

Laboratory	UniStar Environment and Research Labs Pvt. Ltd. (Laboratory Division), White House, 2nd Floor, Plot No. C-5/24, Char Rasta, Vapi, Gujarat		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Chemical Testing	Issue Date	15.09.2014
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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
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AT LABORATORY

I. AIR, GASES & ATMOSPHERE

1. Ambient Air Quality Monitoring	Particulate Matter, PM ₁₀		IS 5182 (Part 23): 2012 Gravimetric Method	(10 to 1000) µg/m ³
	Particulate Matter, PM _{2.5}		UERL/AIR/ SOP/11 Issue No: 02 Issue Date: 20.05.2011	(4 to 100) µg/m ³
	Sulphur Dioxide		IS 5182 (Part 2):2001 RA 2012	(4 to 1050) µg/m ³
	Oxides of Nitrogen		IS 5182 (Part 6): 2012	(6 to 420) µg/m ³
	Lead		IS 5182 Part-22:2009 RA 2009 AAS Method	(0.50 to 10) µg/m ³
	Ammonia		UERL/AIR/ SOP/05 Issue No: 02 Issue Date: 20/05/2011	(20 to 400) µg/m ³
	Ozone		IS 5182 (Part 9):2009 UV Spectrophotometric Method	(5 to 500) µg/m ³
	Nickel		IS 5182(Part 22):2009 AAS Method	(5 to 100) ng/m ³

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	Ambient Air Quality Monitoring	Arsenic	IS 5182 (Part 22):2009 AAS Method	(5 to 100) ng/m ³
2.	Stack Emission Monitoring	Particulate Matter	IS 11255 (Part 1): 1985, (RA 2003)	(1to 500) mg/ Nm ³
		Sulphur Dioxide	IS 11255 (Part 2): 1985, (RA 2003)	(3 to 1000) mg/m ³
		Oxides of Nitrogen	IS 11255 (Part 7): 2005	(2 to 400) mg/m ³
II. POLLUTION & ENVIRONMENT				
1.	Liquid effluents (Effluents and Waste Water)	Ammonical Nitrogen	APHA 22 nd Ed.2012,4500 NH ₃ , B 4-110 & C 4 - 112 IS 3025 (Part 34): 1988 (RA 2009) Titrimetric Method	(5 to 100) mg/L
		Arsenic	APHA, 22 nd Ed., 2012, 3114-C, 3-38 Continuous Hydride AAS Method	(0.01 to 1.0) mg/L
		Biochemical Oxygen Demand (3 days , 27 ^o C)	IS 3025 (Part 44):1993 (RA 2009), Amds.1 Iodometric Method	(5 to 1000) mg/L

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	Liquid effluents (Effluents and Waste Water)	Cadmium	APHA, 22 nd Ed., 2012, 3111- B, 3-18 IS 3025 (Part 41): 1992, (RA 2009) Direct Air Acetylene AAS Method	(0.001 to 10) mg/L
		Calcium or Calcium Hardness as CaCO ₃	APHA, 22 nd Ed., 2012, 3500-B, 3-67 EDTA Titrimetric Method	(1 to 500) mg/L
		Chemical Oxygen Demand	IS 3025 (Part 58): 2006, APHA, 22 nd Ed., 2012, 5220-B, 5-17 Open Reflux Method	(5 to 900) mg/L
		Chloride	APHA, 22 nd Ed., 2012, 4500-Cl, B,4-72 IS 3025(Part 32):1988, (RA 2009) Argentometric Method	(1.0 to 100) mg/L
		Chromium (Hexavalent)	APHA, 22 nd Ed.,2012, 3500-Cr,B ,3 - 69 Colorimetric Spectrophotometric Method	(0.1 to 10) mg/L

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	Liquid effluents (Effluents and Waste Water)	Chromium (Total)	APHA, 22 nd Ed., 2012, 3111 B, 3-18 IS 3025 (Part 52): 2003 (RA 2009) AAS Method	(0.001 to 10) mg/L
		Copper	APHA, 22 nd Ed.,2012, 3111-B, 3-18 IS 3025 (Part 42): 1992, (RA 2009), Amds.1 AAS Method	(0.002 to 5) mg/L
		Dissolved Oxygen	APHA, 22 nd Ed.,2012, 4500-O, B 4-139 IS 3025 (Part 38): 1989, (RA 2009) Iodometric Method	(0.5 to 8) mg/L
		Iron	APHA, 22 nd Ed., 2012, 3111-B, 3 - 18 IS 3025 (Part 53): 2003 (RA 2009) AAS Method	(0.001 to 10) mg/L
		Lead	APHA,22 nd Ed.,2012, 3111-B, 3 18 IS 3025 (Part 47):1994, (RA 2009), Amds. 2 AAS Method	(0.003 to 10) mg/ L

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	Liquid effluents (Effluents and Waste Water)	Mercury	APHA, 22 nd Ed., 2012, 3112-B, 3-23 AAS Method	(0.002 to 2) mg/L
		Nickel	APHA, 22 nd Ed., 2012, 3111 B, 3 - 18 IS 3025 (Part 54):2003 (RA 2009) AAS Method	(0.003 to 10) mg/L
		Nitrate	APHA, 22 nd Ed., 2012, 4500 NO ₃ -B, 4- 122 UV Spectrophotometric Screening Method	(0.1 to 50) mg/L
		Oil & Grease	IS 3025 (Part 39):1991 (RA 2009), Amds. 1 Liquid, Liquid, Partition Gravimetric Method	(4 to 100) mg/L
		Total Kjeldahl Nitrogen (TKN)	APHA, 22 nd Ed., 2012, 4500 NH ₃ , B 4 -110 C 4-112 & 4500 N _{Org} , B, 4-132 Distillation & Titration Method	(5 to 100) mg/L
		pH	APHA, 22 nd Ed., 2012, 4500-H ⁺ B, 4-92 IS 3025(Part 11):1983, (RA 2012) By pH Meter	2 to 12

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	Liquid effluents (Effluents and Waste Water)	Phenol	IS 3025(Part 43):1992, (RA 2009),Amnd.2 4-Amino Antipyring Method	(0.1 to 10) mg/L
		Phosphate	APHA, 22 nd Ed.,2012, 4500- P,D, 4-154 Stannous Chloride Method	(0.1 to 10) mg/L
		Potassium	APHA,22 nd Ed. 2012, 3500-K, B, 3-87 Flame Photometric in emission mode Method	(1.0 to 100) mg/L
		Sodium	APHA, 22 nd Ed.,2012, 3500-Na, B,3-97 Flame Photo emission mode Method	(1.0 to 100) mg/L
		Sulphate	IS 3025 (Part 24): 1986, (RA 2009) Turbidimetric Method	(1 to 40) mg/L
		Sulphide	APHA,22 nd Ed.2012, 4500 S ² , C 4-174 F- 4/178 Iodometric Titration Method	(1 to 10) mg/L

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	Liquid effluents (Effluents and Waste Water)	Total Dissolved Solids	APHA, 22 nd Ed., 2012, 2540-B, 2-65 IS 3025 (Part 16):1984, (RA 2012), Amds. 1 Filtration/Gravimetric Method	(5 to 1000) mg/L
		Total Solids	APHA, 22 nd Ed., 2012, 2540-B, 2-64 IS 3025 (Part 15):1984, (RA 2009), Amds. 1 Gravimetric Method	(5 to 1000) mg/L
		Total Suspended Solids	APHA, 22 nd Ed., 2012, 2540-D,2-66 IS 3025(Part 17): 1984, (RA 2012), Amds.1 Filtration/ Gravimetric Method	(5 to 1000) mg/L
		Total Volatile Solids	APHA, 22 nd Ed., 2012 , 2540-E, 2 - 67 IS 3025(Part 18): 1984, (RA 2012), Amds.1 Gravimetric Method	(5 to 1000) mg/L
		Zinc	APHA, 22 nd Ed., 2012, 3111-B, 3-18 IS 3025 (Part 49):1994, (RA 2009), Amds. 1 AAS Method	(0.001 to 10) mg/L

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2.	Waste (Slurry , Powder, Sludge)	Conductivity	CPCB, LATS/16/2002-03 Chapter 5, UERL/CHM/SOP/105 Issue No: 01 Issue Date: 01/03/2014	(0 to 200) mS/s
		pH	CPCB, LATS/16/2002-03 Chapter 7, UERL/CHM/SOP/107 Issue No: 01 Issue Date: 01/03/2014	1 to14
		Moisture	UERL/CHM/SOP/135 Issue No: 01 Issue Date : 01/03/2014 Based on IS 3025 (Part17)1984 and CPCB, LATS/16/2002-03 Chapter 4, page 33	(0.1 to 99) %
		Loss on ignition	UERL/CHM/SOP/136 Issue No: 01 Issue Date : 01/03/2014 Based on IS 3025 (Part 18)1984 and CPCB, LATS/16/2002-03	(0.5 to 99) %

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III.	WATER			
1.	Ground water / Surface water	Acidity	IS 3025 (Part 22):1986, (RA 2009) Indicator and Titration Method	(5.0 to 500) mg/L
		Ammonical Nitrogen	APHA 22 nd Ed.2012,4500 NH ₃ ,B 4-110 & C-112 IS 3025 (Part 34): 1988 (RA 2009) Titrimetric Method	(5 to 10) mg/L
		Arsenic	APHA, 22 nd Ed., 2012, 3114-C, 3-38 Continuous Hydride AAS Method	(0.01 to 1.0) mg/L
		Bicarbonate	IS 3025 (Part 51): 2001, (RA 2006) By Calculation	(5 to 500) mg/L
		Biochemical Oxygen Demand (3 days, 27 ^o C)	IS 3025 (Part 44):1993, (RA 2009), Amds.1 Iodometric Method	(5 to 1000) mg/L

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	Ground water / Surface water	Cadmium	APHA, 22 nd Ed., 2012, 3111-B, 3-18 IS 3025 (Part 41): 1992, (RA 2009) AAS Method	(0.001 to 2) mg/L
		Calcium or Calcium Hardness as CaCO ₃	APHA, 22 nd Ed. 2012, 3500-B, 3-67 EDTA Titrimetric Method	(1 to 5000) mg/L
		Carbonate	IS 3025 (Part 51):2001, (RA 2006) By Calculation	(5 to 500) mg/L
		Carbon dioxide	IS 3025 (Part 61) 2008 Titrimetric Method	(5 to 50) mg/L
		Chemical Oxygen Demand	IS 3025(Part 58):2006, APHA, 22 nd Ed., 2012, 5220-B, 5-17 Open Reflux Method	(5 to 900) mg/L
		Chloride	APHA, 22 nd Ed., 2012, 4500-Cl, B,4-72 IS 3025(Part 32):1988, (RA 2009) Argentometric Method	(1.0 to 100) mg/L

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	Ground water / Surface water	Chromium (Hexavalent)	APHA, 22 nd Ed., 2012, 3500-Cr, B, 3-69 Colorimetric Spectrophotometric Method	(0.1 to 10) mg/L
		Chromium (Total)	APHA, 22 nd Ed., 2012, 3111 B, 3-18 IS 3025(Part 52)2003 (RA 2009) AAS Method	(0.001 to 10) mg/L
		Colour	IS 3025(Part 4): 1983, (RA 2012) Visual Comparison Method	(1 to 500) Hazen
		Copper	APHA, 22 nd Ed., 2012, 3111-B, 3-18 IS 3025 (Part 42): 1992, (RA 2009), Amds. 1 AAS Method	(0.002 to 10) mg/L
		Free Residual chlorine	APHA, 22 nd Ed., 2012, 4500-C1-B, 4 - 60 IS 3025 (Part 26): 1986, (RA 2009), Amnd.1 Iodometric Method	(0.2 to 10) mg/L

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	Ground water / Surface water	Dissolved Oxygen	APHA, 22 nd Ed.,2012, 4500-O,B 4-139 IS 3025 (Part 38): 1989, (RA 2009) Iodometric Method	(0.5 to 8) mg/L
		Electrical Conductivity	IS 3025(Part 14): 1984, (RA 2006) Conductivity Meter	(1 to 20000) µS/cm
		Fluoride	APHA, 22 nd Ed., 2012, 4500-F,D, 4-87 (SPADNS) Spectrophotometric Method	(0.15 to 1.4) mg/L
		Iron	APHA, 22 nd Ed.,2012, 3111-B, 3-18 IS 3025 (Part 53): 2003 (RA 2009) AAS Method	(0.001 to 10) mg/L
		Lead	APHA, 22 nd Ed.,2012 , 3111-B, 3-18 IS 3025(Part 47): 1994, (RA 2009), Amds. 2 AAS Method	(0.003 to 10) mg/L

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	Ground water / Surface water	Magnesium	APHA, 22 nd Ed.,2012, 3500-Mg,B,3-84 By calculation	(5 to 500) mg/L
		Manganese	APHA, 22 nd Ed.,2012, 3500-Mn,B, 3-18 AAS Method	(0.001 to 10) mg/L
		Mercury	APHA, 22 nd Ed.,2012, 3112-B, 3-23 AAS Method	(0.002 to 2) mg/L
		Nickel	APHA, 22 nd Ed.,2012, 3111 B,3-18 IS 3025(Part 54): 2003 (RA 2009) AAS Method	(0.003 to10) mg/L
		Nitrate	APHA, 22 nd Ed.,2012, 4500 NO ₂ -B, 4- 122 UV Spectrophotometric Screening Method	(0.1 to 10) mg/L
		Nitrite	APHA22 nd Ed.,2012, 4500 - NO ₂ -B,4-120 UV Spectrophotometric Method	(0.01 to 10) mg/L

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	Ground water / Surface water	Odour	IS 3025(Part 5): 1983, (RA 2006) Qualitative Method	Qualitative
		Oil & Grease (Mineral Oil)	IS 3025 (Part 39):1991 (RA 2009), Amds. 1 Liquid -liquid , Partition-Gravimetric Method	(4 to 100) mg/L
		Total Kjeldahl Nitrogen(TKN)	APHA22 nd Ed.,2012, 4500 NH ₃ , B ,4 -110 C-112 & 4500 N _{Org} , B 4-132 Distillation & Titration Method	(5.0 to 100) mg/L
		pH	APHA22 nd Ed.,2012, 4500-H ⁺ B,4-92 IS 3025(Part 11):1983, (RA 2012) By pH Meter	2 to 12
		Phenol	APHA22 nd Ed.,2012, 5530- C,47	(0.01 to 5) mg/L
		Phosphate	APHA22 nd Ed.,2012 4500- P,D,4-154 Stannous Chloride Method	(0. 1 to 10) mg/ L

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	Ground water / Surface water	Potassium	APHA22 nd Ed.,2012, 3500-K, B,3-87 Flame Photometric In emission mode Method	(1 to 100) mg/L
		Silica	APHA22 nd Ed.,2012, 4500-SiO ₂ ,D,4-169 IS 3025(Part 35): 1988, (RA 2009) Hetero Poly Blue Method	(0.1 to 50) mg/L
		Sodium	APHA22 nd Ed.,2012, 3500-Na, B,3-97 Flame Photometric In emission mode Method	(1 to 100) mg/L
		Sulphate	IS 3025 (Part 24): 1986, (RA 2009) Turbidimetric Method	(1.0 to 40) mg/L
		Sulphide	APHA, 22 nd Ed., 2012, 4500 -S ² , C-4-174, F- 4 – 178 Iodometric Method	(1.0 to 10.0) mg/L
		Temperature	IS 302 5(Part 9):1984, (RA 2012) By Thermometer	Ambient to 50 ° C

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	Ground water / Surface water	Total Alkalinity	IS 3025 (Part 23): 1986 (RA 2009), Amds.2 Indicator and Titration method	(5.0 to 500) mg/L
		Total Dissolved Solids	APHA 22 nd Ed., 2012, 2540 C, 2 - 65 IS 3025 (Part 16): 1984, (RA 2012) , Amnd.1 Filtration/ Gravimetric Method	(5 to 1000) mg/L
		Total Hardness	IS 3025 (Part 21): 2009, (RA 2006) Amnd.1 EDTA Titrimetric Method	(2.0 to 500) mg/L
		Total Solids	APHA 22 nd Ed., 2012, 2540 B, 2 - 64 IS 3025(Part 15): 1984, (RA 2009), Amnd.1 Filtration/ Gravimetric Method	(5 to 1000) mg/L
		Total Suspended Solids	APHA, 22 nd Ed.,2012 2540-D,2 - 66 IS 3025(Part 17): 1984, (RA 2012), Amds.1 Filtration/ Gravimetric Method	(5.0 to 1000) mg/L

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	Ground water / Surface water	Total Volatile solids	APHA, 22 nd Ed., 2012 2540-E, 2-67 IS 3025(Part 18): 1984, (RA 2012), Amds.1 Gravimetric Method	(5.0 to 1000) mg/L
		Turbidity	IS 3025(Part 10):1984, (RA 2012) Nephelometric Method	(0.1 to 200) NTU
		Zinc	APHA, 22 nd Ed., 2012 3111-B, 3-18 IS 3025(Part 49): 1994, (RA 2009), Amds.1 AAS Method	(0.001 to 2) mg/L
2.	Drinking Water/ Industrial water / Cooling purpose water/ Water for Processed Food Industry/ Water for Swimming Pools	Colour	IS 3025(Part 4): 1983, (RA 2012) Visible Comparison Method	(1 to 50) Hazen
		Calcium or Calcium Hardness as CaCO ₃	APHA, 22 nd Ed., 2012, 3500 - B, 3-67 EDTA Titrimetric Method	(1 to 500) mg/L
		Chloride	APHA, 22 nd Ed.,2012, 4500-Cl, B,4-72 IS 3025(Part 32): 1988, (RA 2009) Argentometric Method	(1.0 to 250) mg/L

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	Drinking Water/ Industrial water / Cooling purpose water/ Water for Processed Food Industry/ Water for Swimming Pools	Free Residual chlorine	APHA, 22 nd Ed., 2012, 4500-C1-B,4-60 IS 3025 (Part 26):1986, (RA 2009), Amnd.1 Iodometric Method	(1 to 10) mg/L
		Fluoride	APHA, 22 nd Ed., 2012, 4500-F , D, 4 – 87 SPADNS Spectrometer Method	(0.15 to 1.4) mg/L
		Iron	APHA, 22 nd Ed.,2012, 3111-B, 3-18 IS 3025 (Part 53): 2003 (RA 2009) AAS Method	(0.001 to 2) mg/L
		Magnesium as Mg	APHA, 22 nd Ed.,2012, 3500-Mg, B,3-84 By calculation	(5 to 500) mg/L
		Nitrate (as NO ₃)	APHA, 22 nd Ed.,2012 4500 NO ₃ -B, 4- 122 UV Spectrophotometric Screening Method.	(0.1 to 10) mg/L
		Nitrite (as NO ₂)	APHA,22 nd Ed., 2012, 4500-NO ₂ -B,4-120 UV Spectrophotometer Method	(0.005 to 10) mg/L

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	Drinking Water/ Industrial water / Cooling purpose water/ Water for Processed Food Industry/ Water for Swimming Pools	Odour	IS 3025 (Part 5): 1983, (RA 2012) Qualitative Method	Qualitative
		pH	APHA,22 nd Ed., 2012, 4500-H ⁺ B,4-92 IS 3025(Part 11):1983, (RA 2012) By pH Meter	2 to 12
		Sodium	APHA,22 nd Ed.,2012, 3500-Na, B, 3-97 Flame Photometric In emission mode Method	(1.0 to 100) mg/L
		Sulphate	IS 3025(Part 24): 1986, (RA 2009) Turbidimetric Method	(1 to 40) mg/L
		Sulphide	APHA,22 nd Ed.,2012, 4500-S ² C-4-174, F-4-178 Iodometric Method	(0.05 to 10) mg/L
		Total Alkalinity	IS 3025(Part 23): 1986, (RA 2009), Amds. 2 Titration Method	(5.0 to 500) mg/L

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Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Chemical Testing	Issue Date	15.09.2014
Certificate Number	T-2239	Valid Until	14.09.2016
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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
	Drinking Water/ Industrial water / Cooling purpose water/ Water for Processed Food Industry/ Water for Swimming Pools	Total dissolved solids	APHA 22 nd Ed., 2012, 2540 C, 2 - 65 IS 3025 (Part 16): 1984, (RA 2012), Amnd.1 Filtration/ Gravimetric Method	(5 to 1000) mg/L
		Turbidity	IS 3025(Part 10):1984, (RA 2012) Nephelometer Method	(1.0 to 100) NTU
		Total Kjeldahl Nitrogen (TKN)	APHA,22 nd Ed., 2012, 4500 NH ₃ , B 4 – 110 & C – 112 IS 3025 (Part 34): 1988 (RA 2009) By Titrimetric Method	(0.2 to 10) mg/L
		Total Hardness	IS 3025 (Part 21): 2009 (RA 2006) Amnd. 1 EDTA Titrimetric Method	(2.0 to 1000) mg/L
		Zinc	APHA, 22 nd Ed.,2012 3111-B, 3-18 IS 3025 (Part 49): 1994, (RA 2009), Amds. 1 AAS Method	(0.001 to 20) 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
IV.	SOIL	pH (1:3) at 25°C	IS 2720 (Part 26) : 1987	2 to 12
		Conductivity (1:2) at 25°C	IS 14767: 2000	(1 to 100) mS/cm
		Iron	UERL/CHM/SOP/104 Issue No:01 Issue Date:01/03/2014	(1 to 1000) mg/kg
		Total phosphorus	UERL/CHM/SOP/108 Issue No:01 Issue Date:01/03/2014	(1 to 100) mg/kg
		Zinc	UERL/CHM/SOP/104 Issue No:01 Issue Date:01/03/2014	1 to 100) mg/kg
		Nickel	UERL/CHM/SOP/104 Issue No:01 Issue Date:01/03/2014	(0.5 to 100) mg/kg

AT SITE

I. AIR, GASES & ATMOSPHERE

1.	Stack Emissions	Oxygen (O ₂)	UERL/AIR/SOP/18 Issue No: 01 Issue Date 01/03/14 Date 01/03/14 based on USEPA-ALT004 method 3A & 6C	0.5 % to 20 %
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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
	Stack Emissions	Carbon Monoxide (CO)	UERL/AIR/SOP/18 Issue No: 01 Issue Date 01/03/14 based on USEPA-ALT004 method 3A & 6C.	(1.5 to 5000) mg/m ³
		Carbon Dioxide (CO ₂)	UERL/AIR/SOP/18 Issue No: 01 Issue Date 01/03/14 based on USEPA-ALT004 method 3A & 6C.	0.5 % to 50 %
2.	Noise	Noise Ambient	UERL/AIR/SOP/19 Issue No: 01 Issue Date: 01/03/2014 IS 9989: 1981	(30 to 130) dB(A)
		Noise Source (D.G. Sets)	UERL/AIR/SOP/19 Issue No: 01 Issue Date: 01/03/2014 IS 4758: 1968	(30 to 130) dB(A)

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