



Ship-to Customer No: 90049375
 AMBYTH CHEMICAL COMPANY
 6717 35th AVE NW
 SEATTLE WA 98117

Print Date: Feb 09, 2012
Ship Date: Feb 09, 2012
Customer Order: 324
Delivery: 22699478
Sales Order: 12274931
Carrier: CUSTOMER PICK-UP

Certificate of Analysis

Product Name: PROPYLENE GLYCOL-USP DRUM
Material Number: 101281
Batch No: 12DR038359
Manufacturing Date: Feb 07, 2012
Expiration Date: Feb 06, 2013

<i>Method, Property</i>	<i>VALUE</i>	<i>SPECIFICATION</i>		<i>UNIT</i>
		<i>MIN</i>	<i>MAX</i>	
GP1J, Specific Gravity @ 25C	1.036	1.035	1.037	C25/25
GP1J, Specific Gravity @ 20° C	1.0379	1.0376	1.0389	C20/20
GP-2D, Water	0.010	0.000	0.200	Wt%
GP3, Color	5	0	10	APHA
GP4, Acetic Acid	0.0006	0.0000	0.0020	Wt%
GP4, Acidity, ml of 0.01N NaOH	0.500	0.000	1.670	ML
GP4N, Acidity, ml of 0.1N NaOH	0.050	0.000	0.200	ML
GP5K-2, Initial Boiling Point	186.6	186.0	189.0	DEG°C
GP5K-2, Dry Point	187.2	186.0	189.0	DEG°C
GP7-1, Appearance	Clear and Free		Clear and Free	
GP14U2, Chlorides	< 70	0	70	ppm
GP15-2, Sulfates	< 20	0	60	ppm
GP18B-1, Residue on Ignition	0.0000	0.0000	0.0070	Wt%
GP21C, Odor	Pass		Pass	
GP36B, Heavy Metals	< 1.0	0.0	5.0	ppm
GP36H1, Lead	< 1.0	0.0	1.0	ppm
GP111N2, Iron	< 0.01	0.00	0.50	ppm
GC87, Propylene Glycol	99.98	99.50	100.00	Wt%
GP87-3, Limit of EG, 0.10%	Pass		Pass	
GP87-3, Limit of DEG, 0.10%	Pass		Pass	
GC87, Dipropylene Glycol	0.000	0.000	0.500	Wt%
GP87-3, Identification Test	Pass		Pass	
GP120, Ident. by IR	Pass		Pass	

Arch Chemicals, Inc. Brandenburg facilities is ISO 9001:2008 Certified.

For any Emergency Call Arch Chemicals Emergency Action Network 24 hours/7 days:

1-800-654-6911



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GP22, Refractive Index @25	1.4310	1.4300	1.4340	nd
GP49B, Arsenic, <1 ppm	Pass		Pass	

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.

LONZA Propylene Glycol USP, CAS No, 57-55-6, meets the requirements of the USP 35, including the provisions found in section < 467 > entitled Organic Volatile Impurities (residual solvents), and the Food Chemicals Codex, seventh Edition. LONZA 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 one year 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: Jan 2, 2003 = January 2, 2003.

Analyses for chlorides, sulfates, residue, reducing & oxidizing subst., arsenic, lead, glycerin and heavy

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		<i>MIN</i>	<i>MAX</i>	

metals are skip lot tested weekly. Minimum molecular weight: 76.09

If you have any questions regarding these analyses, please call Chemworld.com.

Approved By:
 QA Manager
 Controlled Electronic Signature