



CERTIFICATE OF ANALYSIS

Date: 12/22/2014

Customer: Chemworld

PO #: 1636

Product: Glycerin 99.7% USP/K

Lot #: G140529-3 (76 drums)

G140530-1 (76 drums)

Production Date: 5/30/2014

Expiration Date: 5/30/2015

CLP #: 14-12153

<u>Parameter</u>	<u>Unit</u>	<u>Result</u>	<u>Specification</u>	<u>Test Method</u>
Identification A (IR)		Pass	Pass	USP 36 : 2013 (197F)
Identification B				
- Diethylene Glycol	%	<0.10	0.10 max	USP 36: 2013
- Ethylene Glycol	%	<0.10	0.10 max	
Identification C		Pass	Pass	USP 36: 2013
(Confirmation of Glycerin by GC)				
Glycerine Content	%	99.8	99.7 min	USP 36 : 2013
Inorganic Impurities :				
- Chloride	ppm	<10	10 max	USP 36: 2013 (221)
- Sulfate	ppm	<20	20 max	USP 36: 2013 (221)
- Heavy Metal as Pb	ppm	< 5	5 max	USP 36: 2013 (231)
- Residue on Ignition	%	0.006	0.01 max	USP 36: 2013 (281)
Organic Impurities :				
- Individual Impurities	%	NIL	0.10 max	USP 36: 2013
- Total Impurities	%	NIL	1.0 max	USP 36: 2013
- Chlorinated Compounds	ppm	<30	30 max	USP 36: 2013
Fatty Acids & Esters		0.23	1 max	USP 36: 2013
(as mL of 0.5N NaOH/50 g)				
Color	mL FeCl3	< 0.4	0.4 max	USP 36: 2013
Specific Gravity @ 25		1.2614	1.2612 min	USP 36: 2013 (841)
Moisture Content	%	0.10	0.3 max	USP 36: 2013 (921)
Color	APHA	5	10 max	AOCS Ea 9-65