Plot No. 61, Patel Estate, Old Betim Road, Bardez, Porvorim, Panaji,

Goa

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-7424 (in lieu of T-2190) Page 1 of 10

Validity 30.06.2018 to 29.06.2020 Last Amended on --

SI.	Product / Material of Test	Specific Test Performed		Range of Testing / Limits of Detection
			performed	

CHEMICAL TESTING

I.	WATER			
1.	Surface Water & Ground Water	pH at 25°C	APHA 23 rd Edn. 2017, 4500-H ⁺ B IS 3025 (Part 11):1983 (RA2012)	2 to 12
		Total Dissolved Solids	APHA 23 rd Edn. 2017, 2540-C IS 3025 (Part 16):1984 (RA2012)	5 mg/l to 40000 mg/l
		Chloride as Cl	APHA 23 rd Edn. 2017, 4500-Cl B IS 3025 (Part 32) :1986 (RA 2014)	10 mg/l to 20000 mg/l
		Total Hardness as CaCO₃	APHA 23 rd Edn. 2017, 2340-C IS 3025 (Part 21): 2009 (RA2014)	2 mg/l to 10000 mg/l
		Sulphate as SO ₄	APHA 23 rd Edn. 2017, 4500-SO₄-E IS 3025 (Part 24): 1986 (RA2014)	5 mg/l to 5000 mg/l
		Sulfide as S₂	APHA 23 rd Edn. 2017, 4500-S ₂ -F IS 3025 (Part 29): 1986 (RA2014)	2 mg/l to 50 mg/l
		Nitrate as NO₃	APHA 23 rd Edn. 2017, 4500-NO₃-B IS 3025 (Part 34): 1988 (RA2014)	1 mg/l to 100 mg/l

Plot No. 61, Patel Estate, Old Betim Road, Bardez, Porvorim, Panaji,

Goa

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-7424 (in lieu of T-2190) Page 2 of 10

SI.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Nitrite as NO ₂	APHA 23 rd Edn. 2017, 4500-NO ₂ -B	0.05 mg/l to 10 mg/l
		Phosphorus as PO ₄	APHA 23 rd Edn. 2017, 4500-P-C IS 3025 (Part 31): 1988 (RA2014)	1 mg/l to 1000 mg/l
		Total Suspended Solids	APHA 23 rd Edn. 2017, 2540-D	1 mg/l to 5000 mg/l
		Phenolic Compounds as C ₆ H₅OH	APHA 23 rd Edn. 2017, 5530 B-C IS 3025 (Part 43): 1992 (RA2014)	0.02 mg/l to 1.0 mg/l
		Fluoride as F	APHA 23 rd Edn. 2017, 4500 F-D	0.1 mg/l to 50 mg/l
		Turbidity	APHA 23 rd Edn. 2017, 2130-B IS 3025 (Part 5) :1983 (RA 2012)	0.05 NTU to 1000 NTU
		Conductivity at 25°C	APHA 23 rd Edn. 2017, 2510-B	1 μS/cm to 40000 μS/cm
		Ammonia (Total as NH₃-N)	APHA 23 rd Edn. 2017, 4500 NH ₃ -B-C IS 3025 (Part 34) :1988 (RA2014)	0.5 mg/l to 100 mg/l
		Total Alkalinity as CaCO ₃	APHA 23 rd Edn. 2017, 2320-B IS 3025 (Part 23) :1986 (RA2014)	1 mg/l to 5000 mg/l
		Free Residual Chlorine	APHA 23 rd Edn. 2017, 4500-CI-C IS 3025 (Part 26) :1986 (RA2014)	0.2 mg/l to 50 mg/l
		Calcium as Ca	APHA 23 rd Edn. 2017, 3500 Ca B	1 mg/l to 5000 mg/l

Plot No. 61, Patel Estate, Old Betim Road, Bardez, Porvorim, Panaji,

Goa

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-7424 (in lieu of T-2190) Page 3 of 10

SI.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Magnesium as Mg	APHA 23 rd Edn. 2017, 3500 Mg B	1 mg/l to 5000 mg/l
		Cadmium as Cd	IS 3025 (Part 2):2004 (RA 2014) APHA 23 rd Edn. 2017, 3120 B	0.01 mg/l to 5.00 mg/l
		Lead as Pb	IS 3025 (Part 2):2004 (RA 2014) APHA 23 rd Edn. 2017, 3120 B	0.01 mg/l to 5.00 mg/l
		Zinc as Zn	IS 3025 (Part 2):2004 (RA 2014) APHA 23 rd Edn. 2017, 3120 B	0.01 mg/l to 100 mg/l
		Arsenic as As	IS 3025 (Part 2):2004 (RA 2014) APHA 23 rd Edn. 2017, 3120 B	0.01 mg/l to 5.00 mg/l
		Copper as Cu	IS 3025 (Part 2):2004 (RA 2014) APHA 23 rd Edn. 2017, 3120 B	0.01 mg/l to 5.00 mg/l
		Chromium as Cr	IS 3025 (Part 2):2004 (RA 2014) APHA 23 rd Edn. 2017, 3120 B	0.01 mg/l to 5.00 mg/l
		Iron as Fe	IS 3025 (Part 2):2004 (RA 2014) APHA 23 rd Edn. 2017, 3120 B	0.01 mg/l to 5.00 mg/l
		Nickel as Ni	IS 3025 (Part 2):2004 (RA 2014) APHA 23 rd Edn. 2017, 3120 B	0.01 mg/l to 5.00 mg/l
		Mercury as Hg	IS 3025 (Part 2):2004 (RA 2014) APHA 23 rd Edn. 2017, 3120 B	0.001 mg/l to 1.00 mg/l
		Manganese as Mn	IS 3025 (Part 2):2004 (RA 2014) APHA 23 rd Edn. 2017, 3120 B	0.01 mg/l to 5.00 mg/l
		Selenium as Se	IS 3025 (Part 2):2004 (RA 2014) APHA 23 rd Edn. 2017, 3120 B	0.01 mg/l to 5.00 mg/l
II.	POLLUTION & ENV	IRONMENT		
1.	Waste Water	рН	APHA 23 rd Edn. 2017, 4500-H+B IS 3025 (Part 11) :1983 (RA2012)	2 to 12

Plot No. 61, Patel Estate, Old Betim Road, Bardez, Porvorim, Panaji,

Goa

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-7424 (in lieu of T-2190) Page 4 of 10

SI.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Total Dissolved Solids	APHA 23 rd Edn. 2017, 2540-C IS 3025 (Part 16) :1984 (RA2012)	5 mg/l to 40000 mg/l
		Chloride as Cl	APHA 23 rd Edn.2017, 4500-Cl ⁻ -B IS 3025 (Part 32) :1986 (RA2014)	10 mg/l to 20000 mg/l
		Total Hardness as CaCO₃	APHA 23 rd Edn. 2017, 2340-C IS 3025 (Part 21) :2009 (RA2014)	2 mg/l to 10000 mg/l
		Sulphate as SO₄	APHA 23 rd Edn. 2017, 4500-SO ₄ -E IS 3025 (Part 24) :1986 (RA2012)	5 mg/l to 5000 mg/l
		Sulfide as S₂	APHA 23 rd Edn. 2017, 4500-S ₂ -F IS 3025 (Part 29) :1986 (RA2014)	2 mg/l to 50 mg/l
		Phosphorus as PO ₄	APHA 23 rd Edn. 2017, 4500-P-C IS 3025 (Part 31) :1988 (RA2014)	1 mg/l to 1000 mg/l
		Chemical Oxygen Demand	APHA 23 rd Edn. 2017, 5220-B IS 3025 (Part 58) : 2012	4 mg/l to 50000 mg/l
		Biological Oxygen Demand (at 27°C for 3 days)	IS 3025 (Part 44) :1993 (RA2014)	2 mg/l to 15000 mg/l
		Total Suspended Solids	APHA 23 rd Edn. 2017, 2540-D IS 3025 (Part 15) :1984 (RA2009)	1 mg/l to 5000 mg/l
		Oil and Grease	APHA 23 rd Edn. 2017, 5520-O&G IS 3025 (Part 39) :1991 (RA2014)	1 mg/l to 1000 mg/l

Plot No. 61, Patel Estate, Old Betim Road, Bardez, Porvorim, Panaji,

Goa

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-7424 (in lieu of T-2190) Page 5 of 10

SI.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Phenolic Compounds as C6H5OH	APHA 23 rd Edn. 2017, 5530 B-C IS 3025 (Part 43) :1992 (RA2014)	0.02 mg/l to 100 mg/l
		Fluoride as F	APHA 23 rd Edn. 2017, 4500 F-D	0.1 mg/l to 50 mg/l
		Turbidity	APHA 23 rd Edn. 2017, 2130-B IS 3025 (Part 5) : 1983 (RA 2012)	0.5 NTU to 1000 NTU
		Conductivity at 25°C	APHA 23 rd Edn. 2017, 2510-B IS 3025 (Part 14) : 2013	1 μS/cm to 40000 μS/cm
		Ammonia (Total as NH3-N)	APHA 23 rd Edn. 2017, 4500 NH₃-B-C IS 3025 (Part 34):1988 (RA2014)	0.5 mg/l to 1500 mg/l
		Total Alkalinity as CaCO₃	APHA 23 rd Edn. 2017, 2320-B IS 3025 (Part 23) :1986 (RA2014)	1 mg/l to 10000 mg/l
		Free Residual Chlorine	APHA 23 rd Edn. 2017, 4500-Cl ⁻ C IS 3025 (Part 26):1986 (RA2014)	1 mg/l to 50 mg/l
		Cadmium as Cd	IS 3025 (Part 2):2004 (RA 2014) APHA 23 rd Edn. 2017, 3120 B	0.01 mg/l to 100.0 mg/l
		Lead as Pb	IS 3025 (Part 2):2004 (RA 2014) APHA 23 rd Edn. 2017, 3120 B	0.01 mg/l to 50.0 mg/l
		Zinc as Zn	IS 3025 (Part 2):2004 (RA 2014) APHA 23 rd Edn. 2017, 3120 B	0.01 mg/l to 50.0 mg/l
		Arsenic as As	IS 3025 (Part 2):2004 (RA 2014) APHA 23 rd Edn. 2017, 3120 B	0.01 mg/l to 50.0 mg/l
		Copper as Cu	IS 3025 (Part 2):2004 (RA 2014) APHA 23 rd Edn. 2017, 3120 B	0.01 mg/l to 50.0 mg/l

Plot No. 61, Patel Estate, Old Betim Road, Bardez, Porvorim, Panaji,

Goa

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-7424 (in lieu of T-2190) Page 6 of 10

SI.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Chromium as Cr	IS 3025 (Part 2):2004 (RA 2014) APHA 23 rd Edn. 2017, 3120 B	0.01 mg/l to 50.0 mg/l
		Calcium as Ca	IS 3025 (Part 2):2004 (RA 2014) APHA 23 rd Edn. 2017, 3120 B	1 mg/l to 5000 mg/l
		Iron as Fe	IS 3025 (Part 2):2004 (RA 2014) APHA 23 rd Edn. 2017, 3120 B	0.01 mg/l to 50.0 mg/l
		Nickel as Ni	IS 3025 (Part 2):2004 (RA 2014) APHA 23 rd Edn. 2017, 3120 B	0.01 mg/l to 50.0 mg/l
		Mercury as Hg	IS 3025 (Part 2):2004 (RA 2014) APHA 23 rd Edn. 2017, 3120 B	0.001 mg/l to 1.0 mg/l
		Magnesium as Mg	IS 3025 (Part 2):2004 (RA 2014) APHA 23 rd Edn. 2017, 3120 B	1 mg/l to 5000 mg/l
		Manganese as Mn	IS 3025 (Part 2):2004 (RA 2014) APHA 23 rd Edn. 2017, 3120 B	0.01 mg/l to 50.0 mg/l
		Selenium as Se	IS 3025 (Part 2): 2004 (RA 2014) APHA 23 rd Edn. 2017, 3120 B	0.01 mg/l to 5.0 mg/l
2.	Wastes (Solid/Sludge/	Aluminium as Al	EPA-3050-B-1996 and EPA 6010D-2014, ICP-OES Method	50 mg/kg to 1000 mg/kg
	Sediment/Slurry)	Arsenic as As	EPA-3050-B-1996 and EPA 6010D-2014, ICP-OES Method	0.02 mg/kg to 10 mg/kg
		Copper as Cu	EPA-3050-B-1996 and EPA 6010D-2014, ICP-OES Method	2 mg/kg to 1000 mg/kg
		Chromium as Cr	EPA-3050-B-1996 and EPA 6010D-2014, ICP-OES Method	4 mg/kg to 1000 mg/kg
		Calcium as Ca	EPA-3050-B-1996 and EPA 6010D-2014, ICP-OES Method	20 mg/kg to 1000 mg/kg
		Cadmium as Cd	EPA-3050-B-1996 and EPA 6010D-2014, ICP-OES Method	2 mg/kg to 200 mg/kg
		Iron as Fe	EPA-3050-B-1996 and EPA 6010D-2014, ICP-OES Method	20 mg/kg to 10000 mg/kg
		Lead as Pb	EPA-3050-B-1996 and EPA 6010D-2014, ICP-OES Method	2 mg/kg to 200 mg/kg

Plot No. 61, Patel Estate, Old Betim Road, Bardez, Porvorim, Panaji,

Goa

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-7424 (in lieu of T-2190) Page 7 of 10

SI.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Nickel as Ni	EPA-3050-B-1996 and EPA 6010D-2014, ICP-OES Method	20 mg/kg to 1000 mg/kg
		Mercury as Hg	EPA-3050-B-1996 and EPA 6010D-2014, ICP-OES Method	0.02 mg/kg to 10 mg/kg
		Magnesium as Mg	EPA-3050-B-1996 and EPA 6010D-2014, ICP-OES Method	20 mg/kg to 1000 mg/kg
		Manganese as Mn	EPA-3050-B-1996 and EPA 6010D-2014, ICP-OES Method	1 mg/kg to 1000 mg/kg
		Selenium as Se	EPA-3050-B-1996 and EPA 6010D-2014, ICP-OES Method	0.02 mg/kg to 10 mg/kg
		Zinc as Zn	EPA-3050-B-1996 and EPA 6010D-2014, ICP-OES Method	2 mg/kg to 1000 mg/kg
3.	Soil	pH	IS 2720 (Part 26):1987 (RA 2016)	1 to 14
		Electrical Conductivity	IS 14767 : 2000	1 μS/cm to 2000 μS/cm
		Organic Matter	IS 2720 (Part 22) :1972 (RA 2015)	1% to 10 %
		Moisture Content	IS 2720 (Part 2) :1973 (RA 2015)	0.1% to 20 %
		Exchangeable Calcium as Ca	SOP No. SEE/LD/SOP-SA/02 Issue No. 03 Issue Date 27/12/2017	20 mg/kg to 1000 mg/kg
		Exchangeable Magnesium as Mg	SOP No. SEE/LD/SOP-SA/23 Issue No. 03 Issue Date 27/12/2017	20 mg/kg to 1000 mg/kg
		Available Chloride as Cl	SOP No. SEE/LD/SOP-SA/11 Issue No. 03 Issue Date 27/12/2017	20 mg/kg to 5000 mg/kg
		Available Sulphate as SO4	SOP No. SEE/LD/SOP-SA/16 Issue No. 03 Issue Date 27/12/2017	20 mg/kg to 1000 mg/kg
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Plot No. 61, Patel Estate, Old Betim Road, Bardez, Porvorim, Panaji,

Goa

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-7424 (in lieu of T-2190) Page 8 of 10

Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Available Phosphorus	SOP No. SEE/LD/SOP-SA/05 Issue No. 03 Issue Date 27/12/2017	20 mg/kg to 100 mg/kg
	Aluminium as Al	EPA-3050-B-1996 and EPA 6010D-2014, ICP-OES Method	50 mg/kg to 1000 mg/kg
	Arsenic as As	EPA-3050-B-1996 and EPA 6010D-2014, ICP-OES Method	0.02 mg/kg to 10 mg/kg
	Copper as Cu	EPA-3050-B-1996 and EPA 6010D-2014, ICP-OES Method	2 mg/kg to 1000 mg/kg
	Chromium as Cr	EPA-3050-B-1996 and EPA 6010D-2014, ICP-OES Method	4 mg/kg to 1000 mg/kg
	Calcium as Ca	EPA-3050-B-1996 and EPA 6010D-2014, ICP-OES Method	20 mg/kg to 1000 mg/kg
	Cadmium as Cd	EPA-3050-B-1996 and EPA 6010D-2014, ICP-OES Method	2 mg/kg to 200 mg/kg
		EPA-3050-B-1996 and EPA 6010D-2014, ICP-OES Method	20 mg/kg to 10000 mg/kg
	Lead as Pb	EPA-3050-B-1996 and EPA 6010D-2014, ICP-OES Method	2 mg/kg to 200 mg/kg
	Nickel as Ni	EPA-3050-B-1996 and EPA 6010D-2014, ICP-OES Method	20 mg/kg to 1000 mg/kg
	Mercury as Hg	EPA-3050-B-1996 and EPA 6010D-2014, ICP-OES Method	0.02 mg/kg to 10 mg/kg
	Magnesium as Mg	EPA-3050-B-1996 and EPA 6010D-2014, ICP-OES Method	20 mg/kg to 1000 mg/kg
	Manganese as Mn	EPA-3050-B-1996 and EPA 6010D-2014, ICP-OES Method	1 mg/kg to 1000 mg/kg
	Selenium as Se	EPA-3050-B-1996 and EPA 6010D-2014, ICP-OES Method	0.02 mg/kg to 10 mg/kg
	Zinc as Zn	EPA-3050-B-1996 and EPA 6010D-2014, ICP-OES Method	2 mg/kg to 1000 mg/kg
		Available Phosphorus Aluminium as Al Arsenic as As Copper as Cu Chromium as Cr Calcium as Ca Cadmium as Cd Iron as Fe Lead as Pb Nickel as Ni Mercury as Hg Magnesium as Mg Manganese as Mn Selenium as Se	of Test Performed against which tests are performed Available Phosphorus SOP No. SEE/LD/SOP-SA/05 Issue No. 03 Issue Date 27/12/2017 Aluminium as Al EPA-3050-B-1996 and EPA 6010D-2014, ICP-OES Method Arsenic as As EPA-3050-B-1996 and EPA 6010D-2014, ICP-OES Method Copper as Cu EPA-3050-B-1996 and EPA 6010D-2014, ICP-OES Method Chromium as Cr EPA-3050-B-1996 and EPA 6010D-2014, ICP-OES Method Calcium as Ca EPA-3050-B-1996 and EPA 6010D-2014, ICP-OES Method Cadmium as Cd EPA-3050-B-1996 and EPA 6010D-2014, ICP-OES Method Iron as Fe EPA-3050-B-1996 and EPA 6010D-2014, ICP-OES Method Lead as Pb EPA-3050-B-1996 and EPA 6010D-2014, ICP-OES Method Nickel as Ni EPA-3050-B-1996 and EPA 6010D-2014, ICP-OES Method Mercury as Hg EPA-3050-B-1996 and EPA 6010D-2014, ICP-OES Method Magnesium as Mg EPA-3050-B-1996 and EPA 6010D-2014, ICP-OES Method Manganese as Mn EPA-3050-B-1996 and EPA 6010D-2014, ICP-OES Method Selenium as Se EPA-3050-B-1996 and EPA 6010D-2014, ICP-OES Method Zinc as Zn EPA-3050-B-1996 and EPA 6010D-2014, ICP-OES Method

Plot No. 61, Patel Estate, Old Betim Road, Bardez, Porvorim, Panaji,

Goa

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-7424 (in lieu of T-2190) Page 9 of 10

SI.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
III.	ATMOSPHERIC PO	LLUTION		
1.	Ambient Air	PM ₁₀	IS 5182 (Part 23): 2006, (RA 2012)	5 μg/m³ to 1000 μg/m³
		PM _{2.5}	SEE/LD/SOP-AA-04, Issue No. 03, Date 27/12/2017	5 μg/m³ to 1000 μg/m³
		Sulphur dioxide SO ₂	IS 5182 (Part 2): 2001, (RA 2012)	3 µg/m³ to 1000 µg/m³
		Nitrogen dioxide (NOx)	IS 5182 (Part 06) Method B: 2006 (RA 2012)	6 μg/m³ to 420 μg/m³
		Ammonia (NH₃)	Method No.401 Based on Methods of Air Sampling and analysis-3 rd edition by J P Lodge	20 µg/m³ to 700 µg/m³
		Carbon monoxide (CO)	IS 5182 (Part 10):1999, (RA 2003)	0.2 mg/m ³ to 20 mg/m ³
		Lead (as Pb)	IS 5182 (Part 22): 2004 (RA 2014)	0.10 μg/m³ to 10 μg/m³
		Benzene (C ₆ H ₆)	IS 5182 (Part 11): 2006 (RA 2012)	1 μg/m³ to 500 μg/m³
		Arsenic (as As)	SEE/LD/SOP-AA-09, Issue No. 03, Date 27/12/2017	5 ng/m³ to 100 ng/m³
		Nickel (as Ni)	SEE/LD/SOP-AA-09, Issue No. 03, Date 27/12/2017	5 ng/m³ to 100 ng/m³
		Ozone (O ₃)	Method No.411; Based on Methods of Air Sampling and analysis-3 rd edition by J P Lodge	20 µg/m³ to 1000 µg/m³
		Benzo(α)Pyrene	IS 5182 (Part 12): 2004 (RA 2014)	2 ng/m³ to 500 ng/m³
2.	Ambient Noise Level	Ambient Noise	ÌS:9989-1981 (RA 2001)	30 dB (A) to 134 dB (A)

Plot No. 61, Patel Estate, Old Betim Road, Bardez, Porvorim, Panaji,

Goa

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-7424 (in lieu of T-2190) Page 10 of 10

SI.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
3.	Stack Emission	Particulate matter	IS 11255 (Part 1)-1985 (RA 2014)	5 mg/Nm³ to 5000 mg/Nm³
		Ammonia (NH₃)	IS 11255 (Part 6) 1999 (RA 2014)	5 mg/Nm³ to 500 mg/Nm³
		Oxides of Nitrogen (NOx)	IS 11255 (Part 7)-2005 (RA 2012)	2 mg/Nm ³ to 400 mg/Nm ³
		Sulphur Dioxide (SO ₂)	IS 11255 (Part 2)-1985 (RA 2014)	3 mg/Nm ³ to 500 mg/Nm ³
		Carbon monoxide	EPA Method 10-1996	1.1 mg/Nm ³ to 5720 mg/Nm ³
		Carbon dioxide (CO ₂)	EPA Method 3A-1989	0.2% to 20 %
1		Oxygen (O ₂)	EPA Method 3A-1989	0.2% to 25 %