Certificate of analysis



Glycerine 99.7%

USP/FCC, Kosher

 Univar po#
 PX-654240

 GS&E po#
 I1-413434

 Lot number:
 1510150081

 Production date:
 Oct. 15, 2015

 Re-evaluation date:
 Oct. 14, 2017

 Source code:
 170-CTL-01

Factory: Thai Oleochemical Co., Ltd. (TOL), Amphur Muang Rayong, Rayong, Thailand

Product code: 818167 (1250 kgs IBC)

Properties	Specifications	Results
Appearance	Clear, colorless	Pass
Identification tests A - Infrared absorption test B - GC/FID test of glycerin, DEG & EG C - RT of glycerine's peak	Pass test Pass test (0.1% max. each DEG & EG) Pass test	Pass < 0.01 each DEG & EG Pass
Related compounds	0.1% max. of any individual impurity not including solvents and DEG;1.0% max. total impurities	0.03
Assay, C3H8O3, calculated on anhydrous basis	99.7% min.	99.74
Water, wt. %	<u>≤</u> 0.3%	0.038
Specific gravity, 25/25	1.260 min.	1.2613
Color, APHA/Hazen	10 max.	< 5.0
Ash, (residue on ignition), % W/W	0.01% max.	< 0.001
Chlorides, ppm	10 ppm max.	< 5
Sulfates, ppm	20 ppm max.	< 20
Total heavy metals (as Pb)	5 ppm max.	< 5
Lead, Pb	1 ppm max.	< 0.005
Chlorinated compounds, ppm (as CI)	30 ppm max.	< 30
Fatty acids & esters, ml/50g, per current USP	Pass test (1 ml of 0.5 N NaOH max.)	< 1.0
Readily carbonizable substances	Pass test	Pass

Conclusion: This material meets product specification requirements.

Signed by: Darcy Pratt Date: Nov. 6, 2015

This document has been reviewed and approved through a secure process by the authorized individual listed above.