

LOTE: F820KB5PD1

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 DOW EUROPE GMBH		Ship From: Stade PO/PG STADE Germany			
Certificate of Analysis Product Number 00000302367 Product Name Propylene Glycol USP/EP Delivery No. 819728731 / 000010 Order Number 111763678 Shipping Units 88.000 DR Date Shipped 2020-11-06 (YYYY-MM-DD) Shipment No. 37766499		Customer Information Customer Name Customer PO number Customer Product Code 000000000001004600 Container ID ZS 316 FA Vehicle# ZK 1434G Specification Number 000000059518			
Batch Number Expiration Date Manufacturing Date Quantity Net Weight Manufacturing Plant Manufacturer Address		F820KB5PD1 2022-11-05 (YYYY-MM-DD) 2020-11-05 (YYYY-MM-DD) 88.000 DR 18920.000 KG Stade PO/PG BUETZFLETHERSAND STADE Niedersachsen 21683			
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	-	99,93	Current USP
M Acidity	ml	-	0,20	0,02	Current USP
M Chlorides	ppm	-	70	< 70	Current USP
M Residue on Ignition per 50g	mg	-	3,50	0,69	Current USP
M Specific Gravity @ 25/25degC		1,035	1,037	1,036	Current USP
Spec. Grav. @ 20C		1,0376	1,0389	1,0383	ASTM D4052
M Sulfate	ppm	-	60	< 60	Current USP
Water Content	%	-	0,200	0,002	Current USP
M ID Test A matches IR scan	-	-	-	Pass	Current USP

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ID Test B	-	-	-	Pass	Current USP
Limit of Ethylene Glycol					
ID Test B	-	-	-	Pass	Current USP
Limit of Diethylene Glycol					
ID Test C	-	-	-	Pass	Current USP
Matches GC Scan					
M Acidity	ml	-	0,05	0,01	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	126	Current EP
M Oxidizing Substances	ml	-	0,20	0,06	Current EP
0.05M sodium thiosulfate					
M Reducing Substances	-	-	-	Pass	Current EP
M Refractive Index		1,431	1,433	1,433	Current EP
@ 20degC					
M Relative Density		1,035	1,040	1,038	Current EP
@ 20/20degC					
M Sulfated ash	%	-	0,0100	0,0020	Current EP
Water Content	%	-	0,200	0,002	Current EP
Assay	%	99,80	-	99,93	Current FCC
M Acidity	-	-	-	Pass	Current FCC
M Appearance	-	-	-	Pass	Current FCC
clear & colorless					
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
M Identification	-	-	-	Pass	Current FCC
matches IR scan					
M Residue on Ignition	%	-	0,0070	0,0016	Current FCC
M Specific Gravity		1,035	1,037	1,036	Current FCC
@ 25/25degC					
Water Content	%	-	0,200	0,002	Current FCC
M Acidity	-	-	-	Pass	Current JP

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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	-	97	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
M Residue on Ignition	%	-	0,0050	0,0014	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	0,002	Current JP
Acidity as acetic acid	%	-	0,0020	0,0002	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	0,069	DOWM 100687
Ethylene Glycol	%	-	0,0080	< 0,0080	DOWM 100687
Diethylene Glycol	%	-	0,0080	< 0,0080	DOWM 100687
Odor practically odorless	-	-	-	Pass	Olfactory
Iron	ppm	-	0,30	0,04	ASTM E394
Note 1: Values reported for Assay, Ethylene Glycol and Diethylene Glycol under USP and for Assay under FCC are obtained using the validated equivalent Dow GC Method DOWM 100687. M:Quarterly Sample O:Annual Sample					
Plant Quality Coordinator					



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