or stainless steel and aluminum vessels are recommended. Linings based on phenolic and epoxy resins are satisfactory. Zinc or zinc alloys should not be used in glycol service. For longer-term color stability, it is recommended that the product be stored under an inert atmosphere.

Cast-iron or centrifugal pumps with stainless shafts and impellers are satisfactory. Rubber-lined or rubber-bound gaskets should be avoided. Flexible graphite filled or stainless steel double-jacketed gaskets are usually effective larger gaskets. Stainless steel winding with flexible graphite filler piping gaskets performs well. Pipe thread lubricants based on corrosion inhibiting zinc compounds or a graphite based lubricant with aluminum are generally satisfactory; however, glycols are excellent penetrants and leaks may be present where hydrostatic testing has indicated a tight system. Therefore, the system should be rechecked after the glycol has been added.

Low pressure stainless steel steam coils in storage tanks and steam tracing of transfer lines may need to be provided in cases where low environmental temperatures may make pumping of the product difficult. Flushing with water and steam can readily clean transfer or storage tanks.

### SHIPPING

Product is available in tank cars, tank trucks or non-returnable drums (510 pounds net). Containers are stainless steel, aluminum or suitably lined. Certain government regulations may apply at the time of shipment.