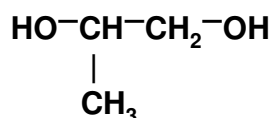


**Technical Bulletin****Propylene Glycol – USP**

Generic: 1,2 propanediol

**STRUCTURE****DESCRIPTION**

A relatively nontoxic liquid that is practically colorless, odorless, and tasteless.

**APPLICATIONS**

A solvent for flavors, extracts, drugs, and food antioxidants; a heat transfer medium; an emollient and humectant for tobacco products, baked goods, coconut, cellophane, cork, adhesives, and paper products; a lubricant and mold inhibitor for food processing equipment; a humectant for pet food.

**SALES SPECIFICATIONS**

This product meets the requirements of the Propylene Glycol monograph listed in the United States Pharmacopoeia (USP), latest edition, European Pharmacopoeia (EP), and Food Chemicals Codex (FCC).

Property	Specifications	Test Method *
Acidity (as acetic acid), wt.%	0.002 max.	ST-31.46, B
Appearance	Substantially free of suspended matter	ST-30.1
Ash, wt.%	0.005 max.	ST-31.12
Chlorides as Cl, ppm	0.5 max.	ST-4.44
Color, Pt-Co	10 max.	ST-30.12
Diethylene Glycol, area %	0.10	USP
Ethylene Glycol, area %	0.10	USP
I.D. Test A (Infrared Scan)	Pass	USP
I.D. Test B (DEG)	Pass	USP
I.D. Test B (EG)	Pass	USP
I.D. Test C (PG)	Pass	USP
Heavy metals as Pb, ppm	5 max.	ST-31.30
IR spectra	Pass	USP
Propylene Glycol, area % by gas chromatography	99.5 min.	ST-35.102
Specific gravity, 25/25°C	1.0350 min. 1.0370 max.	ST-30.31
Sulfate, ppm	60 max.	USP
Volatile organic impurities	Pass	USP-NF
Water, wt.%	0.2 max.	ST-31.53

\* Methods of test are available from Huntsman upon request.

**ADDITIONAL INFORMATION**

Regulatory Information	
DOT Classification	Not regulated
Freight Classification	Propylene Glycol
HMIS Code	0-1-0
CAS Number	57-55-6

Chemical Control Laws	
TSCA Inventory	Listed on or exempt
WHMIS Classification	Not regulated
Canadian DSL	Listed on or exempt
European EINECS	Listed on or exempt
Australian AICS	Listed on or exempt
Japanese MITI	Listed on or exempt

Physical Properties	
Arsenic, ppm	1 max.
Boiling range ASTM, °C, IBP ASTM, °C, DP	185 min. 189 max.
Flash point, PMCC, °F	212
Freezing point, °C	< -76
Molecular weight	76
Refractive index, 20 °C	1.4310 min. 1.4330 max.
Vapor pressure, 20 °C, mm Hg	< 1
Viscosity, 20 °C, cp	60
Water solubility, %	> 10
Weight, 20 °C, lb/gal	8.64

**SHELF LIFE**

We define Shelf Life in terms of a product's conformance to sales specifications, after a specified period of time. Using this as a guide, the product should retain its conformance to sales specifications for a period of at least two years after shipment, if the product is stored at less than 100° Fahrenheit in its undamaged, unopened, factory packaged container.

In general, the user should determine the suitability of any chemical compound, no matter what the shelf life or length of time of storage. Each user should conduct a sufficient investigation to establish the suitability of any product for his intended use.

**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.

**HANDLING, STORAGE, AND SHIPPING PRECAUTIONS**

Propylene Glycol - USP is a high-purity material, which must be handled with special precautions to avoid contamination. Under ordinary conditions, mild steel is a satisfactory material of construction; however, for long-term storage and where iron contamination and color are objectionable, stainless steel or aluminum vessels are recommended. For additional information on handling and storage of Propylene Glycol, please contact the Huntsman Technical Service Section. Product is available in barges, lined tank cars and dedicated tank trucks. Certain government regulations may apply at the time of shipment.

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**For Your Protection****HEALTH AND SAFETY**

*The Safety and Health information in this data sheet does not contain sufficient detail for safe handling in all cases. For detailed safety and health information refer to the **Material Safety Data Sheet** for this product.*

**EMERGENCY CALLS: Huntsman Emergency Response Center: 800-328-8501, 409-722-8381 / CHEMTREC - Spills, Leak, Fire 800-424-9300 (in USA and Canada)**

**IMPORTANT LEGAL NOTICE:** Sales of the products described herein ("Product") are subject to the general terms and conditions of sale of Huntsman Corporation and its affiliates and subsidiaries (collectively, "Huntsman").

To the knowledge, information and belief of Huntsman, all the information and recommendations in this publication are accurate as of the date of publication.

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Huntsman warrants that at the time and place of delivery all Products sold to a buyer of such Products shall conform to the specifications provided by Huntsman to such buyer of such Products.

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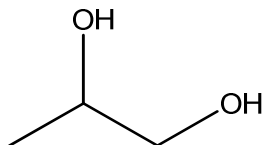
July 31, 2013



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## Sales Specification



## Propylene Glycol - USP

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<u>Property</u>	<u>Unit</u>	<u>Specification</u>	<u>Test Method</u>
Purity	wt%	99.5 Min	GC-87
DPG	wt%	0.1 Max	GC-87
EG (limit 0.1%)	wt%	Pass	GP-87-3
DEG (limit 0.1%)	wt%	Pass	GP-87-3
Identification by GC Retention	-	Pass	GP-87-3
Identification by IR	-	Pass	GP-120
Water	wt%	0.2 Max	GP-2D
Color	Pt-Co	10 Max	GP-3
Acidity as Acetic Acid	wt%	0.002 Max	GP-4
Acidity, ml of 0.01N NaOH	mL	1.67 Max	GP-4
Acidity, ml of 0.1N NaOH	mL	0.2 Max	GP-4N
Appearance	-	Clear&FFSM	GP-7-1
Specific Gravity @ 20/20°C	-	1.0376 – 1.0389	GP-1J
Specific Gravity @ 25/25°C	-	1.035 – 1.037	GP-1J
Distillation, IBP	°C	186.0 Min	GP-5K-2
Distillation, DP	°C	189.0 Max	GP-5K-2
Refractive Index @ 25°C	-	1.430 – 1.434	GP-22
Chlorides as Cl	ppm	70 Max	GP-14U-2
Chlorides as Cl	ppm	0.5 Max	GP-14B
Sulfates	ppm	60 Max	GP-15-2
Residue on Ignition	wt%	0.0070 Max	GP-18B-1
Odor	-	Practically None	GP-21C
Iron	ppm	0.5 Max	GP-11N-2

<u>Property</u>	<u>Unit</u>	<u>Specification</u>	<u>Test Method</u>
Heavy Metals	ppm	5 Max	GP-36B
Lead	ppm	1 Max	GP-36H-1
Arsenic as As	ppm	1 Max	GP-49B-1

Propylene glycol is designated a Volatile Organic Compound (VOC) in the Clean Air Act Section #111 Code of Federal Regulations (CFR) v. 40 Part 60 (1995). It is subject to compliance with the emission standards set forth in the following subparts of 40 CFR Part 60:VV,NNN,RRR. Consideration must also be given to any applicable state or environmental regulations.

Monument Propylene Glycol USP, CAS No, 57-55-6, meets the requirements of the US Pharmacopeia (current edition), including the provisions found in section 467 entitled Organic Volatile Impurities (residual solvents), and the Food Chemicals Codex (current edition). Monument Propylene Glycol USP is considered NOT genetically modified and NOT derived from a genetically modified organism as defined by the EC directives 1830/2003/EC on labeling and traceability and 1829/2003/EC on genetically modified food and feed and any amending legislation. Among the approved uses of this product is as a direct food ingredient under Title 21 CFR 184.1666. This product is authorized for free sale to the European Union (EC).

Expiration date is two years from date of manufacture when the Propylene Glycol USP is kept below 100F, out of direct sunlight, in the original sealed drums or totes, or in properly designed bulk storage with a dry air or nitrogen pad.

Date format: 01/02/13 = January 2, 2013.

Analyses for chlorides, sulfates, residue, reducing & oxidizing subst., arsenic, lead, glycerin and heavy metals are skip lot tested quarterly. Minimum molecular weight: 76.09

**Product Code: 101280 (Bulk)**  
**CAS Number: 57-55-6**  
**Synonym: 1,2-propanediol**  
**Effective Date: 11/3/17**  
**Revision: FCD-00543/21**

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