

Laboratory	Femo Labs Privated Limited, No. C-19, Industrial Estate, Mogappair West, Chennai, Tamil Nadu		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Chemical Testing	Issue Date	14.11.2014
Certificate Number	T-3195	Valid Until	13.11.2016
Last Amended on	-	Page	1 of 14

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	Colour	IS 3025 (Part 4): 1983 (RA 2012) Chloroplatinate method	1 Hazen Unit to 100 Hazen Unit
		Odour	IS 3025 (Part 5): 1983 (RA 2012)	Qualitative
		Taste	IS 3025 (Part 8): 1984 (RA 2012)	Qualitative
		Temperature	IS 3025 (Part 9): 1984 (RA 2009)	1 °C to 100 °C
		pH @ 25°C	IS 3025 (Part 11): 1983 (RA 2012)	2 to 12.5
		Electrical Conductivity	IS 3025 (Part 14): 1984 (RA 2013)	1 µmhos/cm to 15000 µmhos/cm
		Turbidity	IS 3025 (Part 10): 1984 (RA 2012)	0.5 NTU to 200 NTU
		Total Suspended Solids (TSS)	IS 3025 (Part 17): 1984 (RA 2012)	1 mg/L to 600 mg/L
		Total Dissolved Solids (TDS)	IS 3025 (Part 16): 1984 (RA 2006)	5 mg/L to 10000 mg/L
		Total Hardness as CaCO ₃	IS 3025 (Part 21): 2009 EDTA Method	1 mg/L to 2000 mg/L
Calcium as Ca	IS 3025 (Part 40): 1991 EDTA Method	1 mg/L to 1000 mg/L		

Deepak Kumar Sharma
Convenor

N. Venkateswaran
Program Manager

Laboratory Femo Labs Privated Limited, No. C-19, Industrial Estate, Mogappair West, Chennai, Tamil Nadu

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Certificate Number T-3195 **Valid Until** 13.11.2016

Last Amended on - **Page** 2 of 14

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	Surface water/ Ground water	Magnesium as Mg	IS 3025 (Part 46): 1994 (RA 2003)	1 mg/L to 1000 mg/L
		Total Alkalinity as CaCO ₃	IS 3025 (Part 23): 1986 (RA 2009)	1 mg/L to 3000 mg/L
		Acidity as CaCO ₃	IS 3025 (Part 22): 1986 (RA 2003)	1 mg/L to 500 mg/L
		Chloride as Cl	IS 3025 (Part 32): 1988 (RA 2009) Argentometric Method	1 mg/L to 2000 mg/L
		Sulphate as SO ₄	APHA 22 nd Edition 2012 - 4500 SO ₄ E Turbidity method	1 mg/L to 1000 mg/L
		Iron as Fe	IS 3025 (Part 53): 2003 (RA 2009) Phenanthroline method	0.01 mg/L to 20 mg/L
		Total Phosphorous as PO ₄	IS 3025 (Part 31): 1988 (RA 2009) Stannous chloride method	0.01 mg/L to 20 mg/L
		Reactive silica	IS 3025 (Part 35): 1988 (RA 2003) Molybdosilicate method	0.1 mg/L to 200 mg/L

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N. Venkateswaran
Program Manager

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Discipline	Chemical Testing	Issue Date	14.11.2014
Certificate Number	T-3195	Valid Until	13.11.2016
Last Amended on	-	Page	3 of 14

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	Surface water/ Ground water	Fluoride as F	APHA 22 nd Edition 2012 4500 F D SPADNS Method	0.05 mg/L to 10 mg/L
		Total Kjeldahl Nitrogen as N	IS 3025 (Part 34): 1988 (RA 2009)	1 mg/L to 100 mg/L
		Ammonical Nitrogen as NH ₄ – N	IS 3025 (Part 34): 1988 (RA 2009)	1 mg/L to 50 mg/L
		Ammonia as NH ₃	IS 3025 (Part 34): 1988 (RA 2009)) APHA 22 nd Edn 2012-4500- NH ₃ B,C	0.1 mg/L to 20 mg/L
		Nitrate as NO ₃	IS 3025 (Part 34): 1988 (RA 2009)Chromotropic Method	0.5 mg/L to 100 mg/L
		Nitrite as NO ₂	IS 3025 (Part 34): 1988 (RA 2009) Sulphanilamide Method	0.01mg/L to 10 mg/L
		Sulphide as S	IS 3025 (Part 29): 1986 (RA 2003) Titration Method	0.5 mg/L to 20 mg/L
		Dissolved Oxygen	IS 3025 (Part 38): 1989 (RA 2003) Winkler Method	0.2 mg/L to 10 mg/L

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Convenor

N. Venkateswaran
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Discipline Chemical Testing **Issue Date** 14.11.2014

Certificate Number T-3195 **Valid Until** 13.11.2016

Last Amended on - **Page** 4 of 14

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	Chemical Oxygen Demand (COD)	IS 3025 (Part 58): 2006	4 mg/L to 100 mg/L
		Bio Chemical Oxygen Demand (BOD) - 3 days @ 27°C	IS 3025 (Part 44): 1993 (RA 2009)	2 mg/L to 50 mg/L
		Boron as B	IS 3025 (Part 57): 2005 (RA 2009) Curcumin Method	0.1 mg/L to 5.0 mg/L
		Sodium as Na	IS 3025 (Part 45): 1993 (RA 2003) Flame Photometer Method	1 mg/L to 150 mg/L
		Potassium as K	IS 3025 (Part 45): 1993 (RA 2003) Flame Photometer Method	1 mg/L to 50 mg/L
		Cadmium as Cd	IS 3025 (Part 41): 1992 (RA 2003) AAS Method	0.1 mg/L to 5.0 mg/L
		Total Chromium as Cr	IS 3025 (Part 52): 2003 AAS Method	0.05 mg/L to 5.0 mg/L
		Copper as Cu	IS 3025 (Part 42): 1992 (RA 2003) AAS Method	0.04 mg/L to 5.0 mg/L

Deepak Kumar Sharma
Convenor

N. Venkateswaran
Program Manager

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Certificate Number T-3195 **Valid Until** 13.11.2016

Last Amended on - **Page** 5 of 14

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	Surface water/ Ground water	Aluminium as Al	IS 3025 (Part 55): 2003 (RA 2009) Erichrome Cyanin R Method	0.02 mg/L to 2.0 mg/L
		Lead as Pb	IS 3025 (Part 47): 1994 (RA 2009) AAS Method	0.1 mg/L to 5.0 mg/L
		Zinc as Zn	IS 3025 (Part 49): 1994 (RA 2009) AAS Method	0.5 mg/L to 20 mg/L
		Nickel as Ni	IS 3025 (Part 54): 2003 AAS Method	0.3 mg/L to 10 mg/L
		Mercury as Hg	IS 3025 (Part 48): 1999 (RA 2003) Calorimetric Dithizone Method	0.03 mg/L to 2.0 mg/L
2.	Water for construction purpose	pH @ 25 °C	IS 3025 (Part 11): 1983 (RA 2012)	2 to 12.5
		Chloride as Cl	IS 3025 (Part 32): 1988 (RA 2009) Argentometric Method	1 mg/L to 2000 mg/L
		Sulphate as SO ₃	APHA 22 nd Edition 2012 - 4500 SO ₄ E Turbidimetry Method	1 mg/L to 1000 mg/L

Deepak Kumar Sharma
Convenor

N. Venkateswaran
Program Manager

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Certificate Number	T-3195	Valid Until	13.11.2016
Last Amended on	-	Page	6 of 14

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Water for construction purpose	Suspended Matter	IS 3025 (Part 17): 1984 (RA 2012)	1 mg/L to 3000 mg/L
		Acidity (To neutralise 100 ml sample of water using phenolphthalein indicator with 0.02 N NaOH)	IS 3025 (Part 22): 1986 (RA 2003)	1 ml to 25 ml
		Alkalinity (To neutralize 100 ml sample of water using mixed indicator with 0.02 N. H ₂ SO ₄)	IS 3025 (Part 23): 1986 (RA 2003)	1 ml to 100 ml
		Organic Solids	IS 3025 (Part 18): 1984 (RA 2012)	2 mg/L to 1000 mg/L
		Inorganic Solids	IS 3025 (Part 18): 1984 (RA 2012)	2 mg/L to 10000 mg/L
3.	Water for Swimming Pools	Colour	IS 3025 (Part 4): 1983 (RA 2012)	1 Hazen Unit to 100 Hazen Unit
		Odour	IS 3025 (Part 5): 1983 (RA 2012)	Qualitative
		Taste	IS 3025 (Part 8): 1984 (RA 2012)	Qualitative
		pH @ 25°C	IS 3025 (Part 11): 1983 (RA 2012)	2 to 12.5
		Turbidity	IS 3025 (Part 10): 1984 (RA 2012)	0.5 NTU to 200 NTU

Deepak Kumar Sharma
Convenor

N. Venkateswaran
Program Manager

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Certificate Number T-3195 **Valid Until** 13.11.2016

Last Amended on - **Page** 7 of 14

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	Water for Swimming Pools	Total Dissolved Solids (TDS)	IS 3025 (Part 16): 1984 (RA 2006)	5 mg/L to 5000 mg/L
		Total Alkalinity as CaCO ₃	IS 3025 (Part 23): 1986 (RA 2009)	1 mg/L to 1000 mg/L
		Chloride as Cl	IS 3025 (Part 32): 1988 (RA 2009) Argentometric Method	1 mg/L to 1000 mg/L
		Iron as Fe	IS 3025 (Part 53): 2003 (RA 2009) Phenanthroline Method	0.1 mg/L to 10 mg/L
		Aluminium as Al	IS 3025 (Part 55): 2003 (RA 2009) Erichrome cyanin R Method	0.1 mg/L to 1.5 mg/L
		Lead as Pb	IS 3025 (Part 47): 1994 (RA 2009) AAS Method	0.1 mg/L to 2.0 mg/L
		Oxygen Observed in 4 hrs	IS 3025 (Part 63): 2007	0.2 mg/L to 10 mg/L
4.	Drinking Water/ Water for Food Industry	Colour	IS 3025 (Part 4): 1983 (RA 2012) Chloroplatinate Method	1 Hazen Unit to 100 Hazen Unit
		Odour	IS 3025 (Part 5): 1983 (RA 2012)	Qualitative
		Taste	IS 3025 (Part 8): 1984 (RA 2012)	Qualitative

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Convenor

N. Venkateswaran
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Certificate Number	T-3195	Valid Until	13.11.2016
Last Amended on	-	Page	8 of 14

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	Drinking Water/ Water for Food Industry	Total Dissolved Solids (TDS)	IS 3025 (Part 16): 1984 (RA 2006)	10 mg/L to 2500 mg/L
		Temperature	IS 3025 (Part 9): 1984 (RA 2009)	1 °C to 100 °C
		pH @ 25°C	IS 3025 (Part 11): 1983 (RA 2012)	2 to 12.5
		Turbidity	IS 3025 (Part 10): 1984 (RA 2012)	0.5 NTU to 200 NTU
		Total Hardness as CaCO ₃	IS 3025 (Part 21): 2009 EDTA Method	1 mg/L to 2000 mg/L
		Calcium as Ca	IS 3025 (Part 40): 1991 (RA 2009) EDTA Method	1 mg/L to 1000 mg/L
		Magnesium as Mg	IS 3025 (Part 46): 1994 (RA 2003) EDTA Method	1 mg/L to 1000 mg/L
		Total Alkalinity as CaCO ₃	IS 3025 (Part 23): 1986 (RA 2009)	1 mg/L to 3000 mg/L
		Chloride as Cl	IS 3025 (Part 32): 1988 (RA 2009) Argentometric Method	1 mg/L to 2000 mg/L

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Certificate Number	T-3195	Valid Until	13.11.2016
Last Amended on	-	Page	9 of 14

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	Drinking Water/ Water for Food Industry	Sulphate as SO ₄	APHA 22 nd Edition 2012 4500 SO ₄ E Turbidimetry Method	1 mg/L to 1000 mg/L
		Iron as Fe	IS 3025 (Part 53): 2003 (RA 2009) Phenanthroline Method	0.01 mg/L to 20 mg/L
		Fluoride as F	APHA 22 nd Edition 2012 4500 F D SPADNS Method	0.05 mg/L to 10 mg/L
		Ammonia as NH ₃	IS 3025 (Part 34): 1988 (RA 2009) APHA 22 nd Edn 2012 4500 - NH ₃ B,C	0.1 mg/L to 20 mg/L
		Nitrate as NO ₃	IS 3025 (Part 34): 1988 (RA 2009) Chromotropic Method	0.5 mg/L to 100 mg/L
		Boron as B	IS 3025 (Part 57): 2005 (RA 2009) Curcumin Method	0.1 mg/L to 5.0 mg/L
		Copper as Cu	IS 3025 (Part 42): 1992 (RA 2003) AAS Method	0.04 mg/L to 5.0 mg/L
		Zinc as Zn	IS 3025 (Part 49): 1994 (RA 2009) AAS Method	0.5 mg/L to 20 mg/L

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Certificate Number	T-3195	Valid Until	13.11.2016
Last Amended on	-	Page	10 of 14

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
II. POLLUTION & EFFLUENTS				
1.	Wastewater (Sewage/ Effluent)	Temperature	IS 3025 (Part 9): 1984 (RA 2009)	1°C to 100 °C
		Turbidity	IS 3025 (Part 10): 1984 (RA 2012)	2 NTU to 400 NTU
		pH @ 25 ⁰ C	IS 3025 (Part 11): 1983 (RA 2012)	2 to 12.6
		Electrical Conductivity	IS 3025 (Part 14): 1984 (RA 2013)	1 µmhos/cm to 30000 µmhos/cm
		Total Suspended Solids (TSS)	IS 3025 (Part 17): 1984 (RA 2012) APHA 22 nd Edition 2012-2540 D	2 mg/L to 5000 mg/L
		Total Dissolved Solids (TDS)	IS 3025 (Part 16): 1984 (RA 2006) APHA 22 nd Edition 2012 - 2540 C	2 mg/L to 20000 mg/L
		Total Solids (TS)	IS 3025 (Part 15): 1984 (RA 2009)	2 mg/L to 20000 mg/L
		Fixed and Volatile Solids	IS 3025 (Part 18): 1984 (RA 2012)	2 mg/L to 20000 mg/L
	Oil and Grease	APHA 22 nd Edn 2012- 5520 O&G-B	2 mg/L to 200 mg/L	

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Discipline	Chemical Testing	Issue Date	14.11.2014
Certificate Number	T-3195	Valid Until	13.11.2016
Last Amended on	-	Page	11 of 14

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	Wastewater (Sewage/Effluent)	Bio Chemical Oxygen Demand BOD - 3 days @ 27°C	IS 3025 (Part 44): 1993 (RA 2009)	2 mg/L to 10000 mg/L
		Chemical Oxygen Demand (COD)	APHA 22 nd Edition 2012 - 5220 B	4 mg/L to 30000 mg/L
		Dissolved Oxygen	APHA 22 nd Edition 2012 4500 O C	0.2 mg/L to 10 mg/L
		Chloride as Cl	IS 3025 (Part 32): 1988 (RA 2009) Argentometric Method	0.5 mg/L to 10000 mg/L
		Sulphate as SO ₄	APHA 22 nd Edn 2012 4500 SO ₄ E Turbidimetry Method	1 mg/L to 8000 mg/L
		Total Kjeldahl Nitrogen	IS 3025 (Part 34): 1988 (RA 2009)	1 mg/L to 500 mg/L
		Ammoniacal Nitrogen	IS 3025 (Part 34): 1988 (RA 2009)	1 mg/L to 200 mg/L
		Free Ammonia as NH ₃	IS 3025 (Part 34): 1988 (RA 2009) APHA 22 nd Edn. 2012-4500-NH ₃ B,C	0.1 mg/L to 20 mg/L
		Fluoride as F	APHA 22 nd Edition 2012 4500 F D SPADNS Method	0.1 mg/L to 5.0 mg/L

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Certificate Number	T-3195	Valid Until	13.11.2016
Last Amended on	-	Page	12 of 14

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Wastewater (Sewage/Effluent)	Dissolved Phosphorous as PO ₄	IS 3025 (Part 31): 1988 (RA 2009) Stannous chloride method	0.1 mg/L to 20 mg/L
		Nitrate Nitrogen as NO ₃	IS 3025 (Part 34): 1988 (RA 2009) Chromotropic Acid Method	0.5 mg/L to 100 mg/L
		Iron as Fe	IS 3025 (Part 53): 2003 (RA 2009) Phenanathroline Method	0.01 mg/L to 20 mg/L
		Lead as Pb	IS 3025 (Part 47): 1994 (RA 2009) AAS Method	0.1 mg/L to 2.0 mg/L
		Mercury as Hg	IS 3025 (Part 48): 1999 (RA 2003) Calorimetric Dithizone Method	0.03 mg/L to 2.0 mg/L
		Cadmium as Cd	IS 3025 (Part 41): 1992 (RA 2003) AAS Method	0.1 mg/L to 5.0 mg/L
		Total Chromium as Cr	IS 3025 (Part 52): 2003 AAS Method	0.05 mg/L to 20 mg/L
		Hexavalent Chromium as Cr ⁶⁺	IS 3025 (Part 52): 2003 Diphenyl Carbazide Method	0.05 mg/L to 20 mg/L
		Copper as Cu	IS 3025 Part 42:1992 (RA 2003) AAS Method	0.04 mg/L to 5.0 mg/L

Deepak Kumar Sharma
Convenor

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Certificate Number	T-3195	Valid Until	13.11.2016
Last Amended on	-	Page	13 of 14

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	Wastewater (Sewage/Effluent)	Zinc as Zn	IS 3025 (Part 49): 1994 (RA 2009) AAS Method	0.5 mg/L to 5.0 mg/L
		Nickel as Ni	IS 3025 (Part 54): 2003 AAS Method	0.3 mg/L to 5.0 mg/L
		Boron	IS 3025 (Part 57): 2005 (RA 2009) Curcumin Method	0.1 mg/L to 10 mg/L

III. AIR, GASES & ATMOSPHERE

1. Ambient Air	Particulate Matter less than 10 micron size (PM ₁₀)	IS 5182 (Part 23): 2006	5 µg/m ³ to 500 µg/m ³
	Particulate Matter less than 2.5 micron size (PM _{2.5})	Lab SOP/002/26.12.2013	5 µg/m ³ to 150 µg/m ³
	Sulphur dioxide as SO ₂	IS 5182 (Part 2): 2001	3 µg/m ³ to 100 µg/m ³
	Nitrogen dioxide as NO ₂	IS 5182 (Part 6): 2006	3 µg/m ³ to 100 µg/m ³
2. Stack Emission Monitoring	Particulate Matter (PM)	IS 11255 (Part 1): 1985 (RA 2003)	2.5 µg/m ³ to 500 mg/Nm ³
	Sulphur dioxide as So ₂	IS 11255 (Part 2): 1985 (RA 2003)	3 µg/m ³ to 200 mg/ Nm ³
	Oxides of Nitrogen as NO ₂	IS 11255 (Part 7): 2005	2 µg/m ³ to 200 mg/ Nm ³

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Certificate Number T-3195 **Valid Until** 13.11.2016
Last Amended on - **Page** 14 of 14

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	Stack Emission Monitoring	Carbon dioxide as Co ₂	IS 13270: 1992 (RA 2003)	0.2 % to 20 %
		Oxygen as O ₂	IS 13270: 1992 (RA 2003)	0.2 % to 25 %

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