

Laboratory	Quality Control Laboratory, Panipat Naphtha Cracker, Panipat Refinery, Indian Oil Corporation Limited, Panipat, Haryana		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Chemical Testing	Issue Date	10.10.2016
Certificate Number	T-2297	Valid Until	09.10.2018
Last Amended on	-	Page	1 of 5

S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
I.	INDUSTRIAL AND FINE CHEMICALS			
1.	Mono Ethylene Glycol (MEG)	Specific Gravity	ASTM D 4052-11	1.0 to 1.3
		Distillation Range (IBP-DP)	ASTM D 1078-11	150 °C to 310°C
		Water	ASTM E 203-08	25 mg/kg to 2000 mg/kg
		Colour of Clear Liquids	ASTM D 1209-11	1 to 50 Pt.-Co Scale
		MEG Purity	ASTM E 2409-08	95.00 % to 99.99 %
		DEG in MEG	ASTM E 2409-08	5 mg/kg to 3000 mg/kg
		Acidity as Acetic Acid	ASTM D 1613-06	5 mg/kg to 500 mg/kg
		Iron as Fe	ASTM E 394-09	0.025 mg/kg to 1 mg/kg
		Ash Content.	ASTM D 482-07	0.0005 % to 0.2%
		Aldehyde Expressed as (Formaldehyde/ Actaldehyde)	ASTM E 2313-08	0.5 mg/kg to 50 mg/kg
		Chloride as Cl, mg/kg	CIAIL IS 5295: 1985 (RA 2005)	Qualitative
		Sulphate, mg/kg	DC-336 SD	Qualitative
		UV Transmittance (%) at 220/250/275/350 nm Option A(N2 Sparged)/B (Non-Sparged)	ASTM E 2193-08	0 % to 100%
2.	Di Ethylene Glycol (DEG)	Specific Gravity	ASTM D 4052-11	1.0 to 1.3
		Distillation Range (IBP-DP)	ASTM D 1078-11	150 °C to 310°C

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Last Amended on	-	Page	2 of 5

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	Di Ethylene Glycol (DEG)	DEG Purity	ASTM E 2409-08	95.00 % to 99.99 %
		MEG&TEG in DEG	ASTM E 2409-08	5 mg/kg to 3000 mg/kg
		Water	ASTM E 203-08	25 mg/kg to 2000 mg/kg
		Colour of Clear Liquids	ASTM D 1209-11	1 Pt.-Co Scale to 50 Pt.-Co Scale
		Acidity as Acetic Acid	ASTM D 1613-06	5 mg/kg to 500 mg/kg
		Chloride as Cl	CIAIL IS 5295: 1985 (RA 2005)	Qualitative
		Iron as Fe.	ASTM E 394-09	0.025 mg/kg to 1 mg/kg
		Ash Content	ASTM D 482-07	0.0005 % to 0.2 %
3.	Tri Ethylene Glycol (TEG)	Specific Gravity	ASTM D 4052-11	1.0 to 1.3
		Distillation Range (IBP-DP)	ASTM D 1078-11	285°C to 300°C
		TEG Purity	ASTM E 2409-08	95.00 % to 99.99 %
		DEG in TEG	ASTM E 2409-08	0.0005 % to 0.30 %
		PEG in TEG	ASTM E 2409-08	0.0005 % to 0.30%
		Water	ASTM E 203-08	25 mg/kg to 2000 mg/kg
		Colour of Clear Liquids	ASTM D 1209-11	1 to 50 Pt.-Co Scale
		Ash Content	ASTM D 482-07	0.0005 % to 0.2 %

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Last Amended on	-	Page	3 of 5

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4.	Benzene	Distillation °C (IBP-DP)	ASTM D 850-11	70°C to 85°C
		Density at 15 °C	ASTM D 4052-11	0.882°C to 0.890°C
		Acid Wash Colour	ASTM D 848-09	Qualitative
		Solidification Point °C	ASTM D 852-08	5.35°C to 6.0°C
		1,4-Dioxane	ASTM D 4492-10	5 mg/kg to 10000 mg/kg
		Total Nitrogen	ASTM D 4629-10	0.1 mg/kg to 100 mg/kg
		Bromine Index	ASTM D 2710-09	1 mg/kg to 1000 mg/100 g
		Total Sulfur	ASTM D 5453-09	0.05 to 50 mg/kg
		Purity (Weight %)	ASTM D 4492-10	90 % to 99.99%
		Non aromatic	ASTM D 4492-10	0.0050% to 1.000 %
	Toluene	ASTM D 4492-10	0.0010 % to 1.000 %	
II. PLASTIC AND RESINS				
1.	High Density Polyethylene (HDPE)	Melt Flow Index ()	ASTM D 1238-10 (B)	0.1 g/10 min to 50 g/10 min
		Density	ASTM D 792-08 (B)	0.90 g/cm ³ to 0.98 g/cm ³
		Oxidative Induction Time	ASTM D 3895-07	1 Min to 500 Min
		Yellowness Index	ASTM E 313-10	(-)-40 to (+)40
2.	Linear Low Density Polyethylene (LLDPE)	Melt Flow Index	ASTM D 1238-10 (B)	0.1 g/10 min to 55 g/10 min
		Density	ASTM D 792-08 (A)	0.90 g/cm ³ to 0.98(g/cm ³

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Last Amended on	-	Page	4 of 5

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	Linear Low Density Polyethylene (LLDPE)	Density	ASTM D 792-08 (A)	0.90 g/cm ³ to 0.98 g/cm ³
		Yellowness Index	ASTM E 313-10	(-)40 to (+)40
		Whiteness Index	ASTM E 313-10	1 to 100
		Melt Flow Index	ASTM D 1238-10 (B)	0.1 g/10 min to 75 g/10 min
3. Poly Propylene (PP)		Yellowness Index	ASTM E 313-10	(-)40 to (+)40
		Xylene Soluble	ASTM 5492-10	0.5% to 20 %
		Ash Content	ASTM 5630 (A & B)-06	0.1 mg/kg to 1000 mg/kg
		III. WATER		
1. Water & Waste Water (Effluent Water)		pH	IS 3025 (Part 11): 1983 (RA 2002) Electrometric Method	3 to 12
		Total Dissolved Solids	IS 3025 (Part 16): 1984 (RA 2002)	2 mg/l to 5000 mg/l
		Total Suspended Solids	IS 3025 (Part 17): 1984 (RA 2002)	2 mg/l to 500 mg/l
		Sulphide as S ²	APHA (22 nd Edition) 4500-S ² F: 2012 Iodometric Method	0.1 mg/l to 1000 mg/l
		Oil & Grease	IS 3025 (Part 39): 1991 (RA 2003)	5 mg/l to 2000 mg/l
		Chemical Oxygen Demand	APHA (22 nd Edition) 5220C: 2012	10 mg/l to 1000 mg/l
		Biochemical Oxygen Demand, 3 days at 27°C	IS 3025 (Part 44): 1993 (RA 2003)	10 mg/l to 1000 mg/l

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Last Amended on - **Page** 5 of 5

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	Water & Waste Water (Effluent Water)	Phenol	APHA (22 nd Edition) 5530C: 2012	0.02 mg/l to 10 mg/l
		Chromium Hexavalent	APHA (22 nd Edition) 3500-C B: 2012	0.02 mg/l to 50 mg/l
		Cyanide as CN	APHA (22 nd Edition) 4500-CN - E: 2012	0.02 mg/l to 5.0 mg/l
		Fluoride as F	APHA (22 nd Edition) 4500-F ⁻ D: 2012	0.2 mg/l to 500 mg/l

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