
 DOW CHEMICAL PACIFIC (SINGAPORE) PRIVATE LIMITED	Ship From: Vopak Penjuru Terminal SINGAPORE Singapore
--	---


Certificate of Analysis	Customer Information
Product Number 00000114877	Customer Name
Product Name	Customer PO number
PROPYLENE GLYCOL USP/EP	
Delivery No. 802701644 /000010	
Order Number 101721581	
Shipping Units 80.000 DR	Container ID KKTU7312410
Date Shipped 2014-06-10 (YYYY-MM-DD)	
Shipment No. 23058519	Specification Number 000000059518

Batch Number	C815E5UI3T
Expiration Date	2016-05-16 (YYYY-MM-DD)
Manufacturing Date	2014-05-17 (YYYY-MM-DD)
Quantity	80.000 DR
Net Weight	17200.000 KG
Manufacturing Plant	MTP AIE PG

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	0.03	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	0.60	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	0.009	Current USP
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

					
DOW CHEMICAL PACIFIC (SINGAPORE) PRIVATE LIMITED		Ship From: Vopak Penjuru Terminal SINGAPORE Singapore			
ID Test C	-	-	-	Pass	Current USP
Matches GC Scan					
M Acidity	ml	-	0.05	0.02	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	125	Current EP
M Oxidizing Substances	ml	-	0.20	0.03	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	0.0001	Current EP
Water Content	%	-	0.200	0.009	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	-	186.4	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	0.0027	Current FCC
M Specific Gravity		1.035	1.037	1.036	Current FCC
@ 25/25degC					
Water Content	%	-	0.200	0.009	Current FCC
M Acidity	-	-	-	Pass	Current JP
M Arsenic	ppm	-	2.0	< 2.0	Current JP
M Chlorides	%	-	0.007	< 0.007	Current JP

					
DOW CHEMICAL PACIFIC (SINGAPORE) PRIVATE LIMITED		Ship From: Vopak Penjuru Terminal SINGAPORE Singapore			
<b>M Distilling Range</b> 184 - 189 degC	% vol	95	-	95	Current JP
<b>M Glycerine (Odor)</b>		-	-	Pass	Current JP
<b>M Heavy Metals</b>	ppm	-	5.0	< 5.0	Current JP
<b>O Melting Point</b>	°C	174	178	177	Current JP
<b>M Odor</b>		-	-	Pass	Current JP
<b>M Residue on Ignition</b>	%	-	0.0050	0.0019	Current JP
<b>M Specific Gravity</b> @ 20/20degC		1.035	1.040	1.038	Current JP
<b>M Sulfate</b>	%	-	0.002	< 0.002	Current JP
<b>Water Content</b>	%	-	0.500	0.009	Current JP
<b>Acidity</b> as acetic acid	%	-	0.0020	0.0006	DOWM 101370
<b>Appearance</b> clear, free of suspended matter		-	-	Pass	Visual
<b>Chlorides</b>	ppm	-	1.0	< 1.0	DOWM 101867
<b>Color, Pt-Co</b>		-	10	2	ASTM D5386
<b>Dimer, Trimer</b> & Higher Polymers	%	-	0.100	0.043	DOWM 100687
<b>Ethylene Glycol</b>	%	-	0.0080	< 0.0080	DOWM 100687
<b>Diethylene Glycol</b>	%	-	0.0080	< 0.0080	DOWM 100687
<b>Iron</b>	ppm	-	0.30	< 0.01	ASTM E202
<b>Odor</b> practically odorless		-	-	Pass	Olfactory
<b>M Spec. Grav. @ 20C</b>		1.0376	1.0389	1.0376	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. M:Quarterly Sample O:Annual Sample					
Plant Quality Coordinator					
For inquiries please contact Customer Service or local sales					