

Laboratory One Earth Enviro Labs, 1st Floor, KSIA Building, Baikampady
Industrial Area Road, Mangalore, Karnataka

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-7847 (in lieu of T-2989, T-3132)

Page 1 of 13

Validity 29.09.2018 to 28.09.2020

Last Amended on --

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
<u>BIOLOGICAL TESTING</u>				
I.	WATER			
1.	Water Potable, Drinking, Surface, Borewell, Processed water	Total Coliforms (MPN)	APHA 23rd Edition -9221-B	<1.8 MPN to 1600 MPN /100ml
		Total Coliforms (MFT)	IS 1622: 1981 (RA 2009) APHA 23rd Edition -9222-B IS 1622: 1981 (RA 2009)	< 2 to 1600 MPN/100ml ≤1 CFU/100ml
		E. coli	APHA 23rd Edition -9221-G	<1.8 MPN to 1600 MPN /100ml
			IS 1622: 1981 (RA 2009)	Qualitative (Present or Absent) /100ml
		Feacal Coliform (MPN)	APHA 23rd Edition -9221-E	<1.8 MPN to 1600 MPN /100ml
			IS 1622: 1981 (RA 2009)	Qualitative (Present or Absent)/ 100ml
		Feacal Coliform (MFT)	APHA 23rd Edition -9222-D	≤1 CFU/100ml
		Heterotrophic Plate count @ 22°C	APHA 23rd Edition-9215-A IS 1622 (RA 2009)	≤1 CFU/ml
		Heterotrophic Plate count @35°C	APHA 23rd Edition-9215-A IS 1622 (RA 2009)	≤1 CFU/ml
		Yeast & Mold Count	APHA 23rd Edition-9610-B	≤1 CFU/ml
		Salmonella	IS 15187: 2002	Qualitative (Present or Absent)/100ml
		Fecal Enterococcus/ Streptococcus (MFT)	APHA 23rd Edition-9230C IS 15186:2002	≤1 CFU/100ml
II	POLLUTION & ENVIRONMENT			
1.	Waste Water	Total Coliforms (MPN)	APHA 23rd Edition-9221-B	<1.8 MPN to 1600 MPN /100ml

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Industrial Area Road, Mangalore, Karnataka

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-7847 (in lieu of T-2989, T-3132)

Page 2 of 13

Validity 29.09.2018 to 28.09.2020

Last Amended on --

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		Total Coliforms (MFT)	IS 1622: 1981 (RA 2009) APHA 23rd Edition-9222-B IS 1622: 1981 (RA 2009)	< 2 to 1600 MPN/100ml ≤10 CFU/100ml
		E. coli	APHA 23rd Edition-9221-G	<1.8 MPN to 1600 MPN /100ml
		Feacal Coliform (MPN)	IS 1622:1981 (RA 2009) APHA 23rd Edition-9221-E	Qualitative (Present or Absent) /100ml <1.8 MPN to 1600 MPN /100ml
		Feacal Coliform (MFT)	IS 1622: 1981 (RA 2009) APHA 23rd Edition-9222-D	Qualitative (Present or Absent)/ 100ml ≤1 CFU/100ml
		Heterotrophic Plate count @ 22°C	APHA 23rd Edition-9215-A IS 1622 (RA 2009)	≤1 CFU/ml
		Heterotrophic Plate count @35°C	APHA 23rd Edition-9215-A IS 1622 (RA 2009)	≤1 CFU/ml
		Yeast & Mold Count	APHA 23rd Edition-9610-B	≤1 CFU/ml
		Salmonella	IS 15187: 2002	Qualitative (Present or Absent)/ 100ml
		Fecal Enterococcus/ Streptococcus (MFT)	APHA 23rd Edition-9230C IS 15186:2002	≤1 CFU/100ml
III.	FOOD & AGRICULTURAL PRODUCTS			
1.	Herbs Spices and Condiments (Whole, Powdered and Blended)	Total Plate Count/ Aerobic Plate count	IS 5402: 2012	≥10 cfu/gm, ≥1 cfu/ml
		Yeast & Mould Count	IS 5403: 1999 (RA 2005)	≥10 cfu/gm, ≥1 cfu/ml
		Coliform Count	BAM 2002 Chapter 4	≥3 MPN to >1100 MPN /gm/ml
		Enumeration of E. coli	IS 5887 (Part 1): 1976 (RA 2005) BAM 2013 Chapter 4	≥10 cfu/gm, ≥10 cfu/ml ≥3 MPN to >1100 MPN

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Industrial Area Road, Mangalore, Karnataka

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-7847 (in lieu of T-2989, T-3132)

Page 3 of 13

Validity 29.09.2018 to 28.09.2020

Last Amended on --

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		Detection of E. coli	IS 5887 (Part 1): 1976 (RA 2005)	/gm/ml Qualitative (Present/ Absent per 25 gms or ml)
		Staphylococcus aureus	IS 5887 (Part 8/Sec I): 2002 (RA 2012)	Qualitative (Present/ Absent per 25 gms or ml)
		Salmonella spp.	IS 5887 (Part 3): 1999 (RA 2005)	Qualitative (Present/ Absent per 25 gms)
2.	Cereals, Pulses and Related products	Total Plate Count/ Aerobic Plate count	IS 5402: 2012	≥10 cfu/gm, ≥1 cfu/ml
		Yeast & Mould Count	IS 5403: 1999 (RA 2005)	≥10 cfu/gm, ≥1 cfu/ml
		Coliform Count	BAM 2002 Chapter 4	≥3 MPN to >1100 MPN /gm/ml
		Enumeration of E. coli	IS 5887 (Part 1): 1976 (RA 2005)	≥10 cfu/gm, ≥10 cfu/ml
			BAM 2013 Chapter 4	≥3 MPN to >1100 MPN /gm/ml
		Detection of E. coli	IS 5887 (Part 1): 1976 (RA 2005)	Qualitative (Present/ Absent per 25 gms or ml)
		Detection of Staphylococcus aureus	IS 5887 (Part 8/Sec I): 2002 (RA 2012)	Qualitative (Present/ Absent per 25 gms or ml)
		Detection of Salmonella spp.	IS 5887 (Part 3): 1999 (RA 2005)	Qualitative (Present/ Absent per 25 gms)
3.	Ready to Cook, Ready to Eat	Total Plate Count/ Aerobic Plate count	IS 5402: 2012	≥10 cfu/gm, ≥1 cfu/ml
		Yeast & Mould Count	IS 5403: 1999 (RA 2005)	≥10 cfu/gm, ≥1 cfu/ml
		Coliform Count	BAM 2002 Chapter 4	≥3 MPN to >1100 MPN

Laboratory One Earth Enviro Labs, 1st Floor, KSIA Building, Baikampady
Industrial Area Road, Mangalore, Karnataka

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-7847 (in lieu of T-2989, T-3132)

Page 4 of 13

Validity 29.09.2018 to 28.09.2020

Last Amended on --

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		Enumeration of E. coli	IS 5887 (Part 1): 1976 (RA 2005) BAM 2013 Chapter 4	/gm/ml ≥10 cfu/gm, ≥10 cfu/ml ≥3 MPN to >1100 MPN /gm/ml
		Detection of E. coli	IS 5887 (Part 1): 1976 (RA 2005)	Qualitative (Present/ Absent per 25 gms or ml)
		Detection of Staphylococcus aureus	IS 5887 (Part 8/Sec I): 2002 (RA 2012)	Qualitative (Present/ Absent per 25 gms or ml)
		Detection of Salmonella spp.	IS 5887 (Part 3): 1999 (RA 2005)	Qualitative (Present/ Absent per 25 gms)

Ashok Kumar
Convenor

Birendra Prasad Murmu
Program Manager

Laboratory **One Earth Enviro Labs, 1st Floor, KSIA Building, Baikampady Industrial Area Road, Mangalore, Karnataka**

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Certificate Number **TC-7847 (in lieu of T-2989, T-3132)**

Page 5 of 13

Validity **29.09.2018 to 28.09.2020**

Last Amended on --

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
<u>CHEMICAL TESTING</u>				
I. ATMOSPHERIC POLLUTION				
1.	Stack Emission Monitoring	Volume of Flue gas Discharged	IS 11255(Part3) :2008	1 Nm ³ /Hr to 75000 Nm ³ /Hr
		Velocity of Flue Gas Discharged	IS 11255(Part3) :2008	1 m/s & 20 m/s
		Particulate matter	IS 11255(Part1) :1985 (RA2003)	10 mg/Nm ³ to 5000 mg/Nm ³
		Oxides of Sulphur	IS 11255(Part2) :1985 (RA2003)/ SOP No.OEL/SOP/AAQ/T/004 Issue No. 01 & Date 30.11.2012	2 mg/Nm ³ to 1000 mg/Nm ³
		Oxides of Nitrogen	IS 11255 (Part7) :2005/ SOPNo.OEL/SOP/AAQ/T/003 Issue No. 01 & Date 30.11.2012	2 mg/Nm ³ to 2000 mg/Nm ³
		Carbon Dioxide	IS 13270 :1992 RA 2003	0 to 0.5 % (L) 0 to 25 % (H)
2.	Ambient Air Monitoring	Oxygen	IS 13270 :1992 RA 2003	0.2 %to 20.90 %
		Sulphur Dioxide (SO ₂)	IS 5182(Part 2):2001 (RA 2006)	1 µg/m ³ to 1050 µg/m ³
		Carbon Monoxide	CO Gas Detector OEL/SOP/AAQ/A/009 Issue No. 1 dated 01.01.2018	1 ppm to 1000 ppm
		Nitrogen Dioxide (NO ₂)	IS 5182(Part 7):2006	1 µg/m ³ to 750 µg/m ³
		Particulate Matter	IS 5182(Part 23):2006	1.0 µg/m ³ to 1000 µg/m ³
		Particulate Matter	USEPA Quality OEL/SOP/AAQ/A/004 Issue No. 1 dated 30.11.2012	1.0 µg/m ³ to 1000 µg/m ³

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Industrial Area Road, Mangalore, Karnataka

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-7847 (in lieu of T-2989, T-3132)

Page 6 of 13

Validity 29.09.2018 to 28.09.2020

Last Amended on --

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		Suspended Particulate Matter (Size > 10 µg)	IS 5182(Part 4):1999 (RA 2010)	1.0 µg/m ³ to 1000 µg/m ³
		Ozone (O ₃)	CPCB Guidelines for AAQ monitoring Vol I, May 2011: (OEL/SOP/AAQ/A/003 Issue no. 01 dated 30.11.2012) IS 5182: (Part 9):1974 (RA 2009)	1 µg/m ³ to 2000 µg/m ³
		Ammonia (NH ₃)	Methods of Air Sampling & Analysis; 3rd Edition Method No.401 (OEL/SOP/AAQ/A/001 Issue no. 01 dated 30.11.2012)	1 µg/m ³ to 600 µg/m ³
3.	Ambient Noise Level Monitoring & Sound Pressure Level	Equivalent Noise Level, (L _{eq})	IS 9989:1981 (RA 2008)	35 dB to 130 dB (A)
II.	WATER			
1.	Potable water, Drinking water, Surface water, Bore well water, Processed water	pH	APHA 23 rd Edition 2017 4500-H ⁺ B IS 3025 (Part 11): 1983 (RA 2002)	3 to 12
		Total Hardness as CaCO ₃	APHA 23 rd Edition -2340-C IS 3025 (Part 21): 2009	1 mg/L to 3000 mg/L
		Calcium as Ca	APHA 23 rd Edition-3500-CaB IS 3025 (Part 40): 1991 (RA 2003)	1 mg/L to 2000 mg/L
		Magnesium as Mg	APHA23 rd Edition-3500-MgB IS 3025 (Part 46):1994 (RA 2003)	1 mg/L to 2000 mg/L
		Chloride as Cl	APHA 23 rd Edition-4500-Cl B	1 mg/L to 2000 mg/L

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Industrial Area Road, Mangalore, Karnataka

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-7847 (in lieu of T-2989, T-3132)

Page 7 of 13

Validity 29.09.2018 to 28.09.2020

Last Amended on --

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			IS 3025 (Part 36):1998 (RA 2003)	
		Total, M, P Alkalinity as CaCO ₃	APHA 23 rd Edition-2320-B IS 3025 (Part 23): 1986 RA 2003	1 mg/L to 2000 mg/L
		Conductivity	APHA 23 rd Edition-2510-B IS 3025 (Part 14): 2013)	1 µS/cm to 5000 µS/cm
		Silica, Reactive, Colloidal as SiO ₂	APHA 23 rd Edition-4500-C IS 3025 (Part 35):1988 (RA 2003)	0.01 mg/L to 80 mg/L
		Sulphate as SO ₄	APHA 23 rd Edition-4500-SO ₄ C IS 3025 (Part 24): 1986 (RA 1992)	1 mg/L to 1000 mg/L
		Fluoride as F	APHA 23 rd Edition 4500-FD IS 3025 (Part 60): 2015	0.1 mg/L to 20 mg/L
		Nitrate as NO ₃	APHA 23 rd Edition-4500-NO ₃ B IS 3025 (Part 34): 1988	0.01 mg/L to 200 mg/L
		Nitrite as NO ₂	APHA 23 rd Edition-4500-NO ₂ B IS 3025 (Part 34): 1988	0.01 mg/L to 10 mg/L
		Total Iron as Fe	APHA 23 rd Edition-3500-FeB IS 3025 (Part 53): 2003	0.02 mg/L to 50 mg/L
		Turbidity	APHA 23 rd Edition-2130-B IS 3025 (Part 10): 1984 (RA 2002)	1 NTU to 100 NTU
		Sodium as Na	APHA 23 rd Edition-3500-NaB IS 3025 (Part 45): 1993 (RA 2003)	1 mg/L to 3000 mg/L
		Potassium as K	APHA 23 rd Edition-3500-KB IS 3025 (Part 45): 1993 (RA 2003)	1 mg/L to 1000 mg/L
		Boron as B	APHA 23 rd Edition-4500-BB	0.02 mg/L to 10 mg/L

Laboratory One Earth Enviro Labs, 1st Floor, KSIA Building, Baikampady
Industrial Area Road, Mangalore, Karnataka

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-7847 (in lieu of T-2989, T-3132)

Page 8 of 13

Validity 29.09.2018 to 28.09.2020

Last Amended on --

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		Acidity as CaCO ₃	IS 3025 (Part 57): 2005 APHA 23 rd Edition-2310-BB IS 3025 (Part 45): 1986	1 mg/L to 400 mg/L
		Bicarbonates Alkalinity as CaCO ₃	APHA 23 rd Edition-2320-B IS 3025 (Part 23): 1986 RA 2003	1 mg/L to 3000 mg/L
		Chlorine Residual	APHA 23 rd Edition-4500-CIB IS 3025 (Part 26): 1986 RA 2003	1 mg/L to 2000 mg/L
		Total Solids	APHA 23 rd Edition-2540-B IS 3025 (Part 15): 1984 RA 2009	1 mg/L to 500 mg/L
		Fixed Solids	APHA 23 rd Edition-2540-E IS 3025 (Part 18): 1984 RA 2012	1 mg/L to 500 mg/L
		Volatile Solids	APHA 23 rd Edition-2540-E IS 3025 (Part 18): 1984 RA 2012	1 mg/L to 500 mg/L
		Total Dissolved Solids	APHA 23 rd Edition-2540-C IS 3025 (Part 16): 1984 RA 2006	1 mg/L to 2500 mg/L
		Total Suspended Solids	APHA 23 rd Edition-2540-D IS 3025 (Part 17): 1984 RA 2012	1 mg/L to 500 mg/L
		Sulphite SO ₃	APHA 23 rd Edition-4500-SO ₃ B IS 3025 (Part 28):1986 RA 2003	1 mg/L to 1000 mg/L
		Sulphide as S	APHA 23 rd Edition-4500-S IS 3025 (Part 29): 1986 RA 2003	1 mg/L to 10 mg/L
		Phosphate / Ortho	APHA 23 rd Edition-4500-B D IS 3025 (Part 31): 1988 RA 2003	1 mg/L to 10 mg/L
		Percent Sodium	(OEL/SOP/W/24	1 % to 90 %

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Industrial Area Road, Mangalore, Karnataka

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-7847 (in lieu of T-2989, T-3132)

Page 9 of 13

Validity 29.09.2018 to 28.09.2020

Last Amended on --

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			Issue no.01 dated 30.11.2012)	
		Hexavalent Chromium as Cr ⁺⁶	APHA 23 rd Edition 3500-Cr B IS 3025 (Part 52): 2003	1 mg/L to 5 mg/L
		Dissolved Oxygen	APHA 23 rd Edition 5530-B C IS 3025 (Part 38): 1989	1 mg/L to 8 mg/L
		Dissolved Iron as Fe	APHA 23 rd Edition 3500-Fe-B IS 3025 (Part 53): 2003	0.02 mg/L to 5 mg/L
		Oil & Grease (Mineral Oil)	APHA 23 rd Edition-5520-O & G B IS 3025 (Part 39): 1991 RA 2003	1 mg/L to 100 mg/L
		Phenolic Compounds as C ₆ H ₅ OH	APHA 23 rd Edition-5530-C IS 3025 (Part 43): 1992 RA 2003	0.02 mg/L to 5 mg/L
		Chemical oxygen Demand	APHA 23 rd Edition-5220-B IS 3025 (Part 58): 2006	4 mg/L to 1000 mg/L
		Biological oxygen Demand	APHA 23 rd Edition-5210-B IS 3025 (Part 44): 1993 RA 2009	2 mg/L to 500 mg/L
		Temperature °C	APHA 23 rd Edition-2550-B IS 3025 (Part 9): 1984	Ambient to 50 °C
		Ammonical Nitrogen	APHA 23 rd Edition-4500-C IS 3025 (Part 34): 1988	1 mg/L to 50 mg/L
		Colour retention of KMnO ₄	IS 1070 : 1992 (RA 2003)	Test Passed / failed
III.	WASTE WATER			
1.	Sewage water, Effluent water, STP, ETP water	pH	APHA 23 rd Edition 2017-4500-H ⁺ B IS 3025 (Part 11): 1983 (RA 2002)	1 to 14
		Total Hardness	APHA 23 rd Edition -2340-C IS 3025 (Part 21): 2009	1 mg/L to 3000 mg/L
		Calcium as ca	APHA 23 rd Edition-3500-CaB	1 mg/L to 2000 mg/L

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Industrial Area Road, Mangalore, Karnataka

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-7847 (in lieu of T-2989, T-3132)

Page 10 of 13

Validity 29.09.2018 to 28.09.2020

Last Amended on --

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			IS 3025 (Part 40): 1991 (RA 2003)	
		Magnesium as Mg	APHA 23 rd Edition-3500-MgB IS 3025 (Part 46): 1994 (RA 2003)	1 mg/L to 2000 mg/L
		Chloride as Cl	APHA 23 rd Edition-4500-Cl B IS 3025 (Part 36): 1998 (RA 2003)	1 mg/L to 2000 mg/L
		Conductivity	APHA 23 rd Edition-2510-B IS 3025 (Part 14): 2013)	1 µS/cm to 5000 µS/cm
		Silica, Reactive, Colloidal as SiO ₂	APHA 23 rd Edition-4500-C IS 3025 (Part 35):1988 (RA 2003)	0.01 mg/L to 1000 mg/L
		Total Dissolved Solids	APHA 23 rd Edition-2540-C IS 3025 (Part 16): 1984 RA 2006	1 mg/L to 25000 mg/L
		Sulphate as SO ₄	APHA 23 rd Edition-4500-SO ₄ C IS 3025 (Part 24):1986 (RA 1992)	1 mg/L to 1000 mg/L
		Fluoride as F	APHA 23 rd Edition-4500-FD IS 3025 (Part 60): 2015	0.1 mg/L to 20 mg/L
		Nitrate as NO ₃	APHA 23 rd Edition-4500-NO ₃ B IS 3025 (Part 34): 1988	1 mg/L to 200 mg/L
		Nitrite as NO ₂	APHA 23 rd Edition-4500-NO ₂ B IS 3025 (Part 34): 1988	0.1 mg/L to 20 mg/L
		Total Iron as Fe	APHA 23 rd Edition-3500-FeB IS 3025 (Part 53): 2003	0.02 mg/L to 10 mg/L
		Turbidity	APHA 23 rd Edition-2130-B IS 3025 (Part 10): 1984 (RA 2002)	0.05 NTU to 100 NTU
		Colour	APHA 23 rd Edition-2120-B	5 Hazen to 100 Hazen

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Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-7847 (in lieu of T-2989, T-3132)

Page 11 of 13

Validity 29.09.2018 to 28.09.2020

Last Amended on --

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			IS 3025 (Part 4): 1983 (RA 2002)	
		Sodium as Na	APHA 23 rd Edition-3500-NaB IS 3025 (Part 45): 1993 (RA 2003)	0.1 mg/L to 3000 mg/L
		Potassium as K	APHA 23 rd Edition-3500-KB IS 3025 (Part 45): 1993 (RA 2003)	0.1 mg/L to 1000 mg/L
		Boron as B	APHA 23 rd Edition-4500-BB IS 3025 (Part 57): 2005	0.02 mg/L to 10 mg/L
		Chemical Oxygen Demand	APHA 23 rd Edition-5220-B IS 3025 (Part 58): 2006	4 mg/L to 8000 mg/L
		Biological oxygen Demand	APHA 23 rd Edition-5210-B IS 3025 (Part 44): 1993 RA 2009	2 mg/L to 6000 mg/L
		Temperature Deg C	APHA 23 rd Edition-2550-B IS 3025 (Part 9): 1984	Ambient to 50 °C
		Ammoniacal Nitrogen as NH ₃ -N	APHA 23 rd Edition-4500-C IS 3025 (Part 34): 1988	1 mg/L to 1000 mg/L
		Total Kjeldahl Nitrogen	APHA 23 rd Edition-4500-N _{org} A, B IS 3025 (Part 34): 1988	1 mg/L to 1000 mg/L
		Oil & Grease	APHA 23 rd Edition-5520-O & G B IS 3025 (Part 39):1991 RA 2003	1 mg/L to 10000 mg/L
		Organic Nitrogen	APHA 23 rd Edition-4500-N _{org} B IS 3025 (Part 34): 1988	1 mg/L to 1000 mg/L
		Phenolic Compounds as C ₆ H ₅ OH	APHA 23 rd Edition-5530-C IS 3025 (Part 43): 1992 RA 2003	0.1 mg/L to 1000 mg/L
		Dissolved Iron as Fe	APHA 23 rd Edition 5530-C IS 3025 (Part 53): 2003	1 mg/L to 100 mg/L
		Dissolved Oxygen	APHA 23 rd Edition 5530-B C	1 mg/L to 10 mg/L

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Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-7847 (in lieu of T-2989, T-3132)

Page 12 of 13

Validity 29.09.2018 to 28.09.2020

Last Amended on --

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		Total Suspended Solids	IS 3025 (Part 38): 1989 APHA 23 rd Edition - 2540-D IS 3025 (Part 17): 1984 RA 2012	1 mg/L to 20000 mg/L
		Percent Sodium	(OEL/SOP/W/24 Issue no. 01 dated 30.11.2012)	1 % to 90 %
		Phosphate / Ortho	APHA 23 rd Edition-4500-B D IS 3025 (Part 31):1988 RA 2003	1 mg/L to 1000 mg/L
		Total Solids	APHA 23 rd Edition-2540-B IS 3025 (Part 15): 1984 RA 2009	1 mg/L to 15000 mg/L
		Fixed Solids	APHA 23 rd Edition-2540-E IS 3025 (Part 18): 1984 RA 2012	1 mg/L to 25000 mg/L
		Volatile Solids	APHA 23 rd Edition- 2540-E IS 3025 (Part 18): 1984 RA 2012	1 mg/L to 5000 mg/L
IV.	FOOD & AGRICULTURAL PRODUCTS			
1.	Cereal And Cereal Products			
	Atta (Wheat), Semolina (Suji)/Multigrain flour	Moisture	IS 1155:1968 (RA 2010) FSSAI Manual for Cereal and Cereal Product 2016	0.5 % to 20 %
		Total Ash	IS 1155:1968 (RA 2010) FSSAI Manual for Cereal and Cereal Product 2016	0.05 % to 1.0 %
		Acid Insoluble Ash	IS 1155:1968 (RA 2010) FSSAI Manual for Cereal and Cereal Product 2016	0.01 % to 0.1 %
		Gluten	IS 1155:1968 (RA 2010) FSSAI Manual for Cereal and Cereal Product 2016	1.0 % to 25 %
		Alcoholic Acidity	IS 1155:1968 (RA 2010)	0.1 % to 2 %

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Page 13 of 13

Validity 29.09.2018 to 28.09.2020

Last Amended on --

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			FSSAI Manual for Cereal and Cereal Product 2016	
		Crude Fibre	IS 1155:1968 (RA 2010) FSSAI Manual for Cereal and Cereal Product 2016	1.1 % to 10 %
2.	Maida, Fortified Maida, Protein Rich Maida	Protein	IS 7219: 1973 (RA 2005)	1.0 % to 55%
		Moisture	IS 1009:1979 (RA 2010) FSSAI Manual for Cereal and Cereal Product 2016	1.0 % to 20 %
		Total Ash	IS 1009:1979 (RA 2010) FSSAI Manual for Cereal and Cereal Product 2016	0.05 % to 1.0 %
		Alcoholic Acidity	IS 1009:1979 (RA 2010) FSSAI Manual for Cereal and Cereal Product 2016	0.1 % to 2 %
		Protein	IS 7219: 1973 (RA 2005)	1.0 % to 55%
		Acid Insoluble Ash	IS 1009:1979 (RA 2010) FSSAI Manual for Cereal and Cereal Product 2016	0.01 % to 0.1 %
		Gluten	IS 1009:1979 (RA 2010) FSSAI Manual for Cereal and Cereal Product 2016	1.0 % to 25 %
V.	OTHERS			
1.	Ready to Eat Food/ Processed Food Products/ Mixed food Grain Preparation/ Proprietary food/ Raw Food materials	Moisture	IS 12711: 1989 (RA 2010)	1.0 % to 60 %
		Total Ash	IS 12711: 1989 (RA 2010)	1.1 % to 20 %
		Acid insoluble Ash	IS 12711: 1989 (RA 2010)	0.01 % to 5 %
		Fat	IS 12711: 1989 (RA 2010)	0.1 % to 20 %
		Crude Fibre	IS 12711: 1989 (RA 2010)	0.01 % to 10 %
		Alcoholic Acidity	IS 12711: 1989 (RA 2010)	0.1 % to 2.0 %
		Protein	IS 7219 : 1973 (RA 2005)	1.0 % to 10 %