

Laboratory	GRC India Training & Analytical Laboratory (A Unit of Grass Roots Research & Creation India (P) Ltd.), F-375, Sector-63, Noida, Gautam Budh Nagar, Uttar Pradesh		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Chemical Testing	Issue Date	12.04.2014
Certificate Number	T-2195	Valid Until	11.04.2016
Last Amended on	-	Page	1 of 13

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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I. AIR, GASES & ATMOSPHERE

1.	Ambient Air / Work Zone Air	Particulate Matters, PM _{2.5}	GRC/LAB/CHEM/SOP/03 Gravimetric/ CPCB NAAQS Method, Volume 1, May 2011	5 -200 µg/m ³
		Respirable Suspended Particulate Matters, PM ₁₀ (RSPM)	IS 5182 (Part -23)-2006	5- 1000 µg/ m ³
		Sulphur Dioxide (SO ₂)	IS 5182 (Part-2)-2001, (RA 2006)	5 -100 µg/m ³
		Nitrogen Dioxide (NO ₂)	IS 5182 (Part -6)-2006	6 -750 µg/m ³
		Carbon Monoxide (as CO)	IS 5182 (Part-10) 1999, (RA 2003) CO analyser-NDIR Method	0.06 - 247 mg/ m ³
		Ammonia (NH ₃)	GRC/LAB/STP/AIR/09, Indo Phenol Blue Method/ CPCB NAAQ Method, Volume 1, May 2011	7 -700 µg/m ³
		Ozone (O ₃)	IS 5182 (Part-9) 1974, RA -2009	5 - 200 µg/m ³
		Lead (Pb)	IS 5182 (Part-22) 2004, RA -2009/ ICPOES	0.1 - 10 µg/m ³
		Arsenic (As)	GRC/LAB/STP/AIR/11, ICP Method/ CPCB NAAQ Method, Volume 1, May 2011	1 - 50 ng/m ³
		Nickel (Ni)	GRC/LAB/STP/AIR/10, ICP Method/ CPCB NAAQ Method, Volume 1, May 2011	1 - 50 ng/m ³

Laboratory	GRC India Training & Analytical Laboratory (A Unit of Grass Roots Research & Creation India (P) Ltd.), F-375, Sector-63, Noida, Gautam Budh Nagar, Uttar Pradesh		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Chemical Testing	Issue Date	12.04.2014
Certificate Number	T-2195	Valid Until	11.04.2016
Last Amended on	-	Page	2 of 13

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Benzene (C ₆ H ₆)	IS 5182 (Part-II) : 2006	4 t- 1000 µg/m ³
		Benzo(a) Pyrene(BaP)- Particulate Phase only	IS 5182 (Part-12) 2004, (RA -2009)/ GCMS Method, CPCB NAAQ Method, Volume 1, May 2011	0.5 - 50 ng/ m ³
2.	Stationary Source/ Stack/ Chimney Emission	Particulate matter (PM)	IS 11255 (Part-1):1985 (RA 2009)	5 - 1000 mg/Nm ³
		Sulphur dioxide (SO ₂)	IS 11255 (Part-2):1985 (RA 2009)	5 - 500 mg/Nm ³
		Oxide of Nitrogen (NO _x as NO ₂)	IS 11255 (Part-7):2012	5 - 800 mg/Nm ³
		Carbon monoxide(CO)	IS : 13270:1992 Reaff:2003/[SOP No. GRC/LAB/STP/STACK/04 & 05/Based on (Flue gas analyzer- Manufacturer manual)	0.1- 8 % v/v 1 -8000 ppm
		Carbon dioxide (CO ₂)	IS : 13270:1992 Reaff:2003/[SOP No. GRC/LAB/STP/STACK/04 & 05/Based on (Flue gas analyzer- Manufacturer manual)	0.1-20 %v/v 0.0 - 99.9 % vol
		Oxygen (O ₂)	IS : 13270:1992 Reaff:2003/[SOP No. GRC/LAB/STP/STACK/04 & 05/Based on (Flue gas analyzer- Manufacturer manual)	0.1-25 % v/v 0.0- 25 % vol

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Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Chemical Testing	Issue Date	12.04.2014
Certificate Number	T-2195	Valid Until	11.04.2016
Last Amended on	-	Page	3 of 13

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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II. POLLUTION & EFFLUENTS

1.	Noise (Ambient/Source / DG)	Ambient Noise, Leq dB(A)	IS 9876-1981 (RA -1997)/ CPCB method S.O. 50 (E) dated 11.01.2010 EPA	30 - 130 dB(A)
		DG set noise, dB(A)	IS 9876-1981 (RA -1997)/ CPCB method G.S.R 215(E) dated 15.03.2011 EPA	30 - 130 dB(A)
		Source/machine noise, dB(A)	IS 10988-1984/ GRC/LAB/STP/NOISE/04	30 - 130 dB(A)

III. WATER

1.	Ground, Surface, Drinking & Swimming Pool Water	Colour	IS 3025 (Part -4) -1983 (RA -2003)	5 -70 Hazen
		Odour	IS 3025 (Part -5) -1983 (RA -2002)	Qualitative
		Taste	IS 3025 (Part -8) -1984 (RA -2006)	Qualitative
		Turbidity	IS 3025 (Part -10) -1984 (RA -2006)	1 - 1000 NTU
		pH	IS 3025 (Part -11) -1983 (RA -2002)	1- 14
		Total Hardness	IS 3025 (Part-21)-1983, (RA -2009)	5 - 10000 mg/l

Laboratory GRC India Training & Analytical Laboratory (A Unit of Grass Roots Research & Creation India (P) Ltd.), F-375, Sector-63, Noida, Gautam Budh Nagar, Uttar Pradesh

Accreditation Standard ISO/IEC 17025: 2005

Discipline Chemical Testing **Issue Date** 12.04.2014

Certificate Number T-2195 **Valid Until** 11.04.2016

Last Amended on - **Page** 4 of 13

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Iron		APHA 22 nd Ed., 3120 B (Using ICP-OES)/ AAS 3111	0.001 - 100 mg/l
	Chloride		IS 3025 (Part -32) -1988 (RA -2003)	2 -10000 mg/l
	Ammoniacal Nitrogen		IS 3025 (pt-34)-1988, (RA -2003)	0.5 - 100 mg/l
	Residual Free Chlorine		IS 3025 (Part -26) -1986 (RA -2003)	0.1 - 100 mg/l
	Fluoride		APHA 22 st Ed, 4500F (D)	0.1 - 25 mg/l
	Total Dissolved Solids (TDS)		IS 3025 (Part -16) -1984 (RA -2006)	5 - 10000 mg/l
	Calcium		IS 3025 (Part -40) -1991 (RA -2003)	2- 1000 mg/l
	Magnesium		APHA 3500 – Mg B	2 - 1000 mg/l
	Copper (as Cu)		APHA 22 nd Ed., 3120 B (using ICP-OES) / AAS 3111	0.02 - 100 mg/l
	Manganese (as Mn)		APHA 22 nd Ed., 3120 B (using ICP-OES) / AAS 3111	0.02 - 100 mg/l
	Sulphate		IS 3025 (Part-24)-1986, (RA -2003)	5 - 1000 mg/ l

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Accreditation Standard ISO/IEC 17025: 2005

Discipline Chemical Testing **Issue Date** 12.04.2014

Certificate Number T-2195 **Valid Until** 11.04.2016

Last Amended on - **Page** 5 of 13

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Nitrate	IS 3025 (Part-34)-1988, (RA -2003)	1 -100 mg/l
		Mercury	APHA 22 nd Ed., 3120 B/ 3112 (using ICP-OES/AAS/VGA)	0.01 - 10mg/l
		Cadmium	APHA 22 nd Ed., 3120 B/ 3111 (Using ICP-OES/AAS)	0.02-100 mg/l
		Arsenic	APHA 22 nd Ed., 3120 B/ 3114 (Using ICP-OES/AASVGA)	0.02-10 mg/l
		Lead	APHA 22 nd Ed., 3120 B/ 3111 (using ICP-OES/AAS)	0.02-100 mg/l
		Zinc	APHA 22 nd Ed., 3120 B/ 3111 (using ICP-OES/AAS)	0.02-100 mg/l
		Chromium(Hexavalent)	IS 3025 (Part-52)-2003, (RA -2003)	0.01-50 mg/l
		Chromium (Total)	APHA 22 nd Ed., 3120 B/ 3111 (using ICP-OES/AAS)	0.01 - 100 mg/l
		Alkalinity (total & Phenolphthalein)	IS 3025 (Part-23)-1986, (RA -2003)	2 - 1000 mg/l
		Aluminium	IS 3025 (Part-55)-2003, / APHA 22 nd Ed., 3120 B, ICP	0.02 - 100 mg/l
		Boron	IS 3025 (Part 57): 2005/ APHA 22 nd Ed.,3120 B, ICP	0.1 - 100 mg/l

Laboratory GRC India Training & Analytical Laboratory (A Unit of Grass Roots Research & Creation India (P) Ltd.), F-375, Sector-63, Noida, Gautam Budh Nagar, Uttar Pradesh

Accreditation Standard ISO/IEC 17025: 2005

Discipline Chemical Testing **Issue Date** 12.04.2014

Certificate Number T-2195 **Valid Until** 11.04.2016

Last Amended on - **Page** 6 of 13

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Phosphorus	APHA 22 nd Ed., 4500-P (D)	0.01 - 100 mg/l
		Specific Conductivity	IS 3025 (Part-14)-1984, (RA -2002)	5 - 10000 µmhos/cm
		Dissolved Oxygen	IS 3025 (Part-38)-1989, (RA -2003)	0.1 - 10 mg/l
		B.O.D (3 Days)	IS 3025 (Part-44)-1993, (RA -2003)	2 -1000 mg/l
		Sodium	IS 3025 (Part-45)-1993, (RA -2003)	5 - 1000 mg/l
		Potassium	IS 3025 (Part-45)-1993, (RA -2003)	5 - 1000 mg/l
		Nitrite	IS 3025 (Part-34)-1988, (RA -2003)	0.02 - 50 mg/l
		C.O.D.	IS 3025 (Part-58)-2006	2 - 1000 mg/l
		Nickel	APHA 22 nd Ed., 3120 B, ICP	0.01 - 100 mg/l
		Temperature	IS 3025 (Part-9)-1984, (RA -2002)	5 - 50°C
		Silica	APHA 22 st ED., 4500-SiO ₂ (C /D)	2 - 100 mg/l
		Acidity	IS 3025 (Part-22)-1986, (RA -2003)	5 - 500 mg/l

Laboratory GRC India Training & Analytical Laboratory (A Unit of Grass Roots Research & Creation India (P) Ltd.), F-375, Sector-63, Noida, Gautam Budh Nagar, Uttar Pradesh

Accreditation Standard ISO/IEC 17025: 2005

Discipline Chemical Testing **Issue Date** 12.04.2014

Certificate Number T-2195 **Valid Until** 11.04.2016

Last Amended on - **Page** 7 of 13

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Silver (Ag)		APHA 22 nd Ed., 3120 B, ICP	0.02 - 100 mg/l
	Molybdenum (Mo)		APHA 22 nd Ed., 3120 B, ICP	0.02 - 100 mg/l
	Barium (Ba)		APHA 22 nd Ed., 3120 B, ICP	0.02 - 100 mg/l
	Selenium (Se)		APHA 22 nd Ed., 3120 B, ICP	0.02 - 10 mg/l
	Organochlorine Pesticides:			
	Alpha BHC		USEPA 508/608	0.05 µg/L - 100 µg/l
	β BHC		USEPA 508/608	0.05 µg/L - 100 µg/l
	Gamma BHC		USEPA 508/608	0.05 µg/L - 100 µg/l
	Delta – BHC		USEPA 508/608	0.05 µg/L - 100 µg/l
	Aldrin		USEPA 508/608	0.05 µg/L - 100 µg/l
	Dieldrin		USEPA 508/608	0.05 µg/L - 100 µg/l
	p,p' DDD		USEPA 508/608	0.05 µg/L - 100 µg/l
	α Endosulphan		USEPA 508/608	0.05 µg/L - 100 µg/l
	β Endosulphan		USEPA 508/608	0.05 µg/L - 100 µg/l
	p,p' DDE		USEPA 508/608	0.05 µg/L - 100 µg/l
	o,p'DDE		USEPA 508/608	0.05 µg/L- 100 µg/l
	p,p' DDT		USEPA 508/608	0.05 µg/L - 100 µg/l

Laboratory GRC India Training & Analytical Laboratory (A Unit of Grass Roots Research & Creation India (P) Ltd.), F-375, Sector-63, Noida, Gautam Budh Nagar, Uttar Pradesh

Accreditation Standard ISO/IEC 17025: 2005

Discipline Chemical Testing **Issue Date** 12.04.2014

Certificate Number T-2195 **Valid Until** 11.04.2016

Last Amended on - **Page** 8 of 13

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		o,p' DDT	USEPA 508/608	0.05 µg/L - 100 µg/l
		Organophosphorus pesticides:		
		Chloropyriphos	USEPA, Method No. 507	0.1 µg/L - 100 µg/l
		Malathion	USEPA, Method No. 507	0.1 µg/L - 100 µg/l
		Methyl Parathion	USEPA, Method No. 507	0.1 µg/L - 100 µg/l
		Ethion	USEPA, Method No. 507	0.1 µg/L - 100 µg/l
		Dimethoate	USEPA, Method No. 507	0.1 µg/L - 100 µg/l
		Trihalomethane:		
		Chloroform	USEPA, 551.1, 2007	1.96 µg/l - 100 µg/l
		Bromodichloromethane	USEPA, 551.1, 2007	0.55 µg/l- 100 µg/l
		Dibromochloromethane	USEPA, 551.1, 2007	0.62 µg/l - 100 µg/l
		Bromoform	USEPA, 551.1, 2007	0.84 µg/l - 100 µg/l
2.	Waste Water and Effluents (Industrial & Domestic)	pH	IS 3025 (Part-11)-1983, (RA 2002)	1 - 14
		TDS	IS-3025 (Part-16) -1984, (RA 2006)	5 - 10000 mg/l
		TSS	IS-3025 (Part-17) -1984, (RA 2006)	5 - 1000 mg/l

Laboratory GRC India Training & Analytical Laboratory (A Unit of Grass Roots Research & Creation India (P) Ltd.), F-375, Sector-63, Noida, Gautam Budh Nagar, Uttar Pradesh

Accreditation Standard ISO/IEC 17025: 2005

Discipline Chemical Testing **Issue Date** 12.04.2014

Certificate Number T-2195 **Valid Until** 11.04.2016

Last Amended on - **Page** 9 of 13

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Dissolved Oxygen	IS 3025 (Part-38)-1989, (RA 2003)	0.1 - 10 mg/l
		Oil & Grease	IS-3025 (Part-39) -1991, (RA 2003)	5 - 100 mg/l
		Ammoniacal Nitrogen	IS 3025 (Part-34)-1988, (RA 2003)	0.5 -100 mg/l
		B.O.D.	IS 3025 (Part-44)-1993, (RA 2003)	2 - 1000 mg/l
		COD	IS 3025 (Part-58)-2006	2 - 1000 mg/l
		Lead	APHA 22 nd Ed., ICP, 3120 B/AAS 3111	0.04 - 10 mg/l
		Aluminum (Al)	APHA 22 nd Ed., ICP, 3120 B/IS 3025(Part 55) 2003	0.04 - 10 mg/l
		Selenium (Se)	APHA 22 nd Ed., ICP, 3120 B/ AAS-VGA 3114	0.01 - 10 mg/l
		Cadmium (Cd)	APHA 22 nd Ed., ICP, 3120 B/ AAS 3111	0.01 - 5 mg/l
		Chromium (as Cr)	APHA 22 nd Ed., ICP, 3120 B/ AAS 3111	0.01- 10 mg/l
		Nickel (as Ni)	APHA 22 nd Ed., ICP, 3120 B/ AAS 3111	0.01- 10 mg/l

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Accreditation Standard ISO/IEC 17025: 2005

Discipline Chemical Testing **Issue Date** 12.04.2014

Certificate Number T-2195 **Valid Until** 11.04.2016

Last Amended on - **Page** 10 of 13

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		Copper (as Cu)	APHA 22 nd Ed., ICP, 3120 B/ AAS 3111	0.01 - 10 mg/l
		Iron (as Fe)	APHA 22 nd Ed., ICP, 3120 B/ AAS 3111	0.01- 10 mg/l
		Manganeese (as Mn)	APHA 22 nd Ed., ICP, 3120 B/ AAS 3111	0.01 - 10 mg/l
		Zinc (as Zn)	APHA 22 nd Ed., ICP, 3120 B/ AAS 3111	0.01 - 10 mg/l
		Arsenic (as As)	APHA 22 nd Ed., ICP, 3120 B/ 3114AAS-VGA	0.01 - 10 mg/l
		Mercury (as Hg)	APHA 22 nd Ed., ICP, 3120 B/3112	0.001 - 1 mg/l
		Boron (as B)	APHA 22 nd Ed., ICP, 3120 B/4500B	0.3 - 10 mg/l
3.	Construction Water	Sulphate	IS 3025 (Pt 24)- 1986 RA 2003	5-1000 mg/l
		Chloride	IS 3025 (Pt-32)-1988 RA 2003	2-10000 mg/l
		Suspended Matter	IS 3025 (Pt-17) 1984 RA 2006	5-1000 mg/l

Laboratory	GRC India Training & Analytical Laboratory (A Unit of Grass Roots Research & Creation India (P) Ltd.), F-375, Sector-63, Noida, Gautam Budh Nagar, Uttar Pradesh		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Chemical Testing	Issue Date	12.04.2014
Certificate Number	T-2195	Valid Until	11.04.2016
Last Amended on	-	Page	11 of 13

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Alkalinity (Total & Phenolphthalein)	IS 3025 (Pt-23)-1986 RA 2003	2-1000 mg/l
		Acidity	IS 3025 (Pt-22) -1986 RA 2003	5-500 mg/l
IV. BUILDING MATERIALS				
1.	Soil	Exchangeable Potassium	GRC/LAB/STP/SOIL/07 Ref: Soil Chemical Analysis by M. L. Jackson	10 - 1000 mg/kg
		Exchangeable Sodium	GRC/LAB/STP/SOIL/06 Ref: Soil Chemical Analysis by M. L. Jackson	10 - 1000 mg/kg
		Exchangeable Calcium	GRC/LAB/STP/SOIL/08 Ref: Soil Chemical Analysis by M. L. Jackson	5 - 10000 mg/kg
		Exchangeable Magnesium	GRC/LAB/STP/SOIL/08 Ref: Soil Chemical Analysis by M. L. Jackson	5- 5000 mg/kg
		Sulphate	IS 2720 (Part-27), 1977 (RA 2005)	0.05- 2.5%
		Chloride	GRC/LAB/STP/SOIL/14 (Vohlard Method)	0.01 - 2.5%

Laboratory GRC India Training & Analytical Laboratory (A Unit of Grass Roots Research & Creation India (P) Ltd.), F-375, Sector-63, Noida, Gautam Budh Nagar, Uttar Pradesh

Accreditation Standard ISO/IEC 17025: 2005

Discipline Chemical Testing **Issue Date** 12.04.2014

Certificate Number T-2195 **Valid Until** 11.04.2016

Last Amended on - **Page** 12 of 13

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Organic Matter	IS 2720 (Part-22) 1972 (RA 2006)	0.1 - 2%
		Moisture	IS 2720 (Part-2) 1973, (RA 2006)	0.1 - 50%
		pH	IS 2720 (Part-26) 1987 (RA 2007)	1 - 14
		Conductivity	IS 14767-2002	5 - 1000 µmhos/cm
		Phosphorous	GRC/LAB/STP/SOIL/10	2- 100 mg/kg
		TKN	GRC/LAB/STP/SOIL/18	50 - 1000 mg/kg
		Iron	USEPA 3050B, PP 1- 12 Dec 1996, Second Revision (Acid Digestion)	50 - 5000 mg/kg
		Manganese	USEPA 3050B PP 1- 12 Dec 1996, Second Revision (Acid Digestion)	30 - 1000 mg/kg
		Lead	USEPA 3050B PP 1- 12 Dec 1996, Second Revision (Acid Digestion)	10 - 1000 mg/kg
		Zinc	USEPA 3050 B PP 1- 12 Dec 1996, Second Revision (Acid Digestion)	20 - 1000 mg/kg

Laboratory GRC India Training & Analytical Laboratory (A Unit of Grass Roots Research & Creation India (P) Ltd.), F-375, Sector-63, Noida, Gautam Budh Nagar, Uttar Pradesh

Accreditation Standard ISO/IEC 17025: 2005

Discipline Chemical Testing **Issue Date** 12.04.2014

Certificate Number T-2195 **Valid Until** 11.04.2016

Last Amended on - **Page** 13 of 13

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Nickel	USEPA 3050B PP 1- 12 Dec 1996, Second Revision (Acid Digestion)	10 - 1000 mg/kg
		Cadmium (Cd)	USEPA 3050B PP 1- 12 Dec 1996, Second Revision (Acid Digestion)	20 - 1000 mg/kg
		Chromium (as Cr)	USEPA 3050B PP 1- 12 Dec 1996, Second Revision (Acid Digestion)	10 - 1000 mg/kg
		Copper (as Cu)	USEPA 3050B PP 1- 12 Dec 1996, Second Revision (Acid Digestion)	20 - 1000 mg/kg

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