

**ChemWorld.com****Worldwide Online Ordering and Consulting****GEORGIA WAREHOUSE**3939 Royal Drive, Suite 139,
Kennesaw, GA, 30144**MICHIGAN WAREHOUSE**25991 Northline Commerce Dr.
Unit 504 Taylor, MI 48180**UTAH WAREHOUSE**647 West Billinis Road, Unit 1
Salt Lake City, Utah 84119**Propylene Glycol, USP/FCC K Certificate of Analysis**

August 7, 2014

Chemworld.com

Re: Certificate of Analysis

Propylene Glycol, USP/FCC Kosher

Excipient Use Only

PO No.: 4357

Lbs: 22,795

Lot No.: 14-218-03

Mfg Date: 08/06/2014

Exp. Date: 08/06/2016

Customer No.: n/a

BOL No.: n/a

Attn: Quality Control Manager

Test	Method	Specification	Result
Appearance	Organoleptic	Clear, colorless, viscous liquid	PASS
Specific Gravity @ 25°C	USP <841>	1.035 - 1.037	1.036
Assay	USP	99.5% minimum	99.9
Identification A (IR)	USP <197F>	Meets requirements	PASS
Identification B, C (Limit of DEG and EG)	USP	Meets requirements	PASS
Chloride	USP <221>	Not more than 0.007% (70 ppm)	1 ppm
Heavy Metals	USP <231>	5 ppm maximum	PASS
Residue on Ignition	USP	Not more than 0.007% (70 ppm)	0 ppm
Sulfate	USP <221>	Not more than 0.006% (60 ppm)	PASS
Residual Solvents	USP <467>	Meets requirements	PASS
Acidity	USP	0.20 ml 0.10N NaOH maximum (NMT 2.0%)	0.001%
Water	USP <921> Method I	Not more than 0.2%	0.08
Lead	FCC	Not more than 1 mg/kg (1 ppm)	<1
Distillation Range	FCC	185 – 189°C	187 IBP / 188 DP

This product is excipient grade and not intended to be used as an active pharmaceutical ingredient or for specialist applications, such as parenteral, ocular, inhalation, open wound use, or applications that require sterile and/or pyrogen-free excipients. Propylene Glycol products sold by Chemworld.com are not for use in any application intended to produce vapor, fog, mist, smoke or aerosol, wherein there is a possibility of inhalation. Chemworld.com expressly disclaims any and all liabilities related to the use of Propylene Glycol in such applications. Refer to the MSDS materials provided with your product's shipment for additional information about proper use and potential hazards of these products.