THE DOW CHEMICAL COMPANY

KalChem™ INTERNATIONAL
Compounding Chemicals You Can Trust

Certificate of Analysis

Product Number 00000360603

Product Name

PuraGuard™ Propylene Glycol USP/EP

Delivery No.

Order Number

Shipping Units

Date Shipped

Shipment No.

Customer Information

Customer Name

Customer PO number

Customer Product Code

Container ID

Specification Number

Batch Number	D207P59PG1
Seal Number	SEALS 025547 025622 025628 025641 025642 025643 025644 025645 025646 025647 025648 025649 025650 025654 025657
Expiration Date	2027-05-09 (YYYY-MM-DD)
Manufacturing Date	2025-05-09 (YYYY-MM-DD)
Quantity	
Net Weight	
Manufacturing Plant	PLAQUEMINE po/pg
Manufacturer Address	21255 LA HWY 1 South PLAQUEMINE Louisiana 70764-5125

It is hereby certified that the material indicated above has been inspected and tested in accordance with the conditions and requirements of the contract or purchase order and, unless agreed otherwise conforms in all respects to the specification relevant thereto and it meets all requirements of the current United States Pharmacopoeia, current Food Chemical Codex, current European Pharmacopoeia and current Pharmacopoeia of Japan.

Test	Unit	Lower Limit	Upper Limit	Value	Method
Assay	%	99.80	-	99.94	Current USP
M Acidity	ml	-	0.20	0.02	Current USP
M Chlorides	ppm	-	70	< 70	Current USP
S Residue on Ignition USP	%	-	0.0070	0.0010	Current JP
M Specific Gravity @ 25/25degC		1.035	1.037	1.036	Current USP
M Sulfate	ppm	-	60	< 60	Current USP
Water Content	%	-	0.200	0.020	Current USP

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M	**ID Test A** matches IR scan	-	-	-	Pass	Current USP
	ID Test B Limit of Ethylene Glycol	-	-	-	Pass	Current USP
	ID Test B Limit of Diethylene Glycol	-	-	-	Pass	Current USP
	ID Test C Matches GC Scan	-	-	-	Pass	Current USP
M	**Acidity**	ml	-	8.3	0.8	Current EP
M	**Boiling Point**	°C	184	189	184	Current EP
M	**Clarity**	-	-	-	Pass	Current EP
M	**Color**	-	-	-	Pass	Current EP
O	**Melting Point**	°C	121	128	125	Current EP
M	**Oxidizing Substances** 0.05M sodium thiosulfate	ml	-	0.20	0.06	Current EP
M	**Reducing Substances**	-	-	-	Pass	Current EP
M	**Refractive Index** @ 20degC		1.431	1.433	1.433	Current EP
M	**Relative Density** @ 20/20degC		1.035	1.040	1.038	Current EP
M	**ID Test D**	-	-	-	Pass	Current EP
M	**Ethylene Glycol**	%	-	0.0620	< 0.0620	Current EP
M	**Diethylene Glycol**	%	-	0.10	< 0.10	Current EP
S	**Sulfated ash** EP	%	-	0.0100	0.0010	Current JP
	Water Content	%	-	0.200	0.020	Current EP
	Assay	%	99.80	-	99.94	Current FCC
M	**Acidity**	-	-	-	Pass	Current FCC
M	**Appearance** clear & colorless	-	-	-	Pass	Current FCC
M	**Distillation, IBP**	°C	185.0	-	186.6	Current FCC
M	**Distillation, DP**	°C	-	189.0	187.4	Current FCC
O	**Lead (Pb)**	ppm	-	1.0	< 1.0	Current FCC

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M Identification matches IR scan	-	-	-	Pass	Current FCC
S Residue on Ignition FCC	%	-	0.0070	0.0010	Current JP
M Specific Gravity @ 25/25degC		1.035	1.037	1.036	Current FCC
Water Content	%	-	0.200	0.020	Current FCC
M Acidity	-	-	-	Pass	Current JP
M Arsenic	ppm	-	2.0	< 2.0	Current JP
M Chlorides	%	-	0.007	< 0.007	Current JP
M Distilling Range 184 - 189 degC	% vol	95	-	98	Current JP
M Glycerine (Odor)	-	-	-	Pass	Current JP
M Heavy Metals	ppm	-	5.0	< 5.0	Current JP
O Melting Point	°C	174	178	175	Current JP
M Odor	-	-	-	Pass	Current JP
S Residue on Ignition JP	%	-	0.0050	0.0010	Current JP
M Specific Gravity @ 20/20degC		1.035	1.040	1.038	Current JP
M Sulfate	%	-	0.002	< 0.002	Current JP
Water Content	%	-	0.500	0.020	Current JP
Acidity as acetic acid	%	-	0.0020	0.0001	DOWM 101370
Appearance clear, free of suspended matter	-	-	-	Pass	Visual
Chlorides	ppm	-	1.0	< 1.0	DOWM 101867
Color, Pt-Co		-	10	2	ASTM D5386
Dimer, Trimer & Higher Polymers	%	-	0.100	0.048	DOWM 100687
Ethylene Glycol	%	-	0.0080	< 0.0080	DOWM 100687
Diethylene Glycol	%	-	0.0080	< 0.0080	DOWM 100687
Iron	ppm	-	0.30	0.08	ASTM E394

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Odor	-	-	-	**Pass**	**Olfactory**
practically odorless					
M Spec. Grav. @ 20C		**1.0376**	**1.0389**	**1.0380**	**ASTM D4052**

Note 1:
Values reported for Assay, Ethylene Glycol and Diethylene Glycol under USP and for Assay under FCC are obtained using the validated Dow GC Method DOWM 100687.

Note 2:
Ethylene Glycol and Diethylene Glycol under EP will be analyzed per EP method quarterly. Ethylene glycol and diethylene glycol result by DOWM100687 is compliant with European Pharmacopeia monograph.

Note 3:
Performance of DOWM 100687 GC method is superior to the USP, EP, FCC and JP monograph GC methods in precision and accuracy at the levels of the specification limits for Assay, Ethylene Glycol and Diethylene Glycol. DOWM 100687 results for Ethylene Glycol and Diethylene Glycol complies with Ethylene Glycol and Diethylene Glycol per the Japanese Pharmacopeia.

Note 4:
Values reported for Water Content under USP, FCC, EP and JP are generated using coulometric Karl-Fischer determination by ASTME1064. ASTME1062 conforms with USP, FCC, JP and EP requirements.

Note 5:
Values reported for Residue on Ignition and Sulfated Ash under USP, EP and FCC are obtained using the JP method which is allowed per the ICH Global Harmonization Q4B and General Provisions and Requirements Applying to Specifications, Tests, and Assays of the Food Chemicals Codex.
M:Quarterly Sample
O:Annual Sample
S:Semi-annual

Natalie Monteiro

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Quality Coordinator

For inquiries please contact Customer Service or local sales