

Laboratory MSV Analytical Laboratories, Sri Lakshmi Venkateshwara Krupe, C.M.C. Ward No. 18 & C.T.C. W. No.16, T.S. No. 695/A/32/B1, Block no. 19 (1st & 2nd Floor), Sanganakallu Road, KEB Circle, Bellary, Karnataka

Accreditation Standard ISO/IEC 17025: 2005

Discipline Chemical Testing **Issue Date** 07.11.2016

Certificate Number T-2789 **Valid Until** 11.04.2018

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S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
I. WATER				
1.	Surface Water/ Ground Water	Acidity (as CaCO ₃)	APHA (22 nd Edition) 2310 B: 2012 IS 3025 (Part 22): 1986 (RA 2009)	1 mg/l to 200 mg/l
		Alkalinity (as CaCO ₃)	APHA (22 nd Edition) 2320 B: 2012 IS 3025 (Part 23): 1986 (RA 2009)	1 mg/l to 500 mg/l
		Nitrate as NO ₃	APHA (22 nd Edition) 4500-NO ₃ B: 2012	1 mg/l to 100 mg/l
		Nitrite as NO ₂	APHA (22 nd Edition) 4500-NO ₂ B: 2012 IS 3025 (Part 34): 1998 (RA 2009)	0.01 mg/l to 5 mg/l
		Boron as B	APHA (22 nd Edition) 4500-B, B: 2012 IS 3025 (Part 57): 2005 (RA 2010)	0.1 mg/l to 100 mg/l
		Chloride as Cl	APHA (22 nd Edition) 4500-Cl,B: 2012 IS 3025 (Part 32): 1988 (RA 2009)	1 mg/l to 5000 mg/l
		Hexavalent Chromium as Cr ⁺⁶	APHA (22 nd Edition) 3500-Cr, B: 2012 IS 3025 (Part 52): 1988 (RA 2009)	0.03 mg/l to 1 mg/l

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S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Surface Water/ Ground Water	Electrical conductivity @25 ^o C	APHA (22 nd Edition) 2510 B: 2012 IS 3025 (Part14): 2013	1 µs/cm to 10000 µs/cm
		Dissolved Oxygen	APHA (22 nd Edition) 4500-O, C: 2012	1 mg/l to 7 mg/l
		Fluoride as F	APHA (22 nd Edition) 4500-F,D : 2012	0.1 mg/l to 100 mg/l
		Calcium as Ca	APHA (22 nd Edition) 3500 Ca, B: 2012 IS 3025 (Part 40): 1991 (RA 2009)	1 mg/l to 1000 mg/l
		Total Hardness as (as CaCO ₃)	APHA (22 nd Edition) 2340 C: 2012 IS 3025 (Part 21): 2009	1 mg/l to 1000 mg/l
		Iron as Fe	APHA (22 nd Edition) 3500-Fe ,B: 2012 IS 3025 (Part53): 2003 (RA 2009)	0.05 mg/l to 10 mg/l
		Magnesium as Mg	APHA (22 nd Edition) 3500-Mg, B: 2012 IS 3025 (Part 46): 1994 (RA 2009)	1 mg/l to 500 mg/l
		Oil & Grease	APHA (22 nd Edition) 5520 D: 2012 IS 3025 (Part 39): 1991 (RA 2009)	1 mg/l to 100 mg/l

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S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Surface Water/ Ground Water	pH @25 ^o C	APHA (22 nd Edition) 4500 H ⁺ , B: 2012 IS 3025 (Part11): 1983 (RA 2012)	1 to 14
		Dissolved Phosphate as P	APHA (22 nd Edition) 4500-P, D: 2012 IS 3025 (Part31):1988 (RA 2003)	0.05 mg/l to 50mg/l
		Potassium as K	APHA (22 nd Edition) 3500-K: 2012 IS 3025 (Part45): 1993 (RA 2009)	1 mg/l to 500 mg/l
		Sodium as Na	APHA (22 nd Edition) 3500-Na, B: 2012 IS 3025 (Part45): 1993 (RA 2009)	1 mg/l to 500 mg/l
		Total Dissolved Solids	APHA (22 nd Edition) 2540 C: 2012 IS 3025 (Part16): 1993 (RA 2012)	1 mg/l to 5000 mg/l
		Sulphate as SO ₄	APHA (22 nd Edition) 4500-SO ₄ ²⁻ : 2012	1 mg/l to 500 mg/l
		Temperature	APHA (22 nd Edition) 2550 B: 2012	Ambient – 50 °C
		Turbidity	APHA (22 nd Edition) 2530 B: 2012 IS 3025 (Part10):1984 (RA 2012)	1 NTU to 100 NTU

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II. POLLUTION & ENVIRONMENT				
1.	Waste Water	Acidity (as CaCO ₃)	APHA (22 nd Edition) 2310 B: 2012	1 mg/l to 200 mg/l
		Alkalinity (as CaCO ₃)	APHA (22 nd Edition) 2320 B: 2012	1 mg/l to 500 mg/l
		Ammonical Nitrogen as N	APHA (22 nd Edition) 4500-NH ₃ , B, C: 2012	1 mg/l to 500 mg/l
		Nitrite as NO ₂	APHA (22 nd Edition) 4500-NO ₂ , B: 2012	0.01 mg/l to 5 mg/l
		Total kjeldhal Nitrogen as N	APHA (22 nd Edition) 4500-N org, B: 2012	1 mg/l to 500 mg/l
		BOD at 27 ^o C for 3days	IS 3025 (Part 44): 1993 (RA 2009)	2 mg/l to 5000 mg/l
		Chemical oxygen Demand	APHA (22 nd Edition) 5220 B: 2012 IS 3025 (Part 58): 2006	4 mg/l to 10000mg/l
		Chloride as Cl	APHA (22 nd Edition) 4500-Cl,B: 2012	1 mg/l to 5000 mg/l
		Chlorine Residual	APHA (22 nd Edition) 4500-Cl, I: 2012	1 mg/l to 50mg/l
		Hexavalent Chromium as Cr ⁺⁶	APHA (22 nd Edition) 3500-Cr, B: 2012	0.03 mg/l to 10 mg/l
		Electrical conductivity @25 ^o C	APHA (22 nd Edition) 2510 B: 2012	1 µs/cm to 10000 µs/cm

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	Waste Water	Dissolved Oxygen	APHA (22 nd Edition) 4500-O, C: 2012	1 mg/l to 7 mg/l
		Fluoride as F	APHA (22 nd Edition) 4500- F,B, D: 2012	0.1 mg/l to 100 mg/l
		Calcium as Ca	APHA (22 nd Edition) 3500 Ca: 2012	1 mg/l to 1000 mg/l
		Total Hardness as CaCO ₃	APHA (22 nd Edition) 2340 C: 2012	1 mg/l to 1000 mg/l
		Iron as Fe	APHA (22 nd Edition) 3500-Fe, B: 2012	0.05 mg/l to 10 mg/l
		Magnesium as Mg	APHA (22 nd Edition) 3500-Mg, B: 2012	1 mg/l to 1000 mg/l
		Oil & Grease	APHA (22 nd Edition) 5520 D: 2012	1 mg/l to 100 mg/l
		pH@25 ^o C	APHA (22 nd Edition) 4500 H ⁺ , B: 2012	1 to 14
		Dissolved Phosphate as P	APHA (22 nd Edition) 4500-P, B, D: 2012	0.05 mg/l to 50mg/l
		Potassium	APHA (22 nd Edition) 3500-K: 2012	1 mg/l to 500 mg/l
		Sodium	APHA (22 nd Edition) 3500-Na, B: 2012	1 mg/l to 500 mg/l

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S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Waste Water	Total Dissolved Solids	APHA (22 nd Edition) 2540 C: 2012	1 mg/l to 5000 mg/l
		Sulphate	APHA (22 nd Edition) 4500-SO ₄ ²⁻ : 2012	1 mg/l to 500 mg/l
		Total Solids	APHA (22 nd Edition) 2540 B: 2012	1 mg/l to 5000 mg/l
		Total Suspended Solids	APHA (22 nd Edition) 2540 F: 2012	1 mg/l to 1000 mg/l
		Turbidity	APHA (22 nd Edition) 2530 B: 2012	1 NTU to 100 NTU
2.	Soil	pH value	IS 2720 (Part 26): 1987 (RA 1997)	1 to 14
		Specific Electrical Conductivity @ 25 °C	IS 14767: 2000	1 µS/cm to 500 µS/cm
		Organic matter	IS 2720 (Part 22): 1972 (RA 2010)	0.10 % to 10.0 %
		Water (Moisture) Content	IS 2720 (Part 2): 1973 (RA 2010)	0.1 % to 10 %
III. ATMOSPHERIC POLLUTION				
1.	Ambient Air Quality Monitoring	Particulate matter less than 2.5µg (Pm _{2.5})	MSVAL/SOP/A/005; Dated. 02.07.2012	1 µg/m ³ to 500 µg/m ³
		Particulate matter less than 10µg (PM ₁₀)	IS 5182 (Part 23): 2006	1 µg/m ³ to 10000 µg/m ³

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	Ambient Air Quality Monitoring	Oxide of Nitrogen	IS 5182 (Part 6): 2006	3.0 µg/m ³ to 100 µg/m ³
		Sulphur dioxide	IS 5182 (Part 2): 2001	3.0 µg/m ³ to 100 µg/m ³
2.	Stack Emission Monitoring	Velocity	IS 11255 (Part 3): 2008	1 m/s to 60 m/s
		Volume of gas discharge	IS :11255 (Part 3): 2008	20 Nm ³ /h to 100000 Nm ³ /h
		Particulate matter	IS 1125 (Part 1): 1985 (RA 2003)	1 mg/Nm ³ to 1000 mg/Nm ³
		Sulphur dioxide	IS 11255 (Part 2): 1985 (RA 2003)	3 mg/Nm ³ to 1000 mg/Nm ³
		Oxides of Nitrogen	IS 11255 (Part 7): 2005 (RA 2012)	2 mg/Nm ³ to 500 mg/Nm ³

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