

Laboratory	Klean Laboratories and Research (P) Ltd., 402, Purushottam Plaza, Baner Road, Pune, Maharashtra		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Chemical Testing	Issue Date	11.09.2015
Certificate Number	T-3571	Valid Until	10.09.2017
Last Amended on	-	Page	1 of 11

S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
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AT LABORATORY

I. POLLUTION & ENVIRONMENT

1. Industrial Waste Water/ Domestic Waste Water	Acidity	IS 3025 (Part 22): 1986 (RA 2009)	0.5 mg/L to 500.0 mg/L
	Alkalinity	IS 3025 (Part 23): 1986 (RA 2008)	0.5 mg/L to 500.0 mg/L
	Ammonical Nitrogen	IS 3025 (Part 34): 1988 (RA 2009)	0.1 mg/L to 5.0 mg/L
	Aluminium as Al	APHA (22 nd Edition) 3500 Al B: 2012	0.02 mg/L to 5.0 mg/L
	Anionic Detergent	APHA (22 nd Edition) 5540 C: 2012	0.025 mg/L to 2.0 mg/L
	Barium as Ba	APHA (22 nd Edition) 3111 D: 2012	0.03 mg/L to 20.0 mg/L
	Boron as B	IS 3025 (Part 57): 2005 (RA 2010)	0.05 mg/L to 10.0 mg/L
	BOD (3 days @ 27°C)	IS 3025 (Part 44): 1993 (RA 2009)	0.02 mg/L to 5000 mg/L
	Cadmium	APHA (22 nd Edition) 3111 B: 2012	0.025 mg/L to 2.0 mg/L
	Calcium as Ca	APHA (22 nd Edition) 3500 Ca B: 2012	0.08 mg/L to 120.0 mg/L
	Colour	IS 3025 (Part 4): 1983 (RA 2012)	0.5 Hazen to 70.0 Hazen
	Chloride	APHA (22 nd Edition) 4500 Cl B: 2012	3 mg/L to 250 mg/L
	Chromium (Cr ⁺⁶)	APHA (22 nd Edition) 3500 Cr B: 2012	0.1 mg/L to 1.0 mg/L

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Discipline	Chemical Testing	Issue Date	11.09.2015
Certificate Number	T-3571	Valid Until	10.09.2017
Last Amended on	-	Page	2 of 11

S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Industrial Waste Water/ Domestic Waste Water	COD	APHA (22 nd Edition) 5220 B, C: 2012	5.0 mg/L to 400 mg/L
		Conductivity	KLRPL/WI/15 Issue No. 01 Issue Date: 01/04/2014	2 µS to 20000 µS
		Copper	APHA (22 nd Edition) 3111 B: 2012	0.01 mg/L to 10.0 mg/L
		Cyanide	APHA (22 nd Edition) 4500 CN ⁻ E: 2012	0.01 mg/L to 10.0 mg/L
		Dissolved Oxygen	APHA (22 nd Edition) 4500 O A: 2012	0.1 mg/L to 10.0 mg/L
		Fixed Solids	APHA (22 nd Edition) 2540 E: 2012	0.2 mg/L to 4000 mg/L
		Fluorides as F	APHA (22 nd Edition) 4500 F ⁻ D: 2012	0.1 mg/L to 1.4 mg/L
		Free Residual Chlorine	APHA (22 nd Edition) 4500 Cl B: 2012	0.35 mg/L to 35.45 mg/L
		Free CO ₂	APHA (22 nd Edition) 4500 CO ₂ C: 2012	0.17 mg/L to 1500.0 mg/L
		Iron as Fe	APHA (22 nd Edition) 3500 Fe ⁻ B: 2012	0.01 mg/L to 4.0 mg/L
		Lead	APHA (22 nd Edition) 3111 B: 2012	0.05 mg/L to 20.0 mg/L
		Magnesium as Mg	APHA (22 nd Edition) 3500 Mg B: 2012	0.2 mg/L to 72.0 mg/L

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Certificate Number	T-3571	Valid Until	10.09.2017
Last Amended on	-	Page	3 of 11

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	Industrial Waste Water/ Domestic Waste Water	Manganese as Mn	APHA (22 nd Edition) 3111 B: 2012	0.01 mg/L to 10.0 mg/L
		Mercury as Hg	KLRPL/WI/27 Issue No. 01 Issue Date 01.04.2014	0.001 mg/L to 3.00 mg/L
		Mixed Liquor Suspended Solids	APHA (22 nd Edition) 2540 B: 2012	0.2 mg/L to 4000.0 mg/L
		Mixed Liquor Volatile Suspended solids	APHA (22 nd Edition) 2540 E: 2012	0.2 mg/L to 4000 mg/L
		Molybdenum as Mo	APHA (22 nd Edition) 3111 D: 2012	0.1 mg/L to 20.0 mg/L
		Nickel	APHA (22 nd Edition) 3111 B: 2012	0.15 mg/L to 10.0 mg/L
		Nitrate Nitrogen	KLRPL/WI/33 Issue No. 01 Issue Date. 01.04.2014	0.02 mg/L to 10.0 mg/L
		Nitrite	APHA (22 nd Edition) 4500 NO ₂ ⁻ B: 2012	0.01 mg/L to 1.0 mg/L
		Oil and Grease	IS 3025 (Part 39): 1991 (RA 2009)	4 mg/L to 100 mg/L
		pH	APHA (22 nd Edition) 4500 H ⁺ B: 2012	2 to 12
		Phenol compounds	APHA (22 nd Edition) 5530 C Al ⁻ B: 2012	0.001 mg/L to 10.0 mg/L
		Potassium	APHA (22 nd Edition) 3500 K B: 2012	1.0 mg/L to 390 mg/L

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Discipline	Chemical Testing	Issue Date	11.09.2015
Certificate Number	T-3571	Valid Until	10.09.2017
Last Amended on	-	Page	4 of 11

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	Industrial Waste Water/ Domestic Waste Water	Selenium as Se	IS 3025 (Part 56): 2003 (RA 2009)	0.025 mg/L to 2.0 mg/L
		Silica	APHA (22 nd Edition) 4500 SiO ₂ C: 2012	1.0 mg/L to 25.0 mg/L
		Silver as Ag	APHA (22 nd Edition) 3111 B: 2012	0.01 mg/L to 4.0 mg/L
		Sodium	APHA (22 nd Edition) 3500 Na B: 2012	1.0 mg/L to 4600 mg/L
		Sulphates	APHA (22 nd Edition) 4500 SO ₄ ²⁻ E: 2012	1 mg/L to 500 mg/L
		Sulphides as H ₂ S	APHA (22 nd Edition) 4500 S ²⁻ E: 2012	1 mg/L to 5 mg/L
		Temperature	APHA (22 nd Edition) 2550 B: 2012	20 °C to 100 °C
		Total Arsenic as As	IS 3025 (Part 37): 1988 (RA 2009)	0.01 mg/L to 10.0 mg/L
		Total Chromium as Cr	APHA (22 nd Edition) 3111 B: 2012	0.02 mg/L to 10.0 mg/L
		Total Dissolved Solids	APHA (22 nd Edition) 2540 C: 2012	0.2 mg/L to 4000.0 mg/L
		Total Hardness as CaCO ₃	APHA (22 nd Edition) 2340 C: 2012	0.2 mg/L to 500.0 mg/L
		Total Kjeldhal Nitrogen	APHA (22 nd Edition) 4500 NH ₃ B: 2012	1.0 mg/L to 100.0 mg/L
		Total Solids	APHA (22 nd Edition) 2540 B: 2012	0.2 mg/L to 4000.0 mg/L
	Total Suspended Solids	APHA (22 nd Edition) 2540 D: 2012	0.2 mg/L to 4000.0 mg/L	

Deepak Kumar Sharma
Convenor

N. Venkateswaran
Program Manager

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Certificate Number	T-3571	Valid Until	10.09.2017
Last Amended on	-	Page	5 of 11

S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Industrial Waste Water/ Domestic Waste Water	Turbidity	APHA (22 nd Edition) 2130 B: 2012 Nephelometric Method	0.05 NTU to 100.0 NTU
		Total Volatile Solids	APHA (22 nd Edition) 2540 E: 2012	0.2 mg/L to 4000.0 mg/L
		Zinc as Zn	APHA (22 nd Edition) 3111 B: 2012	0.005 mg/L to 2.0 mg/L
2.	Solid Wastes / Hazardous Solid Wastes / Toxic Wastes	pH	APHA (22 nd Edition) 4500 H ⁺ B: 2012	2 to 12
		Aluminium	APHA (22 nd Edition) 3500 Al ⁻ B: 2012	0.02 mg/L to 5.0 mg/L
		Arsenic	IS 3025 (Part 37): 1988 (RA 2009)	0.01 mg/L to 10 mg/L
		Barium	APHA (22 nd Edition) 3111 D: 2012	0.03 mg/L to 20.0 mg/L
		Boron	IS 3025 (Part 57): 2005 (RA 2010)	0.05 mg/L to 10.0 mg/L
		Cadmium	APHA (22 nd Edition) 3111 B: 2012	0.025 mg/L to 2.0 mg/L
		Calcium	APHA (22 nd Edition) 3500 Ca B: 2012	0.08 mg/L to 120.0 mg/L
		Calorific value	KLRPL/WI/59 Issue No. 01 Issue Date. 01.04.2014	203 Cal/g to 11630 Cal/g
		Chloride	APHA (22 nd Edition) 4500 Cl ⁻ B: 2012	3.0 mg/L to 5000.0 mg/L
		Chromium	APHA (22 nd Edition) 3111 B: 2012	0.02 mg/L to 10.0 mg/L
	Cobalt	APHA (22 nd Edition) 3111 B: 2012	0.05 mg/L to 0.5 mg/L	

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Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Chemical Testing	Issue Date	11.09.2015
Certificate Number	T-3571	Valid Until	10.09.2017
Last Amended on	-	Page	6 of 11

S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Solid Wastes / Hazardous Solid Wastes / Toxic Wastes	Copper	APHA (22 nd Edition) 3111 B: 2012	0.01 mg/L to 10.0 mg/L
		Iron	APHA (22 nd Edition) 3500 Fe B: 2012	0.01 mg/L to 15.0 mg/L
		Lead	APHA (22 nd Edition) 3111 B: 2012	0.05 mg/L to 20.0 mg/L
		Loss on drying at 105 °C	IS 9235: 1979	0.5 % to 70 %
		Loss on ignition at 550 °C	APHA (22 nd Edition) 2540 E: 2012	0.5 % to 70 %
		Magnesium	APHA (22 nd Edition) 3500 Mg B: 2012	0.2 mg/L to 72.0 mg/L
		Manganese	APHA (22 nd Edition) 3111 B: 2012	0.01 mg/L to 10.0 mg/L
		Mercury	KLRPL/WI/27 Issue No. 01 Issue Date. 01.04.2014	0.001 mg/L to 3.0 mg/L
		Nickel	APHA (22 nd Edition) 3111 B: 2012	0.15 mg/L to 10.0 mg/L
		Potassium	APHA (22 nd Edition) 3500 KB: 2012	0.5 mg/L to 390.0 mg/L
		Selenium	IS 3025 (Part 56): 2003	0.025 mg/L to 2.0 mg/L
		Silver	APHA (22 nd Edition) 3111 B: 2012	0.01 mg/L to 4.0 mg/L
		Sodium	APHA (22 nd Edition) 3500 Na B: 2012	0.5 mg/L to 4600.0 mg/L
		Sulphate	APHA (22 nd Edition) 4500 SO ₄ ²⁻ E: 2012	1 mg/L to 1000 mg/L

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Certificate Number	T-3571	Valid Until	10.09.2017
Last Amended on	-	Page	7 of 11

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	Solid Wastes / Hazardous Solid Wastes / Toxic Wastes	Tin	APHA (22 nd Edition) 3111 D: 2012	0.02 mg/L to 0.5 mg/L
		Zinc	APHA (22 nd Edition) 3111 B: 2012	0.05 mg/L to 10.0 mg/L
II.	WATER			
1.	Drinking Water/ Bore well water/ Well water/ Tap Water	Colour	IS 3025 (Part 4): 1983 (RA 2012)	0.5 Hazen to 70 Hazen
		Odour	IS 3025 (Part 5): 1983 (RA 2012)	Qualitative
		pH Value	APHA (22 nd Edition) 4500 H ⁺ B: 2012	2 to 12
		Turbidity	APHA (22 nd Edition) 2130 B: 2012 Nephelometric Method	0.05 NTU to 100 NTU
		Total Dissolved solids	APHA (22 nd Edition) 2540 C: 2012	0.2 mg/L to 4000 mg/L
		Aluminium as Al	APHA (22 nd Edition) 3500 Al ⁺ B: 2012	0.02 mg/L to 1 mg/L
		Ammonia as total ammonical nitrogen	IS 3025 (Part 34): 1988 (RA 2009)	0.1 mg/L to 10 mg/L
		Anionic Detergent	APHA (22 nd Edition) 5540 C: 2012	0.025 mg/L to 2 mg/L
		Barium as Ba	APHA (22 nd Edition) 3111 D: 2012	0.03 mg/L to 20 mg/L
	Boron as B	IS 3025 (Part 57): 2005 (RA 2010)	0.05 mg/L to 10 mg/L	
	Calcium as Ca	APHA (22 nd Edition) 3500 Ca B: 2012	0.08 mg/L to 120.0 mg/L	

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Certificate Number	T-3571	Valid Until	10.09.2017
Last Amended on	-	Page	8 of 11

S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Drinking Water/ Bore well water/ Well water/ Tap Water	Chloramines as Cl ₂	IS 3025 (Part 26): 1986 (RA 2003)	0.005 mg/L to 5.0 mg/L
		Chlorides as Cl	APHA (22 nd Edition) 4500 Cl ⁻ B: 2012	3 mg/L to 250 mg/L
		Copper as Cu	APHA (22 nd Edition) 3111 B: 2012	0.01 mg/L to 10.0 mg/L
		Fluorides as F	APHA (22 nd Edition) 4500 F ⁻ D: 2012	0.1 mg/L to 1.4 mg/L
		Free Residual Chlorine	APHA (22 nd Edition) 4500 Cl B: 2012	0.35 mg/L to 35.45 mg/L
		Iron as Fe	APHA (22 nd Edition) 3500 Fe B: 2012	0.01 mg/L to 10.0 mg/L
		Magnesium as Mg	APHA (22 nd Edition) 3500 Mg B: 2012	0.1 mg/L to 72.0 mg/L
		Manganese as Mn	APHA (22 nd Edition) 3111 B: 2012	0.01 mg/L to 10.0 mg/L
		Nitrates as NO ₃	KLRPL/WI/33 Issue No. 01 Issue Date: 01.04.2014	0.02 mg/L to 10 mg/L
		Phenolic compound	APHA (22 nd Edition) 5530 C: 2012	0.01 mg/L to 0.5 mg/L
		Selenium as Se	IS 3025 (Part 56): 2003 (RA 2009)	0.025 mg/L to 2 mg/L
		Silver as Ag	APHA (22 nd Edition) 3111 B: 2012	0.01 mg/L to 4 mg/L
	Sulphate as SO ₄	APHA (22 nd Edition) 4500 SO ₄ ²⁻ E: 2012	1.0 mg/L to 40.0 mg/L	

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Discipline	Chemical Testing	Issue Date	11.09.2015
Certificate Number	T-3571	Valid Until	10.09.2017
Last Amended on	-	Page	9 of 11

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	Drinking Water/ Bore well water/ Well water/ Tap Water	Sulphides as H ₂ S	APHA (22 nd Edition) 4500 S ²⁻ -E: 2012	1.0 mg/L to 5.0 mg/L
		Total Alkalinity as CaCO ₃	IS 3025 (Part 23): 1986 (RA 2008)	0.5 mg/L to 500.0 mg/L
		Total Hardness as CaCO ₃	APHA (22 nd Edition) 2340 C: 2012	0.2 mg/L to 300.0 mg/L
		Zinc as Zn	APHA (22 nd Edition) 3111 B: 2012	0.05 mg/L to 2.0 mg/L
		Cadmium as Cd	APHA (22 nd Edition) 3111 B: 2012	0.025 mg/L to 2.0 mg/L
		Cyanide as CN	APHA (22 nd Edition) 4500 CN E, D: 2012	0.01 mg/L to 1.0 mg/L
		Lead	APHA (22 nd Edition) 3111 B: 2012	0.05 mg/L to 10 mg/L
		Mercury as Hg	KLRPL/WI/27 Issue No. 01 Issue Date 01.04.2014	0.001 mg/L to 3.0 mg/L
		Molybdenum as Mo	APHA (22 nd Edition) 3111 D: 2012	0.1 mg/L to 20.0 mg/L
		Nickel as Ni	APHA (22 nd Edition) 3111 B: 2012	0.15 mg/L to 10.0 mg/L
		Total Arsenic as As	IS 3025 (Part 37): 1988 (RA 2009)	0.01 mg/L to 10.0 mg/L
		Total Chromium as Cr	APHA (22 nd Edition) 3111 B: 2012	0.02 mg/L to 10.0 mg/L
III.		AIR, GASES AND ATMOSPHERE		
1.	Stack Emission Monitoring	Oxides of Nitrogen	IS 11255 (Part 7): 2005 (RA 2012)	2 mg/Nm ³ to 400 mg/Nm ³
		Sulphur Dioxide	IS 11255 (Part 2): 1985 (RA 2003)	1 mg/Nm ³ to 150 mg/Nm ³
		Total Particulate Matter	IS 11255 (Part 1): 1985 (RA 2003)	0.5 mg/Nm ³ to 225 mg/Nm ³

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Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Chemical Testing	Issue Date	11.09.2015
Certificate Number	T-3571	Valid Until	10.09.2017
Last Amended on	-	Page	10 of 11

S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
2.	Ambient Air Monitoring	Arsenic as As	APHA (3 rd Edition) Method No. 302	0.1 µg/m ³ to 10 µg/m ³
		Benzene	IS 5182 (Part 11): 2006	0.2 µg/m ³ to 30 µg/m ³
		Benzo (a) pyrene	KLRPL/WI/87 Issue No. 01 Issue Date. 01.04.2014	0.001 µg/m ³ to 10 µg/m ³
		Carbon Monoxide	IS 5182 (Part 10): 1999	0.1 mg/m ³ to 1000 mg/m ³
		Hydrogen Sulphide	IS 5182 (Part 7): 1973 (RA 2009)	0.03 µg/m ³ to 600 µg/m ³
		Lead	APHA (3 rd Edition) Method no. 822	0.1 µg/m ³ to 10 µg/m ³
		NH ₃	APHA (3 rd Edition) Method no. 401	0.02 µg/m ³ to 700 µg/m ³
		Nickel as Ni	APHA (3 rd Edition) Method No. 822	0.007 µg/m ³ to 5 µg/m ³
		NO _x	IS 5182 (Part 6): 2006	6 µg/m ³ to 750 µg/m ³
		Ozone	APHA (3 rd Edition) Method No. 411	19.6 mg/m ³ to 19620 mg/m ³
		PM ₁₀	IS 5182 (Part 23): 2006	19.6 µg/m ³ to 300 µg/m ³
		PM _{2.5}	KLRPL/WI/96 Issue No. 01 Issue Date. 01.04.2014	19.6 µg/m ³ to 100 µg/m ³
		SO ₂	IS 5182 (Part 2): 2001	10 µg/m ³ to 1050 µg/m ³

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Certificate Number T-3571 **Valid Until** 10.09.2017

Last Amended on - **Page** 11 of 11

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AT SITE				
I.	NOISE			
1.	Sound Level Measurement	Ambient Noise level (Leq)	IS 9981: 1981	30 dB (A) to 130 dB (A)
		Measurement (L _d , L _n , L _{dn} , L _{min.} , L _{max.} , L ₅₀ , L ₉₀ , L ₁₀)	IS 9981: 1981	30 dB (A) to 130 dB(A)

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