

Certificate 4292983 The Dow Chemical Company

Date: 02.09.2009 Certificate of Analysis

13-01-2010

Cust P.O.: Order no. 1485

Divy Note: 24874587 10

Material: PROPYLENE GLYCOL USP/EP
Cust Mtl:

Feature	Units	Results		Limits		Method	
		XH311920D1		Minimum	Maximum		
Assay	%	99,94		99,80	----	Current FCC	
Acidity		Passes				Current FCC	M
Appearance		Passes				Current FCC	
clear & colorless							
Distillation, IBP	degC	187,0		185,0	----	Current FCC	M
Distillation, DP	degC	188,4		----	189,0	Current FCC	M
Lead (Pb)	ppm	< 1,0		----	1,0	Current FCC	O
Identification		Passes				Current FCC	M
matches IR scan							
Residue on Ignition	%	0,0015		----	0,0070	Current FCC	M
Specific Gravity	-	1,036		1,035	1,037	Current FCC	M
Water Content	%	0,008		----	0,200	Current FCC	

Acidity		Passes				Current JP	M
Arsenic	ppm	< 2,0		----	2,0	Current JP	M
Chlorides	%	< 0,007		----	0,007	Current JP	M
Distillation, IBP	degC	187,0		184,0	----	Current JP	M
Distillation, DP	degC	188,4		----	189,0	Current JP	M
Glycerine (Odor)		Passes				Current JP	M
Heavy Metals	ppm	< 5,0		----	5,0	Current JP	M
Melting Point	degC	175		174	178	Current JP	O
Odor		Passes				Current JP	M
Residue on Ignition	%	0,0010		----	0,0050	Current JP	M
Specific Gravity	-	1,038		1,035	1,040	Current JP	M
@ 20/20degC							
Sulfate	%	< 0,002		----	0,002	Current JP	M
Water Content	%	0,008		----	0,500	Current JP	

Acidity	% wt	0,0002		----	0,0020	DOWM 101370	
As Acetic Acid							
Appearance		Passes				Visual	
Clear, free of suspended matter							
Chlorides	ppm	< 0,5		----	1,0	DOWM 101867	
Color, Pt-Co	-	2		----	10	ASTM D5386	
Dimer, Trimer	%	0,052		----	0,100	DOWM 100687	
& Higher Polymers							
Iron	ppm	0,07		----	0,30	ASTM E202	
Odor		Passes				Olfactory	M
practically odorless							
Spec. Grav. @ 20C	-	1,0381		1,0376	1,0389	ASTM D4052	M

SOURCE OF ANALYSIS
M Quarterly Sample
O Annual Sample

For inquiries please contact Customer Service or local sales

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Note 1:

Values reported for Assay under USP and FCC are obtained using the validated Dow GC Method DOWM 100687. Comparative validation to each Pharmacopeia listed is deemed impractical due to the following facts:

- A. Compendia methods require chromatographic equipment which is no longer readily available.
- B. Dow's validated GC Method DOWM 100687 uses the latest technology.

Frank Schwerdtner
Quality Coordinator

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