

Laboratory **Madhav & Associates, #372, Kallipura Road, Honnehalli, Tamaka Post, Kolar, Karnataka**

Accreditation Standard **ISO/IEC 17025: 2005**

Certificate Number **TC-6327**

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Validity **27.09.2017 to 26.09.2019**

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Sl.	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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**CHEMICAL TESTING**

I.	WATER			
1.	<b>(Drinking, Potable water, RO, Surface &amp; Ground Water)</b>	pH	IS 3025:(Part 11) :1983 Reaffirmed -2012	1 - 12
		Conductivity	IS 3025:(Part 14) :1984 Reaffirmed-2013	1 µs/cm to 5000 µs/cm
		Total Dissolved Solids	IS 3025:(Part 16): 1984 Reaffirmed-2012	2 mg/l to 2000 mg/l
		Total Suspended Solids	IS 3025:(Part 17) :1984 Reaffirmed-2012	2 mg/l to 500mg/l
		Magnesium	IS 3025:(Part -46): 1994 Reaffirmed-2014	2.0 mg/l to 500mg/l
		Chlorides	IS 3025:(Part -32): 1988 Reaffirmed -2014	2 mg/l to 2000mg/l
		Alkalinity	IS 3025:(Part -23): 1986 Reaffirmed -2014	2 mg/l to 1000 mg/l
		Calcium	IS 3025:(Part -40): 1991 Reaffirmed-2014	2 mg/l to 1000mg/l
		Total Hardness	IS 3025:(Part -21): 1983 Reaffirmed-2014	2 mg/l to 2000mg/l
		Potassium	IS 3025:(Part -45):1993 Reaffirmed -2014	2 mg/l to 500 mg/l
		Sodium	IS 3025:(Part -45): 1993 Reaffirmed -2014	2 mg/l to 500 mg/l
		Color	APHA 2120B. 22 <sup>nd</sup> Edition. 2012	1 Hazen Units to 70 Hazen Units
		Nitrate Nitrogen	IS 3025:(Part -34):1988 Reaffirmed -2014	1 mg/l to 100 mg/l
		Turbidity	IS 3025:(Part -10): 1984 Reaffirmed-2012	0.2 mg/l to 2mg/l

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		Sulphates	IS 3025:(Part -24): 1986 Reaffirmed-2014	1 mg/l to 1500mg/l
		Dissolved oxygen	IS 3025:(Part 38) 1989 Reaffirmed -2014	1 mg/l to 10 mg/l
		Fluoride	IS 3025:(Part 60): 2008 Reaffirmed -2013	0.05 mg/l to 25mg/l
		Residual Chlorine	IS 3025:(Part -26):1986 Reaffirmed -2014	1 mg/l to 25 mg/l
		Chromium as Cr 6 <sup>+</sup>	IS 3025:(Part -52): 2003 Reaffirmed -2014	0.3 mg/l to 10mg/l
		Total Iron	IS 3025:(Part -53): 2003 Reaffirmed -2014	0.1 mg/l to 100mg/l
		Cadmium	IS 3025:(Part -41): 1992 Reaffirmed - 2003 (AAS)	0.1 mg/l to 5.0 mg/l
		Lead	IS 3025:(Part -47): 1994 Reaffirmed -2014 (AAS)	0.1 mg/l to 5.0 mg/l
		Zinc	IS 3025:(Part -49) 1994 Reaffirmed -2014(AAS)	0.05 mg/l to 5 mg/l
		Nickel	IS 3025:(Part -54): 2003 Reaffirmed -2014(AAS)	0.05 mg/l to 5 mg/l
		Copper OPPER	IS 3025:(Part -42): 1992 Reaffirmed -2014(AAS)	0.1 mg/l to 5 mg/l
		Manganese	IS 3025:(Part -46): 1994 Reaffirmed -2014	0.1 mg/l to 5 mg/l
		Boron	IS 3025:(Part -57): 2005	0.1 mg/l to 10 mg/l
		Cyanide	IS 3025:(Part -27) : 1986 Reaffirmed -2014	0.1 mg/l to 5 mg/l

Sangeeta Negi  
Convenor

N. Venkateswaran  
Program Director

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II.	<b>POLLUTION &amp; ENVIRONMENT</b>			
1.	<b>Waste Water (STP, ETP, CTP &amp; CETP )</b>	pH	IS 3025:(Part 11) :1983 Reaffirmed -2012	1 – 12
		Conductivity	IS 3025:(Part 14) :1984 Reaffirmed-2013	1 µs/cm to 25000 µs/cm
		Total Dissolved Solids	IS: 3025:(Part 16): 1984 Reaffirmed-2012	1 mg/l to 10000mg/l
		Total Suspended Solids	IS 3025:(Part 17) :1984 Reaffirmed-2012	1 mg/l to 500 mg/l
		Dissolved oxygen	IS 3025:(Part 38) 1989 Reaffirmed -2014	1 mg/l to 8mg/l
		Bio-Chemical Oxygen Demand	IS 3025:(Part -44): 1993 Reaffirmed -2014	4 mg/l to 1500mg/l
		Chemical Oxygen Demand	IS 3025:(Part -58): 2006 Reaffirmed -2012	2 mg/l to 4000 mg/l
		Magnesium	IS 3025:(Part -46): 1994 Reaffirmed-2014	2 mg/l to 1000 mg/l
		Total Solids	IS 3025:(Part 15):1984 Reaffirmed-2014	1 mg/l to 10000 mg/l
		Chlorides	IS 3025:(Part -32): 1988 Reaffirmed -2014	1 mg/l to 2500 mg/l
		Calcium	IS 3025:(Part -40): 1991 Reaffirmed -2014	1 mg/l to 2000 mg/l
		Total Hardness	IS 3025:(Part -21): 1983 Reaffirmed -2014	1 mg/l to 2500mg/l
		Alkalinity	IS 3025:(Part -23): 1986 Reaffirmed -2014	1 mg/l to 1000 mg/l
		Potassium	IS 3025:(Part -45): 1993 Reaffirmed -2014	2 mg/l to 250 mg/l
	Sodium	IS 3025:(Part -45): 1993 Reaffirmed -2014	2 mg/l to 250 mg/l	

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		Temperature	IS 3025: (Part 09): 1984 Reaffirmed-2012	10 °C to 45 °C
		Phosphate	IS 3025:(Part 31): 1988 Reaffirmed -2014	0.5 mg/l to 250mg/l
		Nitrite Nitrogen	IS 3025:(Part -34): 1988 Reaffirmed -2014	0.2 mg/l to 50mg/l
		Ammonical nitrogen	IS 3025:(Part -34): 1988 Reaffirmed -2014	1 mg/l to 400 mg/l
		Kjeldhal Nitrogen	IS 3025:(Part -34): 1988 Reaffirmed -2014	0.12 mg/l to 7mg/l
		Turbidity	IS 3025:(Part -10): 1984 Reaffirmed-2012	0.02 mg/l to 50mg/l
		Acidity	IS 3025:(Part -22): 1986 Reaffirmed -2014	1 mg/l to 1000mg/l
		Sulphates	IS 3025:(Part -24): 1986 Reaffirmed -2014	1 mg/l to 2500 mg/l
		Sulphide	IS 3025:(Part 29): 1986 Reaffirmed -2014	0.2 mg/l to 100 mg/l
		Fluoride	IS 3025:(Part 60): 2008 Reaffirmed -2013	0.05 mg/l 25 mg/l
		Oil & Grease	IS 3025:(Part -39): 1991 Reaffirmed -2014	1 mg/l to 500 mg/l
		Residual Chlorine	IS 3025:(Part -26):1986 Reaffirmed -2014	1 mg/l 25 mg/l
		Hexavalent Chromium	IS 3025:(Part -52): 2003 Reaffirmed -2014	0.3 mg/l to 25mg/l
		Total Iron	IS 3025:(Part -53): 2003 Reaffirmed -2014	1 mg/l to 100mg/l
		Cadmium	IS 3025:(Part -41): 1992 Reaffirmed - 2003 (AAS)	0.1 mg/l to 5.0 mg/l
		Lead	IS 3025:(Part -47): 1994 Reaffirmed -2014 (AAS)	0.1 mg/l to 5.0 mg/l

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		Zinc	IS 3025:(Part -49): 1994 Reaffirmed -2014(AAS)	0.01 mg/l to 5.0 mg/l
		Total Chromium	IS 3025:(Part -52): 2003 Reaffirmed -2014	0.3 mg/l to 5 mg/l
		Nickel	IS 3025:(Part -54): 2003 Reaffirmed -2014	0.05 mg/l to 10 mg/l
		Copper	IS 3025:(Part -42): 1992 Reaffirmed -2014	0.1 mg/l to 10 mg/l
		Manganese	IS 3025:(Part -59): 2006 Reaffirmed -2012	0.1 mg/l to 5 mg/l
		Boron	IS 3025:(Part -57): 2005	0.1 mg/l to 10 mg/l
		Nitrate Nitrogen	IS 3025:(Part -34):1988 Reaffirmed -2014	0.1 mg/l to 100 mg/l
<b>III.</b>	<b>ATMOSPHERIC POLLUTION</b>			
<b>1.</b>	<b>Stack Monitoring</b>	Velocity & volume of Flue gas Discharged	IS 11255((Part 3) :2008 (Reaffirmed 2014)	2.0 m/s to 12.0 m/s
		Particulate matter	IS 11255((Part 1) :1985 (Reaffirmed 2014)	1.0 mg/Nm <sup>3</sup> to 500mg/Nm <sup>3</sup>
		Sulphur Dioxide (SO <sub>2</sub> )	MA/SOP/S/001 (Under Progress) Using Flue Gas Analyzer	3.0 µg/m <sup>3</sup> to 1000 µg/m <sup>3</sup>
		Nitrogen Dioxide (NO <sub>2</sub> )	MA/SOP/S/002 (Under Progress) Using Flue Gas Analyzer	3.0 µg/m <sup>3</sup> to 1000 µg/m <sup>3</sup>
		Acid Mist (asH <sub>2</sub> SO <sub>4</sub> )	US EPA – method 8 (Determination of Sulfuric acid mist and Sulfur dioxide emissions from stationary sources)	1 µg/ Nm <sup>3</sup> to 2000 µg/ Nm <sup>3</sup>
<b>2.</b>	<b>Ambient Air Monitoring</b>	Sulphur Dioxide (SO <sub>2</sub> ) µg/m <sup>3</sup>	IS 5182 (Part 2) : 2001RA 2012	3.0 µg/m <sup>3</sup> to 750 µg/m <sup>3</sup>
		Nitrogen Dioxide	IS: 5182 (Part 6) :2012	3.0 µg/m <sup>3</sup> to 750 µg/m <sup>3</sup>

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		(NO <sub>2</sub> ) µg/m <sup>3</sup>	Amendment No .1, 2014	
		Particulate Matter (Size less than10µm) or PM10	IS: 5182 ( Part 23 ) :2006 (Reaffirmed 2012)	1.0 µg/m <sup>3</sup> to 1000 µg/m <sup>3</sup>
		Particulate Matter (Size less than2.5µm)or PM2.5	PM2.5 USEPA Quality Assurance Hand Book Vol (Part. 2) USEPA-40CFR Part 50 Appendix-L	1.0 µg/m <sup>3</sup> to 500 µg/m <sup>3</sup>
		Lead as Pb	IS: 5182 (Part 22 ) :2004 (Reaffirmed 2014)	0.1 µg/m <sup>3</sup> to 5 µg/m <sup>3</sup>
		Nickel as Ni	IS: 5182 (Part 14 ) :2000 (Reaffirmed 2014)AAS	5.0 ng/ m <sup>3</sup> to 50 ng/m <sup>3</sup>
		Ammonia	Methods of Air Sampling IS: 5182 ( Part 5 ) :1975 (Reaffirmed 2003) (Indophenol Method)	4.0 µg/m <sup>3</sup> to 50 µg/m <sup>3</sup>
<b>AT SITE</b>				
<b>I.</b>	<b>ATMOSPHERIC POLLUTION</b>			
<b>1.</b>	<b>Ambient Noise (Excluding Vibration)</b>	Ambient Noise	IS: 9989:1981 (Reaffirmed 2008)	35 dB(A) Leq to 130 dB(A) Leq