 DOW CHEMICAL PACIFIC LIMITED		GUANGZHOU SURE WIN TRADING CO., LTD. 9/F, 255, DONG FENG XI ROAD 510181 GUANGZHOU CHINA Ship From: Yusen Laem Chabang Sub Mft Chonburi Thailand.			
Certificate of Analysis		Customer Information			
Product Number	00000114877	Customer Name	GUANGZHOU SURE WIN TRADING		
Product Name	Propylene Glycol USP/EP	Customer PO number	Sure-2018001PG		
Delivery No.	812111933 / 000010	Container ID	WHSU2189402		
Order Number	107639677	Specification Number	000000059518		
Shipping Units	17.200 MT				
Date Shipped	2018-03-07 (YYYY-MM-DD)				
Shipment No.	31396368				
Batch Number		C815I2ATD1			
Seal Number		WHL1979197			
Expiration Date		2020-02-10 (YYYY-MM-DD)			
Manufacturing Date		2018-02-10 (YYYY-MM-DD)			
Quantity		17.200 MT			
Net Weight		17200.000 KG			
Manufacturing Plant		MTP AIE PG			
Manufacturer Address		10/4 Moo 2 ASIA IND EST BANCHANG Rayong 21130			
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	-	99.96	Current USP
M Acidity	ml	-	0.20	0.01	Current USP
M Chlorides	ppm	-	70	< 70	Current USP
M Heavy Metals	ppm	-	5.0	< 5.0	Current USP
M Residue on Ignition per 50g	mg	-	3.50	0.71	Current USP
M Specific Gravity @ 25/25degC		1.035	1.037	1.036	Current USP
M Sulfate	ppm	-	60	< 60	Current USP
Water Content	%	-	0.200	0.008	Current USP
M ID Test A matches IR scan	-	-	-	Pass	Current USP

Date

2018-03-08 (YYYY-MM-DD)

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DOW CHEMICAL PACIFIC LIMITED

 GUANGZHOU SURE WIN TRADING
 CO., LTD.
 9/F, 255, DONG PENG XI ROAD
 510181 GUANGZHOU
 CHINA

 Ship From: Yusen Laem Chabang Sub Mft
 Chonburi
 Thailand

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	185	Current EP
M Clarity	-	-	-	Pass	Current EP
M Color	-	-	-	Pass	Current EP
M Heavy Metals	ppm	-	5.0	< 5.0	Current EP
O Melting Point	°C	121	128	126	Current EP
M Oxidizing Substances	ml	-	0.20	0.05	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	0.0008	Current EP
Water Content	%	-	0.200	0.008	Current EP
Assay	%	99.80	-	99.96	Current FCC
M Acidity	-	-	-	Pass	Current FCC
M Appearance	-	-	-	Pass	Current FCC
clear & colorless					
M Distillation, IBP	°C	185.0	-	186.8	Current FCC
M Distillation, DP	°C	-	189.0	188.2	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	0.0017	Current FCC
M Specific Gravity		1.035	1.037	1.036	Current FCC
@ 25/25degC					
Water Content	%	-	0.200	0.008	Current FCC

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M Acidity	-	-	-	Pass	Current JP
M Arsonic	ppm	-	2.0	< 2.0	Current JP
M Chlorides	%	-	0.007	< 0.007	Current JP
M Distilling Range 184 - 189 degC	% vol	95	-	96	Current JP
M Glycerine (Odor)	-	-	-	Pass	Current JP
M Heavy Metals	ppm	-	5.0	< 5.0	Current JP
O Melting Point	°C	174	178	176	Current JP
M Odor	-	-	-	Pass	Current JP
M Residue on Ignition	%	-	0.0050	0.0035	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	0.008	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	0.035	DOWM 100687
Ethylene Glycol	%	-	0.0080	< 0.0080	DOWM 100687
Diethylene Glycol	%	-	0.0080	< 0.0080	DOWM 100687
Odor practically odorless	-	-	-	Pass	Olfactory
M Spec. Grav. @ 20C		1.0376	1.0389	1.0381	ASTM D4052
Iron	ppm	-	0.30	< 0.01	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					

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Plant Quality Coordinator For inquiries please contact Customer Service or local sales ®™ Trademark of The Dow Chemical Company ("Dow") or an affiliated company of Dow	