



GEORGIA WAREHOUSE
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25991 Northline Commerce Dr.
Unit 504 Taylor, MI 48180

UTAH WAREHOUSE
647 West Billinis Road, Unit 1
Salt Lake City, Utah 84119

EMCO Chemical Distributors, Inc.
8601 95TH Street. Pleasant.Prairie, WI 53158 Ph:262-427-0400

Certificate of Analysis

SHIP TO:	CLP CHEMICALS, L.P.	CUSTOMER PO #:	TK17-01104
EMAIL:	<u>TKELLY@CLPCHEM.COM</u>	EMCO ORDER #:	SO00431098
ATTN:	QC LAB	EMCO CUST #:	121260
BILL TO:	CLP CHEMICALS, L.P.	CODE:	
PRODUCT:	PROPYLENE GLYCOL USP-K	SHIP DATE:	1/11/2017
EPC #:	10241	LOT #:	750105A12

LOT TESTING:		
TEST DESCRIPTIONS	SPECIFICATIONS	TEST RESULTS
Specific Gravity @ 25°C	1.035 – 1.037	1.03576
Color (Apha)	10 Max	1.1
Appearance	Clear, Free	Pass
Purity	99.5 % Min.	99.942
Identification, by IR	Compare to Standard	Pass
Water	0.2 % Max	0.01423
VALIDATION TESTING:		
*Specific Gravity @ 25°C	1.035 – 1.037	1.03562
*Assay	99.5 % Min.	100.00
*Identification A, by IR	Pass/Fail	Pass
*Identification B, Limit of Diethylene Glycol	Pass/Fail	Pass
*Identification B, Limit of Ethylene Glycol	Pass/Fail	Pass
*Identification C	Pass/Fail	Pass
*Residue on Ignition (mg)	3.5 Max	0.00
*Heavy Metals	0.0005 % Max	<=0.0005
*Chloride	0.007 % Max	<=0.007
*Sulfate	0.006 % Max	<=0.006
*Acidity (USP)	Pass/Fail	Pass
*Water	0.2 % Max	0.0243
TYPICAL VALUES:		
**Arsenic	1 wt ppm Max	1
**CONEG Metals	Pass/Fail	Pass
**Distillation, IBP@ 760 mmHg (°C)	186 Min.	186
**Distillation, DP@ 760 mmHg (°C)	189 Max	189
**Oxidiz Subst as ml thiosulfate	0.2 ml Max	0.2
**Refractive Index @ 20°C	1.4310 – 1.4340	1.4312
**Solubility @ 25°C	Pass/Fail	Pass

*Results listed represent typical values based off Emco Chemicals periodic testing.
**Results listed represent typical manufacturer values.

This product meets: U.S. Pharmacopoeia 39/National Formulary 34. This material is not intended for use as an Active Pharmaceutical Ingredient (API).