

Kalchem International

Chemicals & Compounding Supplies

CERTIFICATE of ANALYSIS

UNIVAR DALLAS

(Customer or Consignee)

(Dept., if applicable)

(Attention)

10889 BEKAY ST

(Delivery Address)

DALLAS, TX 75238-5372

(City, State, Zip)

48501 LBS

(Approximate weight Lb. KG MT

GCAS No. (s): 99961824

P&G Material Code: 10275531

Manufacture Date: 12/08/2014

P&G Invoice No. 2036819890

Customer P.O. No. DA-801106

Customer Code

Vessel No. 605146

(Method TC, TT, Ship, Iso)

P&G Lot No. SO003314358

Shipment Date 1-14-15

Seals See attached list

Country of Origin USA

C O F A

REVIEWED BY MD

DATE 1-16-15

Test	GCAS #	Result	Specification Limits
Identification A by IR: Glycerin	60065177	PASS	PASS - as glycerin
Identification B by GC: Limit of DEG & EG	98955124	PASS	PASS: USL: 0.10% each of DEG and EG
Identification C by GC: Glycerin	98955124	PASS	PASS - as glycerin
Residual Solvents	USP 467	Compliant	Meet Requirement
Specific Gravity	64012970	1.2614	LSL: 1.2613 @ 25°C/25°C
Color (APHA)	60064681	2	USL: 10
Residue on Ignition, %	60064682	0.002	USL: 0.007%
Chlorides	60065128	PASS	PASS: USL: 10 ppm
Odor	60065271	PASS	PASS
Sulfate	60065131	PASS	PASS: USL: 20 ppm
Heavy Metals	60065174	PASS	PASS: USL: 1 ppm
Chlorinated Compounds	60065420	PASS	PASS: USL: 0.003% or 30 ppm of Cl
% Glycerin (calc. from Specific Gravity)	64012970	99.7	LSL: 99.7%
Fatty Acids and Esters (USP)	60065134	0.1	USL: 0.3 mL of 0.5N NaOH
Fatty Acids and Esters (FCC)	60065134	5	USL: 4 mL of 0.5N HCl
Assay anhydrous, % (USP)	60065183	99.8	LSL: 99.0%; USL: 101.0%
Assay, % (FCC)	60065183	99.7	LSL: 99.0%; USL: 101.0%
Water	60065135	0.1	USL: 0.3%
Related Compounds	95076103	PASS	PASS: (USL 0.1% individual impurity; USL 1.0% for total impurities)
Flavor	60065270	PASS	PASS
Appearance	60044625	PASS	PASS: (Clear colorless viscous liquid, free of foreign material)
Readily Carbonizable Substances	95119738	PASS	PASS

Signature	<i>Shari Carmichael</i>	Name	SHARI CARMICHAEL
Date	01/14/2015	Position	CSR
Manufacturing Location: 5201 Spring Grove Avenue, Cincinnati Ohio 45217			

This analysis is not to be construed as a warranty. Customer is responsible to verify the lot and code numbers of product received with the numbers contained on this report and perform any other analyses necessary to determine suitability of the product described above for the use intended by the customer. No representations as to FDA regulated use are made for this product.

Kalchem International, Inc
 224 South Main Street - Lindsay, OK 73052
 Toll Free 888-298-9905 | FAX: 405-756-2373

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June 28, 2012

unless it is designated as meeting either USP, NF, Cosmetic grade or Food Grade Status. The foregoing statements are valid up to, but not beyond, delivery to our primary customer. Any subsequent handling, repackaging, storage, processing, etc. render these claims void and unsubstantiated by Procter & Gamble Chemicals.

Certifications and Compliance Statements Section

Residual Solvents:

Procter & Gamble's USP/FCC Glycerin products are for excipient use only and do not contain residual solvents of class 1, 2 or 3 that would meet the criteria for those classifications described in General Chapter <467> of the USP. Residual Solvents are not used or produced in the manufacture of our Glycerin USP products, and we do not expect these solvents to be present in the refined glycerin. We have evaluated our in-process and finished product and found no detectable levels of residual solvents.

GMP/IPEC:

Procter & Gamble's USP/FCC glycerin brands are for excipient use only and manufactured in accordance with IPEC Good Manufacturing Practices Guide for Bulk Pharmaceutical Excipients and FCC GMP's for food chemicals.

BSE/TSE (Bovine Spongiform Encephalopathy and Transmissible Spongiform Encephalopathy) Statement:

BSE/TSE are not applicable for this product as it is derived from plant oils only.

Shelf Life of Glycerin

In a controlled study, Procter & Gamble stored glycerin in sealed containers in a controlled environment at 25° C for 24 months. The glycerin was analyzed periodically and at the end of the storage study. All intermediate and final samples maintained adherence to USP limits and odor/flavor requirements. This validated P&G's prior experience, which was that glycerin is stable under normal storage conditions (ambient temperature 25° C) for at least two years. No specific data has been collected for the shelf-life of opened containers of glycerin; it is hygroscopic and it can be expected that moisture content would increase upon extended exposure to air. A normal recommended storage temperature is ambient, not to exceed 125 °F (approximately 52 °C). To avoid possible color degradation, the optimal storage conditions would be as near to 25° C as possible. The optimal temperature for pumping 96-100% glycerin is 100-125 °F (approximately 38 -52°C).

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Product Identified as: GLYCERIN, USP

"Basic Testing"

Sample Size: 1 x 1 pint
Univar Lot Number: DA015872605
LSI W. O. Number: CL150235
Producer Lot Number: SG003314350 (P & G Chemicals)

Submitted sample tested as follows on January 19, 2015.

<u>TEST</u>	<u>SPECIFICATION</u>	<u>RESULT</u>
Appearance	Free of Foreign Particles	Passes
Color	Clear/Colorless	Colorless
Identification (A) - IR	To Pass	Passes
Identification (B) - Limit of EG and DEG		
Diethylene Glycol, wt. %	0.10 max	Less than 0.10
Ethylene Glycol, wt. %	0.10 max	Less than 0.10
Identification (C) - Confirmation of Glycerin by GC	To Pass	Passes
Specific Gravity @25/25°C	1.249 min	1.2624
Water, wt. %	5.0 max	0.07
Arsenic, ppm	1.5 max	Less than 1.5


Kenneth J. Conley
Vice President, Operations

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