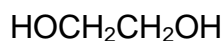


**Technical Bulletin****ETHYLENE GLYCOL – ANTIFREEZE GRADE**

1,2-ethanediol; Ethylene glycol; Monoethylene glycol (MEG)

**ETHYLENE GLYCOL** 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 agent
- freezing point depressant
- deicing fluid
- boiling point depressant

Ethylene glycol - antifreeze grade is designed to be used as the base for antifreeze formulations compounded to meet the requirements of the North American market.

**SALES SPECIFICATIONS**

<b>Property</b>	<b>Specifications</b>	<b>Test Method*</b>
Acidity (as acetic), wt%	0.01 max.	ST-31.46, A
Appearance	Clear and substantially free of suspended matter	ST-30.1
Ash, wt%	0.01 max.	ST-31.12
Chlorides, ppm	3.0 max.	ST-4.7
Color, Pt-Co	20 max.	ST-30.12
Distillation, IBP, °C	190 min.	ST-32.1
Distillation, DP, °C	235 max.	ST-32.1
Ethylene glycol, %	95.0 min.	ST-45.1 (by difference) or
		ST-35.14
Water, wt%	0.50 max.	ST-31.53, 5

\*Methods of Test are available from Huntsman Corporation upon request.

**ADDITIONAL INFORMATION****Regulatory Information**

DOT/TDG Classification	Not regulated in drums
HMIS Code	2-1-0
WHMIS Classification	Class D-1B: Toxic
	Class D-2A: Teratogenic
CAS Number	107-21-1; 111-46-6

**Chemical Control Laws**

Australia, AICS	Listed
Canada, DSL	Listed
Europe, EINECS/ELINCS	Listed
Japan, METI	Listed
United States, TSCA	Listed

**Typical Physical Properties**

Boiling point, mm Hg, °C (°F)	198 (388)
Flash point, PMCC, °C (°F)	118 (244)
Freezing point, °C (°F)	-13 (8)
Molecular weight	62
pH	6.5
Specific gravity, 20/20°C	1.12
Vapor pressure, mm Hg, 20°C (68°F)	0.1
Viscosity, cSt, 20°C (68°F)	19
Water solubility (%)	> 10

## PRODUCT SAFETY POLICY

It is the product safety policy of Huntsman 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.

## TOXICITY AND SAFETY

For additional information on the toxicity and safe handling of this product, consult the Material Safety Data Sheet prior to use of this product.

## 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. Transfer or storage tanks can be readily cleaned by flushing with water and steam.

## AVAILABILITY

Product is available in barges, tank cars and tank trucks. Certain government regulations may apply at the time of shipment. Samples are available by contacting our sample department at 1-800-662-0924.

EGAFG-1007

**Huntsman Corporation  
Business Offices**  
10003 Woodloch Forest Dr.  
The Woodlands, TX 77380  
(281) 719-6000

**Huntsman Advanced Technology  
Center**  
**Technical Service**  
8600 Gosling Rd.  
The Woodlands, TX 77381  
(281) 719-7780

**Samples 1-800-662-0924**

[www.huntsman.com](http://www.huntsman.com)

Copyright © 2007 Huntsman Corporation or an affiliate thereof. All rights reserved.

Huntsman Corporation warrants only that its products meet the specifications stated herein. Typical properties, where stated, are to be considered as representative of current production and should not be treated as specifications. While all the information presented in this document is believed to be reliable and to represent the best available data on these products, HUNTSMAN MAKES NO WARRANTY OR GUARANTEE OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, NON-INFRINGEMENT OF ANY INTELLECTUAL PROPERTY RIGHT OF ANY THIRD PARTY, OR WARRANTIES AS TO QUALITY OR CORRESPONDENCE WITH PRIOR DESCRIPTION OR SAMPLE, AND ANY USER OF PRODUCTS DESCRIBED HEREIN SHOULD CONDUCT A SUFFICIENT INVESTIGATION TO ESTABLISH THE SUITABILITY OF ANY PRODUCT FOR ITS INTENDED USE AND ASSUMES ALL RISK AND LIABILITY WHATSOEVER RESULTING FROM THE USE OF SUCH PRODUCT, WHETHER USED SINGLY OR IN COMBINATION WITH OTHER SUBSTANCES. Product(s) described in this publication may be hazardous and/or toxic and require special precautions in handling. For all product(s) described herein, the user should obtain from Huntsman detailed information on hazards and/or toxicity, together with proper shipping, handling, and storage procedures, and should comply with all applicable safety and environmental standards. The behavior, hazards and/or toxicity of the product(s) referred to in this publication in manufacturing processes and their suitability in any given end-use environment are dependent upon various conditions such as chemical compatibility, temperature, and other variables, which may not be known to Huntsman. It is the sole responsibility of the user of such product(s) to evaluate the manufacturing circumstances and the final product(s) under actual end-use requirements and to adequately advise and warn future purchasers and users thereof.