

**Laboratory** Italab (Goa) Pvt. Ltd., Italab House, Victor Hospital Road, Malbhat-Margao, Goa

**Accreditation Standard** ISO/IEC 17025: 2005

**Certificate Number** TC-8070 (in lieu of T-1850 & T-1851)

**Page 1 of 36**

**Validity** 26.11.2018 to 25.11.2020

**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
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### BIOLOGICAL TESTING

<b>I.</b>	<b>WATER</b>			
<b>1.</b>	<b>Domestic and Potable water/Drinking Water (Treated Water)</b>	Standard plate count	IS 1622	≥1 CFU/ml
		Coliform (MPN Technique)	IS 1622	≥ 2 to 542/100ml
		Enumeration of Faecal streptococci (MPN Technique)	IS 1622	≥ 2 to 542/100ml
		Detection of E.coli	IS 15185 IS 1622	Qualitative Present/Absent/100 ml
		Detection of Staphylococcus aureus	IS 5887 (Part 2)	Qualitative Present/Absent/100 ml
<b>2.</b>	<b>Ground and Surface Waters (Raw Water)</b>	Standard plate count	IS 1622	≥1 CFU/ml
		Coliform (MPN Technique)	IS 1622	≥ 2 to 542/100ml
		Enumeration of Faecal streptococci (MPN Technique)	IS 1622	≥ 2 to 542/100ml
		Detection of E.coli	IS 1622	Qualitative Present/Absent/100 ml
		Detection of Staphylococcus aureus	IS 5887 (Part 2)	Qualitative Present/Absent/100 ml
<b>3.</b>	<b>Packaged Natural Mineral Water</b>	Coliform	IS 13428 IS 5401 (Part 1) IS 15185	Qualitative Present/Absent/250ml
		Detection of Salmonella	IS 13428 IS 15187 IS 5887 (Part 3)	Qualitative Present/Absent/250ml
		Detection of Shigella	IS 13428 IS 5887 (Part 7)	Qualitative Present/Absent/250ml

**Laboratory** Italab (Goa) Pvt. Ltd., Italab House, Victor Hospital Road, Malbhat-Margao, Goa

**Accreditation Standard** ISO/IEC 17025: 2005

**Certificate Number** TC-8070 (in lieu of T-1850 & T-1851)

**Page 2 of 36**

**Validity** 26.11.2018 to 25.11.2020

**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
		Detection of Vibrio cholerae	IS 13428 IS 5887 (Part 5)	Qualitative Present/Absent/250ml
		Detection of Vibrio parahaemolyticus	IS 13428 IS 5887 (Part 5)	Qualitative Present/Absent/250ml
		Detection of Yeast and Moulds	IS 13428 IS 5403	Qualitative Present/Absent/250ml
		Detection of E.coli	IS 13428 /IS 15185 IS 5887 (Part 1)	Qualitative Present/Absent/250ml
		Detection of Pseudomonas aeruginosa	IS 13428 Annexure D	Qualitative Present/Absent/250ml
		Detection of Staphylococcus aureus	IS 13428 IS 5887 (Part 2)	Qualitative Present/Absent/250ml
		Detection of Faecal streptococci	IS 13428 IS 5887 (Part 2)	Qualitative Present/Absent/250ml
<b>4.</b>	<b>Packaged Drinking Water</b>	Standard plate count at 37°C, and 20°C to 22°C	IS 14543 / IS 5402	≥1 CFU/ml
		Coliform	IS 14543 IS 5401 (Part 1) IS 15185	Qualitative Present/Absent/250ml
		Detection of Salmonella	IS 14543 IS 15187 IS 5887 (Part 3)	Qualitative Present/Absent/250ml
		Detection of Shigella	IS 14543 IS 5887 (Part 7 )	Qualitative Present/Absent/250ml
		Detection of Vibrio cholerae	IS 14543 IS 5887 (Part 5)	Qualitative Present/Absent/250ml
		Detection of Vibrio parahaemolyticus	IS 14543 IS 5887 (Part 5)	Qualitative Present/Absent/250ml
		Detection of Yeast and Moulds	IS 14543 IS 5403	Qualitative Present/Absent/250ml
		Detection of E.coli	IS 14543 IS 15185 IS 5887 (Part 1)	Qualitative Present/Absent/250ml

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**Accreditation Standard** ISO/IEC 17025: 2005

**Certificate Number** TC-8070 (in lieu of T-1850 & T-1851)

**Page 3 of 36**

**Validity** 26.11.2018 to 25.11.2020

**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
		Detection of Pseudomonas aeruginosa	IS 14543 IS 13428 Annexure D	Qualitative Present/Absent/250ml
		Detection of Staphylococcus aureus	IS 14543 IS 5887 (Part 2)	Qualitative Present/Absent/250ml
		Detection of Faecal streptococci	IS 14543 IS 5887 (Part 2)	Qualitative Present/Absent/250ml
5.	Swimming Pool	Standard plate count	IS 3328 Annexure A	≥1 CFU/ml
		Coliform (MPN Technique)	IS 3328 IS 1622	≥ 2 to 542/100ml
6.	Water for Processed Food Industry	Standard plate count	IS 4251 IS 1622	≥1CFU/ml
		Coliform (MPN Technique)	IS 4251 IS 1622	≥ 2 to 542/100ml
II.	<b>FOOD AND AGRICULTURAL PRODUCTS</b>			
1.	Cooked Food/ Ready to Eat Food	Standard plate count	IS 5402	≥ 10 CFU/g/ml
		Coliforms count	IS 5401 (Part 1)	≥ 10 CFU/g/ml
		Staphylococcus aureus count	IS 5887 (Part 2)	≥ 100 CFU/g/ml ≥ 10 CFU/g/ml
		Detection of Salmonella	IS 5887 (Part 3)	Qualitative Present/Absent/25g/ml
		Detection of Shigella	IS 5887 (Part 7)	Qualitative Present/Absent/g/ml
		Detection of Vibrio cholerae	IS 5887 (Part 5)	Qualitative Present/Absent/g/ml
		Detection of Vibrio parahaemolyticus	IS 5887 (Part 5)	Qualitative Present/Absent/g/ml
		Yeast and Moulds count	IS 5403	≥ 10 CFU/g/ml
		E. coli count	IS 5887 (Part 1)	≥ 100 CFU/g/ml ≥ 10 CFU/g/ml

**Laboratory** Italab (Goa) Pvt. Ltd., Italab House, Victor Hospital Road, Malbhat-Margao, Goa

**Accreditation Standard** ISO/IEC 17025: 2005

**Certificate Number** TC-8070 (in lieu of T-1850 & T-1851)

**Page 4 of 36**

**Validity** 26.11.2018 to 25.11.2020

**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
2.	<b>Meat and Meat Products</b>	Standard plate count	IS 5402	≥ 10 CFU/g/ml
		Coliforms count	IS 5401 (Part 1)	≥ 10 CFU/g/ml
		Staphylococcus aureus count	IS 5887 (Part 2)	≥ 100 CFU/g/ml ≥ 10 CFU/g/ml
		Detection of Salmonella	IS 5887 (Part 3)	Qualitative Present/Absent/25g/ml
		Detection of Shigella	IS 5887 (Part 7)	Qualitative Present/Absent/g/ml
		Detection of Vibrio cholerae	IS 5887 (Part 5)	Qualitative Present/Absent/g/ml
		Detection of Vibrio parahaemolyticus	IS 5887 (Part 5)	Qualitative Present/Absent/g/ml
3.	<b>Fish and Seafoods</b>	Yeast and Moulds count	IS 5403	≥ 10 CFU/g/ml
		Standard plate count	IS 5402	≥ 10 CFU/g/ml
		Coliforms count	IS 5401 (Part 1)	≥ 10 CFU/g/ml
		Staphylococcus aureus count	IS 5887 (Part 2)	≥ 100 CFU/g/ml ≥ 10 CFU/g/ml
		Detection of Salmonella	IS 5887 (Part 3)	Qualitative Present/Absent/25g/ml
		Detection of Shigella	IS 5887 (Part 7)	Qualitative Present/Absent/g/ml
		Detection of Vibrio cholerae	IS 5887 (Part 5)	Qualitative Present/Absent/g/ml
4.	<b>Milk &amp; Dairy Products</b>	Detection of Vibrio parahaemolyticus	IS 5887 (Part 5)	Qualitative Present/Absent/g/ml
		Yeast and Moulds count	IS 5403	≥ 10 CFU/g/ml
		E. coli count	IS 5887 (Part 1)	≥ 100 CFU/g/ml ≥ 10 CFU/g/ml
		Standard Plate Count	IS 1479 (Part 3) IS 5402	≥ 10 CFU/g/≥1 CFU/ml
		Coliforms count	IS 1479 (Part 3) IS 5401(Part1)	≥ 10 CFU/g/≥1 CFU/ml

Laboratory **Italab (Goa) Pvt. Ltd., Italab House, Victor Hospital Road, Malbhat-Margao, Goa**

Accreditation Standard **ISO/IEC 17025: 2005**

Certificate Number **TC-8070** *(in lieu of T-1850 & T-1851)*

Page 5 of 36

Validity **26.11.2018 to 25.11.2020**

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
		Staphylococcus aureus count	IS 1479 (Part 3) IS 5887 (Part 2)	≥ 100 CFU/g/≥ 10 CFU/g/ml
		Detection of Salmonella	IS 5887 (Part 3)	Qualitative Present/Absent/25g/ml
		E. coli count	IS 5887 (Part 1)	≥ 100 CFU/g/≥ 10 CFU/g/ml
		Listeria monocytogenes	IS 14988 (Part 1)	Qualitative Present/Absent/g/ml
5.	<b>Coffee &amp; Cocoa products</b>	Staphylococcus aureus	IS 5887 (Part 2)	Qualitative Present/Absent/g/ml
		Detection of Salmonella	IS 5887 (Part 3)	Qualitative Present/Absent/25g/ml
		E. coli	IS 5887 (Part 1)	Qualitative Present/Absent/g/ml
		Yeast and Moulds count	IS 5403	≥ 10 CFU/g/ml
III.	<b>COSMETICS AND ESSENTIAL OILS</b>			
1.	<b>Cosmetics-Skin Creams</b>	Total Viable count (Total Aerobic Microbial count)	USP 41 (chapter 61) IS 14648	≥10 CFU/g/ml
		Total Fungal count (Total Combined Yeast and Mould count )	IS 14648	≥10 CFU/g/ml
		Enterobacterial count	IS 14648	≥10 CFU/g/ml
		Staphylococuss aureus	IS 14648	Qualitative Present/Absent/g/ml
		Pseudomonas aeruginosa	IS 14648	Qualitative Present/Absent/g/ml
2.	<b>Dohs &amp; related items (Playdoh/Creadoh/ Vanilla Essence/White Oil)</b>	Total Viable count (Total Aerobic Microbial count)	USP 41 (Chapter 61) IS 14648	≥10 CFU/g/ml
		Total Fungal count (Total Combined Yeast and Mould count )	USP 41 (Chapter 61) IS 14648	≥10 CFU/g/ml

**Laboratory** Italab (Goa) Pvt. Ltd., Italab House, Victor Hospital Road, Malbhat-Margao, Goa

**Accreditation Standard** ISO/IEC 17025: 2005

**Certificate Number** TC-8070 (in lieu of T-1850 & T-1851)

**Page 6 of 36**

**Validity** 26.11.2018 to 25.11.2020

**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
		Enterobacterial count	USP 41 (Chapter 62) IS 14648	≥10 CFU/g/ml
		Staphylococcus aureus	USP 41 (Chapter 62) IS 14648	Qualitative Present/Absent/g/ml
		Pseudomonas aeruginosa	USP 41 (Chapter 62) IS 14648	Qualitative Present/Absent/g/ml
<b>IV.</b>	<b>ENVIRONMENT AND POLLUTION</b>			
<b>1.</b>	<b>Bioburden estimation of classified and non-classified area (Swabs)</b>	Plate Count	ITG/SOP/MIC/31 Issue no. 03 Issue date 20.09.2016/ ISO 18593 (E)	≥ 10 CFU/square centimeter ≥10 cfu/Swab
		Coliforms count	ITG/SOP/MIC/31 Issue no. 03 Issue date 20.09.2016/ ISO 18593 (E)	≥ 10 CFU/square centimeter ≥10 cfu/Swab
<b>V.</b>	<b>ANIMAL FOOD &amp; FEED</b>			
<b>1.</b>	<b>Pet foods</b>	Coliforms count	IS 7874 (Part 3)	≥ 10 CFU/g/ml
		Detection of Salmonella	IS 5887 (Part 3)	Qualitative Present/Absent/25g/ml

**Laboratory** Italab (Goa) Pvt. Ltd., Italab House, Victor Hospital Road, Malbhat-Margao, Goa

**Accreditation Standard** ISO/IEC 17025: 2005

**Certificate Number** TC-8070 (in lieu of T-1850 & T-1851)

**Page 7 of 36**

**Validity** 26.11.2018 to 25.11.2020

**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
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#### CHEMICAL TESTING

I.	<b>ATMOSPHERIC POLLUTION</b>			
1.	<b>Ambient Air Quality/Work Environment Monitoring</b>	Sulphur Dioxide	IS 5182 (Part 2)	4 µg/m <sup>3</sup> to 1050 µg/m <sup>3</sup>
		Respirable Particulate Matter/PM 10	IS 5182 (Part 23)	5 µg/m <sup>3</sup> to 1000 µg/m <sup>3</sup>
		Nitrogen Oxides	IS 5182 (Part 6)	6 µg/m <sup>3</sup> to 750 µg/m <sup>3</sup>
		Ammonia	LAB SOP No.:ITG/SOP/AA/005, Issue No.:01, dt. 06 Feb 2014,	0.5µg/m <sup>3</sup> to 2500 µg/m <sup>3</sup>
		Lead as Pb	IS 5182 (Part 22)	0.01 µg/m <sup>3</sup> to 10 µg/m <sup>3</sup>
		Ozone	LAB SOP No.:ITG/SOP/AA/008, Issue No.:01, dt. 05 April 2018, IS 5182 (Part 9): 1974	0.05 µg/m <sup>3</sup> to 500 µg/m <sup>3</sup>
		PM 2.5	LAB SOP No.:ITG/SOP/AA/007, Issue No.:01, dt. 05 April 2018, (USEPA-40 CFR part 50 Appendix L)	1 µg/m <sup>3</sup> to 200 µg/m <sup>3</sup>
2.	<b>Noise Level Monitoring</b>	Noise Level (Equivalent Sound Level Leq)	IS 9989	35 dB(A) to 130 dB (A)
3.	<b>Meteorological Monitoring</b>	Ambient Temperature	LAB SOP No.:ITG/SOP/AA/010	(-) 10 degrees to (+) 60 degrees Celsius

Laboratory Italab (Goa) Pvt. Ltd., Italab House, Victor Hospital Road, Malbhat-Margao, Goa

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-8070 (in lieu of T-1850 & T-1851)

Page 8 of 36

Validity 26.11.2018 to 25.11.2020

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
		Wind Direction	Issue No.:01, dt. 09 April 2010,	Upto 359 degrees
		Wind Speed		Upto 65 m/sec.
		Relative Humidity		Upto 99.9 %
		Rainfall		
4.	Stack/ Stationary Source	Particulate matter	IS 11255 (Part 1)	2mg/m <sup>3</sup> to 1000 mg/m <sup>3</sup>
		Sulphur dioxide	IS 11255 (Part 2)	5 mg/m <sup>3</sup> to 2000 mg/nm <sup>3</sup>
		Velocity	IS 11255 (Part 3)	1 m/sec to 60m/sec
		Temperature	IS 11255 (Part 3)	10 to 500°C
		Moisture	IS 11255 (Part 3)	1 % to 20 %
		Ammonia	IS 11255 (Part 6)	10 mg/m <sup>3</sup> to 100 mg/m <sup>3</sup>
		Nitrogen Oxides	IS 11255 (Part 7)	10 mg/m <sup>3</sup> to 13000 mg/m <sup>3</sup>
II.	<b>BUILDING MATERIALS</b>			
1.	<b>Cement (Hydraulic/ Ordinary Portland cement) OPC/PPC/PSC</b>	Loss on Ignition	IS 4032	0.1% to 20.0%
		SiO <sub>2</sub>	IS 4032	1.0 % to 40.0%
		Al <sub>2</sub> O <sub>3</sub>	IS 4032	1.0% to 20.0%
		Fe <sub>2</sub> O <sub>3</sub>	IS 4032	0.5% to 10.0%
		CaO	IS 4032	40% to 70.0%
		MgO	IS 4032	0.25% to 10.0%
		SO <sub>3</sub>	IS 4032	0.2% to 15.0%
		Insoluble Residue	IS 4032	0.10% to 25.0%
2.	<b>Hydrated Lime</b>	Available lime as CaO	IS 1514	20.0 % to 70.0%
		Calcium Hydroxide as Ca (OH) <sub>2</sub> By calculation as CaO basis	IS 1514	30.0% to 100%
III.	<b>FERTILIZERS</b>			



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**Accreditation Standard** ISO/IEC 17025: 2005

**Certificate Number** TC-8070 *(in lieu of T-1850 & T-1851)*

**Page 9 of 36**

**Validity** 26.11.2018 to 25.11.2020

**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
1.	<b>Fertilizers Manure/ Compost</b>	Nitrogen	IS 6092 (Part 2)	0.05 % to 60%
		Phosphorous	IS 6092 (Part 3)	0.03% to 50.0%
		Potassium	The Fertilizer Control Order, Schedule IV, (Part D)	0.04% to 20.0%
		pH	The Fertilizer Control Order schedule IV, (Part D)	2 to 12
		Moisture	The Fertilizer Control Order, schedule IV, (Part D)	1% to 75%
<b>IV.</b>	<b>FOOD &amp; AGRICULTURAL PRODUCTS</b>			
1.	<b>Milk (Liquid)</b>	pH	IS 1479 (Part 2)	1 to 14
		Fat	IS 1479 (Part 2)	0.5% to 8 %
		Total Solids	IS 1479 (Part-2)	0.5% to 50 %
		Cane Sugar	Manual of methods of analysis of Foods (as per FSSAI)	Qualitative Present/Absent
		Starch	Manual of methods of analysis of Foods (as per FSSAI)	Qualitative Present/Absent
		Cellulose	Manual of methods of analysis of Foods (as per FSSAI)	Qualitative Present/Absent
		Urea	Manual of methods of analysis of Foods (as per FSSAI)	Qualitative Present/Absent
		Sodium Chloride	Manual of methods of analysis of Foods (as per FSSAI)	Qualitative Present/Absent
		Nitrates	Manual of methods of analysis of Foods (as per FSSAI)	Qualitative Present/Absent

**Laboratory** Italab (Goa) Pvt. Ltd., Italab House, Victor Hospital Road, Malbhat-Margao, Goa

**Accreditation Standard** ISO/IEC 17025: 2005

**Certificate Number** TC-8070 (in lieu of T-1850 & T-1851)

**Page 10 of 36**

**Validity** 26.11.2018 to 25.11.2020

**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
		Neutralisers	Manual of methods of analysis of Foods (as per FSSAI)	Qualitative Present/Absent
		Formalin	Manual of methods of analysis of Foods (as per FSSAI)	Qualitative Present/Absent
		Hydrogen Peroxide	Manual of methods of analysis of Foods (as per FSSAI)	Qualitative Present/Absent
		Boric acid	Manual of methods of analysis of Foods (as per FSSAI)	Qualitative Present/Absent
		Solids Not Fat (SNF)	Lab SOP No. ITG/SOP/CHM/MILK/04 Issue No. 01, Dated 06/06/2018, Calculation Method	0.1 % to 20.0 %
		Crude Protein	IS 1479 (Part 2)	0.01 % to 10.0 %
		Carbohydrate	Lab SOP No. ITG/SOP/CHM/MILK/07 Issue No. 01, Dated 06/06/2018, Calculation Method	1 g to 10 g/100 ml
		Energy	Lab SOP No. ITG/SOP/CHM/MILK/08 Issue No. 01, Dated 06/06/2018, Calculation Method	50 g to 500 kcal/100ml
		Ash	IS 1479 (Part 2)	0.05% to 2.0 %
2.	Milk & Milk Products	Titration Acidity as Lactic acid	IS 1162	0.1 g to 5 g/100 g
		Total Ash on dry basis	IS 1162	0.05 g to 5 g/100 g

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**Accreditation Standard** ISO/IEC 17025: 2005

**Certificate Number** TC-8070 (in lieu of T-1850 & T-1851)

**Page 11 of 36**

**Validity** 26.11.2018 to 25.11.2020

**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
		Protein	Lab SOP No. ITG/SOP/CHM/MP/05 Issue No. 01, Dated 18/06/2018	0.5 to 10 g/100g
		Carbohydrate	Manual of methods of analysis of Foods (as per FSSAI)	40 to 85 g/100g
		Energy	Lab SOP No. ITG/SOP/CHM/MP/07 Issue No. 01, Dated 18/06/2018	100 to 500 kcal/100g
		Moisture	Manual of methods of analysis of Foods (as per FSSAI)	1% to 5 %
		Fat	Manual of methods of analysis of Foods (as per FSSAI)	1 to 40 %
3.	<b>Alcoholic Drinks &amp; Beverages (Alcoholic/Non Alcoholic) (Whisky, Gin, Vodka &amp; Rum Analysis)</b>	Methanol	IS 3752	(1.0% to 100 g)/100l
		Ethyl Alcohol	IS 3752	1.0% to 99.0%
		Total Ash	IS 3752	0.0001% to 20.0%
		Residue on Evaporation	IS 3752	0.001% to 80.0%
		Total Acidity (As Tartaric Acid)	IS 3752	(2.0 g to 1500 g)/100l
		Copper as Cu	IS 3752	0.3mg/kg to 30 mg/kg
		Volatile acidity (As Acetic Acid)	IS 3752	(1.00 g to 700g)/100 l
		Esters (As Ethyl Acetate)	IS 3752	(4 g to 500g)/100 l
		Aldehyde (As Acetaldehyde)	IS 3752	(0.5 g to 60g)/100 l
		Fixed Acidity	IS 3752	(2.00 to 500g)/100 l
4.		Unsaponifiable matter	IS 548 (Part 1)	0.05 % to 10 %

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**Accreditation Standard** ISO/IEC 17025: 2005

**Certificate Number** TC-8070 (in lieu of T-1850 & T-1851)

**Page 12 of 36**

**Validity** 26.11.2018 to 25.11.2020

**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
	<b>Edible Oils &amp; Fats (Fats/Oils&amp; Fat emulsion/Milk Fat/Table Butter/ Margarin)</b>	Salt	IS 12451	0.05 % to 10 %
		Moisture	IS 548 (Part 1)	0.01% to 40 %
		Acid value	IS 548 (Part 1)	0.2 to 30
		Argemone oil	Manual of methods of analysis of Foods (as per FSSAI)	Qualitative
		Free Fatty Acid	IS 548 (Part 1)	0.2% to 30 %
		Refractive Index	Manual of methods of analysis of Foods (as per FSSAI)	1.3330 to 1.48
		Saponification value	Manual of methods of analysis of Foods (as per FSSAI)	2.5 to 450
		Iodine Value	Manual of methods of analysis of Foods (as per FSSAI)	0.02 to 200
<b>5. A.</b>	<b>Coffee and Cocoa Products (Cocoa Powder)</b>	Moisture	IS 1164	Upto 20 %
		Cocoa Butter	IS 1164	0.5 to 50 %
		Total Ash	IS 1164	0.05 to 20 %
		Acid Insoluble Ash	IS 1164	0.05 to 5 %
		Alkalinity of Total Ash	IS 1164	0.05 to 20 %
		Crude Fibre	IS 1164	0.1 to 20 %
		Protein	Lab SOP No. ITG/SOP/CHM/COP/07 Issue No. 01, Dated 11/06/2018	0.1 to 40 %
		Fat	IS 1164	0.5 to 50 %
		Carbohydrate	Lab SOP No. ITG/SOP/CHM/COP/08 Issue No. 01, Dated 11/06/2018, Calculation Method	0.5 to 80 %

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**Accreditation Standard** ISO/IEC 17025: 2005

**Certificate Number** TC-8070 *(in lieu of T-1850 & T-1851)*

**Page 13 of 36**

**Validity** 26.11.2018 to 25.11.2020

**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
		Energy	Lab SOP No. ITG/SOP/CHM/COP/09 Issue No. 01, Dated 11/06/2018, Calculation Method	100 to 600 kcal/100g
<b>B.</b>	<b>Cocoa Butter</b>	Refractive Index	IS 1263	1.4 to 1.5
		Free fatty acid	IS 1263	0.5% to 5 %
		Saponification Value	IS 1263	150 to 250
		Iodine Value	IS 1263	20 to 50
		Unsaponifiable Matter	IS 1263	0.1 to 5 %
		Protein	Lab SOP No. ITG/SOP/CHM/COB/06 Issue No. 01, Dated 02/07/2018	
		Fat	Lab SOP No. ITG/SOP/CHM/COB/09 Issue No. 01, Dated 02/07/2018 Calculation Method	50% to 100 %
		Carbohydrate	Lab SOP No. ITG/SOP/CHM/COB/10 Issue No. 01, Dated 02/07/2018 Calculation Method	
		Energy	Lab SOP No. ITG/SOP/CHM/COB/11 Issue No. 01, Dated 02/07/2018, Calculation Method	600 to 950 kcal/100g
<b>6.</b>	<b>Herbs, spices &amp; Condiments</b>	Moisture	Lab SOP No. ITG/SOP/CHM/SPI/01 Issue No. 01, Dated 09/07/2018	0.5 % to 30 %
		Total Ash on Dry basis	IS 1797	0.1 % to 10 %

**Laboratory** Italab (Goa) Pvt. Ltd., Italab House, Victor Hospital Road, Malbhat-Margao, Goa

**Accreditation Standard** ISO/IEC 17025: 2005

**Certificate Number** TC-8070 (in lieu of T-1850 & T-1851)

**Page 14 of 36**

**Validity** 26.11.2018 to 25.11.2020

**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
		Ash Insoluble in dil HCl on dry basis	IS 1797	0.1 % to 5 %
		Water Insoluble	IS 1797	0.01 % to 2 %
7.	Tea	Moisture	IS 13853	0.1 % to 20 %
		Total Ash	IS 13854	0.1 to 30 g/100 g
		Ash Insoluble in dil HCl on dry basis	IS 13857	0.01 to 5 g/100 g
		Water Extract	IS 13862	0.5 to 5 g/100 g
		Alkalinity of water soluble ash expressed as KOH	IS 13856	0.05 to 5 g/100 g
8.	Vegetable & Vegetable Products	TSS	Manual of methods of analysis of Food (as per FSSAI)	5% to 50 %
		Acidity as Citric acid	IS 2860	0.1% to 5 %
9.	Sugar & Sugar Products	Moisture	IS 15279	0.01% to 5 %
		Sucrose	IS 15279	10% to 100 %
10.	Meat & Meat Products	Total Volatile base (Nitrogen)	Manual of methods of analysis of Food (as per FSSAI)	0.1% to 250 %
		Total Fat	Manual of methods of analysis of Food (as per FSSAI)	0.03% to 60 %
		Carbohydrate	Lab SOP No. ITG/SOP/CHM/MEAT/05 Issue No. 01, Dated 25/05/2018 Calculation Method	1 g/100g to 20 g/100g
		Energy	Lab SOP No. ITG/SOP/CHM/MEAT/06 Issue No. 01, Dated 25/05/2018, Calculation Method	50 to 500 kcal/100g
		Protein	Manual of methods of	1 to 40 g/100g

Laboratory                      Italab (Goa) Pvt. Ltd., Italab House, Victor Hospital Road, Malbhat-Margao, Goa

Accreditation Standard    ISO/IEC 17025: 2005

Certificate Number        TC-8070 *(in lieu of T-1850 & T-1851)*

Page 15 of 36

Validity                        26.11.2018 to 25.11.2020

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
			analysis of Food (as per FSSAI)	
11.	Cereals, Pulses & Cereals Products	Moisture	IS 1155	0.5 % to 15 %
		Total ash	IS 1155	0.05 % to 15 %
		Acid Insoluble Ash	IS 1155	0.01 % to 20 %
		Alcoholic acidity	Manual of methods of analysis of Food (as per FSSAI)	0.01 % to 20 %
		Protein	Manual of methods of analysis of Food (as per FSSAI)	0.1 % to 40 %
12.	Fruit & Fruit Products	Total soluble solids	Manual of methods of analysis of Food (as per FSSAI)	1% to 50 %
		Acidity	Manual of methods of analysis of Food (as per FSSAI)	0.1% to 20 %
13.	Bakery & Confectioneries	Ash Insoluble in dil HCl	IS 12711	0.01% to 5.0 %
		Acidity	IS 12711	0.1% to 10 %
		Alcoholic acidity	IS 12711	0.1% to 20 %
		Proteins	Lab SOP No. ITG/SOP/CHM/BAK/07 Issue No. 01, Dated 21/06/2018	1% to 20 %
		Fat	Lab SOP No. ITG/SOP/CHM/BAK/05 Issue No. 01, Dated 21/06/2018	0.1% to 10 %
		Carbohydrate	Lab SOP No. ITG/SOP/CHM/BAK/08 Issue No. 01, Dated 21/06/2018, Calculation Method	20 %to 80 %
		Energy	Lab SOP No.	50 to 500 Kcal/100g

**Laboratory** Italab (Goa) Pvt. Ltd., Italab House, Victor Hospital Road, Malbhat-Margao, Goa

**Accreditation Standard** ISO/IEC 17025: 2005

**Certificate Number** TC-8070 (in lieu of T-1850 & T-1851)

**Page 16 of 36**

**Validity** 26.11.2018 to 25.11.2020

**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
			ITG/SOP/CHM/BAK/09 Issue No. 01, Dated 21/06/2018, Calculation Method	
14.	Jams, Juices, Sauces & Concentrates	Total soluble solids (salt free basis)	Manual of methods of analysis of Food (as per FSSAI)	10 %to 50 %
		Acidity as acetic acid	Manual of methods of analysis of Food (as per FSSAI)	0.1% to 5%
<b>V.</b>	<b>POLLUTION &amp; ENVIRONMENT</b>			
1.	Effluents/Sewage /Waste water	Biochemical Oxygen Demand (BOD)	IS 3025 (Part 44)	4.0 mg/L to 10mg/L 10mg/L to 50 mg/L 50 mg/L to 100mg/L 100 mg/L to 2000mg/L
		Chemical Oxygen Demand (COD)	APHA 5220 B	4.0 mg/L to 10mg/L 10mg/L to 50 mg/L 50 mg/L to 100mg/L 100mg/L to 5000mg/L
		pH value	IS 3025 (Part 11)	1 to 14
		Total residue (total solids-dissolved and suspended)	IS 3025 (Part 15)	10 mg/L to 100mg/L 100mg/L to 500mg/L 500mg/L to 1000mg/L
		Filterable residue (total dissolved solids)	IS 3025 (Part 16)	10 mg/L to 100mg/l 100mg/L to 500mg/l 500mg/L to 1000mg/l
		Non-filterable residue (total suspended solids)	IS 3025 (Part 17)	10 mg/L to 100 mg/L 100mg/L to 500mg/L 500mg/L to 1000mg/L
		Oil and grease	APHA 5520 O & GB	1 mg/L to 10 mg/L



**Laboratory** Italab (Goa) Pvt. Ltd., Italab House, Victor Hospital Road, Malbhat-Margao, Goa

**Accreditation Standard** ISO/IEC 17025: 2005

**Certificate Number** TC-8070 (in lieu of T-1850 & T-1851)

**Page 17 of 36**

**Validity** 26.11.2018 to 25.11.2020

**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
				10 mg/L to 100mg/L
		Nitrogen (Total Kjeldhal Nitrogen)	IS 3025 (Part 34)	0.1 mg/L to 10mg/L 10mg/L to 50 mg/L 50 mg/L to 100mg/L
		Conductivity	IS 3025 (Part 14)	0.1 to 200 µS/cm
		Sulphate	IS 3025 (Part 24)	0.1 mg/L to 500mg/L
		Chloride	IS 3025 (Part 32)	3 mg/L to 2500mg/L
		Ammonical Nitrogen	IS 3025 (Part 34)	0.01mg/L to 100mg/L
		Chromium	IS 3025 (Part 52)	0.01mg/L to 20mg/L
		Phenols	IS 3025 (Part 43)	0.001mg/L to 10mg/L
		Oxygen Consumed in 4 Hrs.	IS 3025 (Part 63)	0.03 mg/L to 50mg/L
		Sodium	IS 3025 (Part 45)	1 mg/L to 100 mg/L
		Potassium	IS 3025 (Part 45)	1 mg/L to 100 mg/L
2.	Waste-Liquid/ Slurry/ Sludge/ Solid/Semi Solid	pH	IS 10158	2 to 12
		Volatile Matter	IS 10158	0.12 % to 50 %
		Non Volatile Matter	IS 10158	0.5 % to 99.9 %
		Kjeldahl Nitrogen	IS 10158	0.15 % to 10 %
		Total Organic Carbon/Matter	LAB SOP No. ITG/SOP/SW/04 issue no. 01, dt. 03 May 2018 . The Fertilizer Control Order,1985 schedule IV, (Part D)	0.15 % to 50.00 %
		Calorific Value	IS 1350 (Part 2)	0.1 kcal/kg to 9000 kcal/kg
		Potassium	IS 10158:1982 (RA 2014)	0.05 % to 10 %
		Phosphorus	IS 10158:1982 (RA 2014)	0.05 % to 10 %
		Heavy Metals		
		Zinc	LAB SOP No. ITG/SOP/SW/08	1 mg/kg to 500mg/kg
		Copper		
		Manganese		

**Laboratory** Italab (Goa) Pvt. Ltd., Italab House, Victor Hospital Road, Malbhat-Margao, Goa

**Accreditation Standard** ISO/IEC 17025: 2005

**Certificate Number** TC-8070 (in lieu of T-1850 & T-1851)

**Page 18 of 36**

**Validity** 26.11.2018 to 25.11.2020

**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
		Nickel	issue no. 01, dt. 03 May 2018. Indian Bureau of Mines method (Rev. Edit <sup>n</sup> -Feb 2012) Pg No. 283	
		Lead	LAB SOP No. ITG/SOP/SW/09 issue no. 01, dt. 03 May 2018. Indian Bureau of Mines method (Rev. Edit <sup>n</sup> -Feb 2012) Pg No. 283	1 mg/kg to 500 mg/kg
3.	Soil/Sediments	pH	IS 2720 (Part 26)	2 to 12
		Total Soluble Solids	IS 2720 (Part 21)	0.05% to 20 %
		Total Soluble Sulphates	IS 2720 (Part 27)	0.004% to 20 %
		Chlorides as Cl	LAB SOP No. ITG/SOP/SOIL/004 issue No. 02, dt. 12 June 2018. Indian Bureau of Mines Method (Argentometric Method) 2012	0.001% to 5%
		Total Nitrogen	IS 14684	0.025 % to 10%
		Potassium	LAB SOP No. ITG/SOP/SOIL/008 issue No. 02, dt. 12 June 2018. Indian Bureau of Mines Method 2012	0.001% to 20%
		Available Boron	LAB SOP No. ITG/SOP/SOIL/009 issue No. 02, dt. 13 June 2018 Soil testing manual, Ministry of Agriculture, Govt. of India, Jan 11	0.5 mg/kg to 100 mg/kg
		Electrical Conductivity	IS 14767	1µmhos/cm to

**Laboratory** Italab (Goa) Pvt. Ltd., Italab House, Victor Hospital Road, Malbhat-Margao, Goa

**Accreditation Standard** ISO/IEC 17025: 2005

**Certificate Number** TC-8070 *(in lieu of T-1850 & T-1851)*

**Page 19 of 36**

**Validity** 26.11.2018 to 25.11.2020

**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
		(EC)		10000µmhos/m
		Nitrogen Available	LAB SOP No. ITG/SOP/SOIL/010 issue No. 02, dt. 13 June 2018 Soil testing manual, Ministry of Agriculture, Govt. of India, Jan 11 (Pg 90)	0.5 % to 40%
		Organic Carbon/Matter	LAB SOP No. ITG/SOP/SOIL/01 issue No. 02, dt. 13 June 2018. Indian Bureau of Mines method (Rev. Edit <sup>n</sup> -Feb 2012) Pg No. 265	0.06 % to 6.00 %
		Phosphorus (available)	LAB SOP No. ITG/SOP/SOIL/014 issue No. 02 dt. 13 June 2018. Indian Bureau of Mines method (Rev. Edit <sup>n</sup> -Feb 2012) Pg No. 275	1 mg/kg to 10000 mg/kg
		Phosphorus (Total)	IS 10158	1 mg/kg to 10000 mg/kg
		Sodium	IS 9497	0.001% to 20%
		Soil Moisture	IS 2720 (Part 2)	0.001 % to 90 %
		Calcium	LAB SOP No. ITG/SOP/SOIL/022 issue No. 02 dt. 13 June 2018 Soil testing manual, Ministry of Agriculture, Govt of India, Jan 11 (Pg 103)	0.1 me/100g to 50 me/100 g

**Laboratory** Italab (Goa) Pvt. Ltd., Italab House, Victor Hospital Road, Malbhat-Margao, Goa

**Accreditation Standard** ISO/IEC 17025: 2005

**Certificate Number** TC-8070 (in lieu of T-1850 & T-1851)

**Page 20 of 36**

**Validity** 26.11.2018 to 25.11.2020

**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
		Calcium Carbonate	LAB SOP No. ITG/SOP/SOIL/012 issue No. 02 dt. 13 June 2018. Indian Bureau of Mines method (Rev. Edit <sup>n</sup> -Feb 2012) Pg No. 270	0.22% to 25%
		Calcium Bicarbonate	LAB SOP No. ITG/SOP/SOIL/013 issue No. 02 dt. 13 June 2018. Indian Bureau of Mines method (Rev. Edit <sup>n</sup> -Feb 2012) Pg No. 270	0.1 me/100g to 50 me/100 g
		Potash (available)	LAB SOP No. ITG/SOP/SOIL/017 issue No. 02, dt. 12 June 2018 Soil testing manual, Ministry of Agriculture, Govt. of India, Jan 11 (Pg 99)	5 kg/ha to 2500 kg/ha
		Water Holding Capacity	LAB SOP No. ITG/SOP/SOIL/006 issue No. 02, dt. 12 June 2018. Indian Bureau of Mines method (Rev. Edit <sup>n</sup> -Feb 2012) Pg No. 264	10 % to 50 %
		Lead	LAB SOP No. ITG/SOP/SOIL/015 issue No. 02, dt. 12 June 2018. Indian Bureau of Mines method (Rev. Edit <sup>n</sup> -Feb 2012) Pg No. 283	1 mg/kg to 500 mg/kg
		Zinc		
		Copper		
		Manganese		
		Nickel		
4.	Effluent/Sewage/Waste Water	Phenols	IS 3025 (Part 43):1992 (RA 2009)	0.1mg/L to 10mg/L

Laboratory Italab (Goa) Pvt. Ltd., Italab House, Victor Hospital Road, Malbhat-Margao, Goa

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-8070 (in lieu of T-1850 & T-1851)

Page 21 of 36

Validity 26.11.2018 to 25.11.2020

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
5.	Pesticides Effluent/Waste Water	Organochlorine Pesticides	(SOP/NMN/WAT/062) Issue 01 Rev 00 Issue date 31.10.2016 USEPA 508/ APHA	
		Alpha BHC		0.025 µg/L to 10 µg/L
		Beta BHC		0.025 µg/L to 10 µg/L
		Gamma BHC		0.025 µg/L to 10 µg/L
		Delta BHC		0.025 µg/L to 10 µg/L
		Aldrin		0.025 µg/L to 10 µg/L
		Dieldrin		0.025 µg/L to 10 µg/L
		Alpha endosulphan		0.025 µg/L to 10 µg/L
		Beta endosulphan		0.025 µg/L to 10 µg/L
		Endosulphan sulphate		0.025 µg/L to 10 µg/L
		44 DDE		0.025 µg/L to 10 µg/L
		44 DDD		0.025 µg/L to 10 µg/L
		44 DDT		0.025 µg/L to 10 µg/L
VI.	WATER			
1.	Potable & Domestic Water/Surface water/ Demineralised water/Reagent grade water/Distilled water/Purified water/Ground Waters/Packaged Drinking Water	Sulphates	IS 3025 (Part 24)	0.1 mg/L to 10 mg/L 10 mg/L to 100 mg/L 100 mg/L to 500 mg/L
		Chlorine, residual	IS 3025 (Part 26)	1 mg/L to 10 mg/L 10 mg/L to 50 mg/L 50 mg/L to 100 mg/L
		Total & Dissolved phosphorus	IS 3025 (Part 31)	0.05 mg/L to 5 mg/L 5 mg/L to 10 mg/L 10 mg/L to 50 mg/L
		Chloride	IS 3025 (Part 32)	3 mg/L to 250mg/L 250 mg/L to 2500mg/L 2500 mg/L to >25000mg/L
		Nitrate	APHA 4500-NO <sub>3</sub> -B	0.05mg/L to 10mg/L 10mg/L to 50mg/L
		Nitrite Nitrogen	IS 3025 (Part 34)	0.005mg/L to 0.5mg/L 0. 5mg/L to 10mg/L 10mg/L to 50mg/L

**Laboratory** Italab (Goa) Pvt. Ltd., Italab House, Victor Hospital Road, Malbhat-Margao, Goa

**Accreditation Standard** ISO/IEC 17025: 2005

**Certificate Number** TC-8070 (in lieu of T-1850 & T-1851)

**Page 22 of 36**

**Validity** 26.11.2018 to 25.11.2020

**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
		Ammoniacal Nitrogen,	IS 3025 (Part 34)	0.1mg/L to 10mg/L 10mg/L to 100mg/L
		Total Kjeldhal Nitrogen	ITG/SOP/HIS/001 Dated. 18.09.2016	0.1mg/L to 10mg/L 10mg/L to 100mg/L
		Total & Reactive Silica	IS 3025 (Part 35)	0.1 mg/L to 10 mg/L 10 mg/L to 100 mg/L
		Dissolved oxygen	IS 3025 (Part 38)	0.2 mg/L to 10 mg/L
		Oil and grease	APHA 5520 O & GB	1.0 mg/L to 10mg/L 10 mg/L to 100 mg/L
		Calcium	IS 3025 (Part 40)	0.5 mg/L to 10mg/L 10 mg/L to 100 mg/L 100 mg/L to 1000 mg/L
		Biochemical Oxygen Demand (BOD)	IS 3025 (Part 44)	4mg/L to 200 mg/L
		Sodium	IS 3025 (Part 45)	1 mg/L to 100 mg/L
		Potassium	IS 3025 (Part 45)	1 mg/L to 10 mg/L 10 mg/L to 100 mg/L
		Magnesium	IS 3025 (Part 46)	0.3 mg/L to 10 mg/L 10 mg/L to 100 mg/L 100 mg/L to 1000 mg/L
		Carbonate	IS 3025 (Part 51)	0. 1mg/L to 10mg/L 10 mg/L to 100 mg/L 100 mg/L to 1000 mg/L
		Bicarbonate	IS 3025 (Part 51)	0. 1mg/L to 10mg/L 10 mg/L to 100 mg/L 100 mg/L to 1000 mg/L
		Chemical Oxygen Demand (COD)	APHA 5220B	4mg/L to 100 mg/L 100mg/L to 500mg/L
		Oxygen Absorbed in 4 Hours	IS 3025 (Part 63)	0.03 mg/L to 5 mg/L 5 mg/L to 50 mg/L
		Colour	IS 3025 (Part 4)	5 Hazen Units to 75 Hazen Units

**Laboratory** Italab (Goa) Pvt. Ltd., Italab House, Victor Hospital Road, Malbhat-Margao, Goa

**Accreditation Standard** ISO/IEC 17025: 2005

**Certificate Number** TC-8070 (in lieu of T-1850 & T-1851)

**Page 23 of 36**

**Validity** 26.11.2018 to 25.11.2020

**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
		Odour	IS 3025 (Part 5)	Qualitative
		Temperature	IS 3025 (Part 9)	Qualitative
		Turbidity	IS 3025 (Part 10)	0.1 NTU to 10 NTU 10 NTU to 100 NTU 100 NTU to 1000 NTU
		pH value	IS 3025 (Part 11))	2 to 12
		Specific conductance	IS 3025 (Part 14)	0.1µS/cm to 10 µS/cm 10 µS/cm to 1000 µS/cm 1000µS/cm to 40000 µS/cm
		Total residue (total solids-dissolved and suspended)	IS 3025 (Part 15)	10 mg/L to 100 mg/L 100 mg/L to 10000 mg/L
		Filterable residue (total dissolved solids)	IS 3025 (Part 16)	10 mg/L to 100mg/L 100 mg/L to 10000mg/L
		Non-filterable residue (total suspended solids)	IS 3025 (Part 17)	5 mg/L to 10mg/L 10 mg/L to 100mg/L 100 mg/L to 1000 mg/L
		Volatile residue	IS 3025 (Part 18)	10 mg/L to 100mg/L 100 mg/L to 1000 mg/L
		Fixed residue	IS 3025 (Part 18)	10 mg/L to 100mg/L 100 mg/L to 1000 mg/L
		Settleable Matter	IS 3025 (Part 19)	0.1 mg/l to 40mg/l
		Total hardness	<a href="#">IS 3025 (Part 21)</a>	10 mg/L to 100mg/L 100 mg/L to 1000mg/L 1000 mg/L to 10000mg/L
		Total Alkalinity	IS 3025 (Part 23)	1.0 mg/L to 50g/L 50 mg/L to 500 mg/L
		Acidity	IS 3025 (Part 22)	1.0 mg/L to 50mg/L 50 mg/L to 500 mg/L
		Total & Dissolved Iron	IS 3025 (Part 53)	0.05 mg/L to 5.0 mg/L
		Aluminum	IS 3025 (Part 55)	0.02 mg/L to 3.0 mg/L

Laboratory Italab (Goa) Pvt. Ltd., Italab House, Victor Hospital Road, Malbhat-Margao, Goa

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-8070 (in lieu of T-1850 & T-1851)

Page 24 of 36

Validity 26.11.2018 to 25.11.2020

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
		Manganese	APHA	0.02 mg/L to 2mg/L 2mg/L to 20 mg/L
		Total & Hexavalent Chromium	IS 3025 (Part 52)	0.03mg/L to 2mg/L 2 mg/L to 20 mg/L
		Free Carbon Dioxide	IS 3025 (Part 61)	1 mg/L to 10 mg/L 10 mg/L to 50 mg/L
		Fluorides	APHA 4500-F-D SPADNS Method	0.1 mg/L to 1.4 mg/L
		Bromide as Br	APHA 4500 Br	0.1mg/L to 1.0mg/L
		Specific conductance	IS 3025 (Part 14)	0.1 to 200µs/cm
2.	Boiler Water/ Feed Water/ Condensate Water	Oil and grease	APHA 5520 O&GB	2.0 mg/L to 100 mg/L
		Oxygen Absorbed in 4 Hours	IS 3025 (Part 63)	0.03 mg/L to 50 mg/L
		Total & Dissolved phosphorus	IS 3025 (Part 31)	0.3 mg/L to 50 mg/L
		Chloride	IS 3025 (Part 32)	3 mg/L to 2500mg/L
		Sodium	IS 3025 (Part 45)	1 mg/L to 100 mg/L
		Ammoniacal Nitrogen	IS 3025 (Part 34)	0.02 mg/L to 100mg/L
		Total & Reactive Silica	IS 3025 (Part 35)	0.3 mg/L to 100 mg/L
		Dissolved oxygen	IS 3025 (Part 38)	0.2 mg/L to 10 mg/L
		pH value	<a href="#">IS 3025 (Part 11)</a>	2 to 12
		Specific conductance	IS 3025 (Part 14)	0.1 µS/cm to 1000 µS/cm
		Filterable residue (total dissolved solids)	IS 3025 (Part 16)	10 mg/L to 1000mg/L
		Total hardness	IS 3025 (Part 21)	10 mg/L to 1000mg/L
		Total Alkalinity	IS 3025 (Part 23)	1.0 mg/L to 500 mg/L
		Total & Dissolved Iron	IS 3025 (Part 53)	0.05 mg/L to 5.0 mg/L
3.	Construction Water	Sulphates	IS 3025 (Part 24)	0.1 mg/L to 500 mg/L
		Total residue (total solids-dissolved and suspended)	IS 3025 (Part 15)	10 mg/L to 1000 mg/L
		Filterable residue (total dissolved solids)	IS 3025 (Part 16)	10 mg/L to 1000 mg/L
		Chloride	IS 3025 (Part 32)	3 mg/L to 2500mg/L



Laboratory **Italab (Goa) Pvt. Ltd., Italab House, Victor Hospital Road, Malbhat-Margao, Goa**

Accreditation Standard **ISO/IEC 17025: 2005**

Certificate Number **TC-8070** (in lieu of T-1850 & T-1851)

Page 25 of 36

Validity **26.11.2018 to 25.11.2020**

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
		pH value	IS 3025 (Part 11)	2 to 12
		Non-filterable residue (total suspended solids)	IS 3025 (Part 17)	5 mg/L to 1000mg/L
		Volatile and fixed residue (total filterable and non-filterable)	IS 3025 (Part 18)	10 mg/L to 1000 mg/L
		Total Alkalinity	IS 3025 (Part 23)	1.0 mg/L to 500g/L
		Acidity	IS 3025 (Part 22)	1.0 mg/L to 500mg/L
4.	Swimming Pool Water	Total & Dissolved Iron	IS 3025 (Part 53)	0.05 mg/L to 5.0 mg/L
		Aluminium	IS 3025 (Part 55)	0.02 mg/L to 3.0 mg/L
		Chlorine, Residual	IS 3025 (Part 26)	0.1 mg/L to 100 mg/L
		Filterable residue (Total dissolved solids)	IS 3025 (Part 16)	10 mg/L to 1000mg/L
		Chloride	IS 3025 (Part 32)	3 mg/L to 2500mg/L
		Oxygen Absorbed in 4 Hours	IS 3025 (Part 63)	0.03 mg/L to 50 mg/L
		Colour	IS 3025 (Part 4)	5 Hazen Units to 75 Hazen Units
		Odour	IS 3025 (Part 5)	Qualitative
		Total Alkalinity	IS 3025 (Part 23)	1.0 mg/L to 500g/L
		Turbidity	IS 3025 (Part 10)	0.1 NTU to 100 NTU
5.	Industrial Water/ Cooling Tower Water/ Irrigation Water	pH value	IS 3025 (Part 11)	2 to 12
		Sulphates	IS 3025 (Part 24)	0.1 mg/L to 500 mg/L
		Chlorine, residual	IS 3025 (Part 26)	0.1 mg/L to 100 mg/L
		Manganese	APHA	0.02 mg/L to 20mg/L
		Chloride	IS 3025 (Part 32)	3 mg/L to 2500mg/L
		Magnesium	IS 3025 (Part 46)	0.3 mg/L to 100 mg/L
		Carbonate	IS 3025 (Part 51)	0. 1mg/L to 100mg/L
		Bicarbonate	IS 3025 (Part 51)	0. 1mg/L to 100mg/L
		Chemical Oxygen Demand (COD)	APHA 5220B	4mg/L to 500 mg/L
		Total & Reactive Silica	IS 3025 (Part 35)	0.5 mg/L to 100 mg/L
		Calcium	IS 3025 (Part 40)	0.5 mg/L to 100mg/L

Laboratory Italab (Goa) Pvt. Ltd., Italab House, Victor Hospital Road, Malbhat-Margao, Goa

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-8070 (in lieu of T-1850 & T-1851)

Page 26 of 36

Validity 26.11.2018 to 25.11.2020

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
		Turbidity	IS 3025 (Part 10)	0.1 NTU to 100 NTU
		pH value	IS 3025 (Part 11)	2 to 12
6.	Industrial Water/ Cooling Tower Water/ Irrigation Water	Specific conductance	IS 3025 (Part 14)	0.1 to 1000 $\mu$ S/cm
		Oxygen Absorbed in 4 Hours	IS 3025 (Part 63)	0.03 mg/L to 50 mg/L
		Filterable residue (total dissolved solids)	IS 3025 (Part 16)	10 mg/L to 1000mg/L
		Total hardness	IS 3025 (Part 21)	10 mg/L to 1000mg/L
		Free Carbon Dioxide	IS 3025 (Part 61)	1 mg/L to 50 mg/L
		Total Alkalinity	IS 3025 (Part 23)	1.0 mg/L to 500g/L
		Total & Dissolved Iron	IS 3025 (Part 53)	0.05 mg/L to 5.0 mg/L
7.	Water Used in Industry	Sulphates	IS 3025 (Part 24)	0.1 mg/L to 500 mg/L
		Chlorine, residual	IS 3025 (Part 26)	0.1 mg/L to 100 mg/L
		Total & Dissolved phosphorus	IS 3025 (Part 31)	0.3 mg/L to 50 mg/L
		Chloride	IS 3025 (Part 32)	3 mg/L to 2500mg/L
		Colour	IS 3025 (Part 4)	5 Hazen Units to 75 Hazen Units/ Visual Method
		Nitrite Nitrogen	IS 3025 (Part 34)	0.005mg/L to 50mg/L
		Ammoniacal Nitrogen	IS 3025 (Part 34)	0.1mg/L to 100mg/L
		Magnesium	IS 3025 (Part 46)	0.3 mg/L to 100 mg/L
		Chlorine, residual	IS 3025 (Part 26)	0.1 mg/L to 100 mg/L
		Total & Reactive Silica	IS 3025 (Part 35)	0.5 mg/L to 100 mg/L
		Dissolved oxygen	IS 3025 (Part 38)	0.2 mg/L to 15mg/L
		Turbidity	IS 3025 (Part 10)	0.1 NTU to 100 NTU
		pH value	IS 3025 (Part 11)	2 to 12
		Specific conductance	IS 3025 (Part 14)	0.1 $\mu$ S/cm to 1000 $\mu$ S/cm
		Filterable residue (total dissolved solids)	IS 3025 (Part 16)	10 mg/L to 1000mg/L

**Laboratory** Italab (Goa) Pvt. Ltd., Italab House, Victor Hospital Road, Malbhat-Margao, Goa

**Accreditation Standard** ISO/IEC 17025: 2005

**Certificate Number** TC-8070 (in lieu of T-1850 & T-1851)

**Page 27 of 36**

**Validity** 26.11.2018 to 25.11.2020

**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
		Total hardness	IS 3025 (Part 21)	10 mg/L to 1000mg/L
		Total Alkalinity	IS 3025 (Part 23)	1.0 mg/L to 500g/L
		Free Carbon Dioxide	IS 3025 (Part 61)	1 mg/L to 50 mg/L
		Total & Dissolved Iron	IS 3025 (Part 53)	0.05 mg/L to 5.0 mg/L
		Aluminium	IS 3025 (Part 55)	0.02 mg/L to 3.0 mg/L
<b>VII.</b>	<b>ORES &amp; MINERALS</b>			
<b>1.</b>	<b>Iron Ore</b>	Loss on Ignition	IBM	0.1% to 30.0%
		Total Iron as Fe	IS 1493 (Part 1)	5% to 69.0%
		Iron as FeO	IBM	0.06% to 25.0%
		SiO <sub>2</sub>	IS 1493 (Part 1)	0.5% to 30.0%
		Al <sub>2</sub> O <sub>3</sub>	IS 1493 (Part 1) ITG/LABSOP/IRN/001, Issue No. 01 dt. 27.06.2018	0.2% to 35.0%
		Sulphur (S)	IS 1493	0.005% to 0.10%
		TiO <sub>2</sub>	IS 1493 ITG/LABSOP/IRN/006 Issue No. 01 dt. 27.06.2018	0.02% to 5.0%
		CaO	IBM ITG/LABSOP/IRN/008 Issue No. 01 dt. 27.06.2018	0.2% to 5.0%
		MgO	IBM ITG/LABSOP/IRN/008 Issue No. 01 dt. 27.06.2018	0.1% to 5.0%
		Manganese (Mn)	IS 1493 ITG/LABSOP/IRN/005 Issue No. 01	0.05% to 8.0%

**Laboratory** Italab (Goa) Pvt. Ltd., Italab House, Victor Hospital Road, Malbhat-Margao, Goa

**Accreditation Standard** ISO/IEC 17025: 2005

**Certificate Number** TC-8070 (in lieu of T-1850 & T-1851)

**Page 28 of 36**

**Validity** 26.11.2018 to 25.11.2020

**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
			dt. 27.06.2018	
		Phosphorus (P)	IS 1493 (Part 1)	0.01% to 5.0%
		Moisture	IS 1493 (Part 1) IS 11690	0.5% to 20.0%
		Flow Moisture Point (Flow table test)	SOP No: ITG/SOP/IRN/013, Issue No. 02 Code of safe Practice for solid bulk Cargoes IMSBC code Appendix 2	5.0% to 23.0%
		Flow Moisture Point (Penetration test)	SOP No: ITG/SOP/IRN/014, Issue No. 02 Code of safe Practice for solid bulk Cargoes IMSBC code Appendix 2	5.0% to 23.0%
		Critical Moisture Content (TML) (Modified Proctor/Fagerberg Test)	SOP No: ITG/SOP/IRN/015, Issue No. 02 Code of safe Practice for solid bulk Cargoes IMSBC code Appendix 2	5.0% to 23.0%
<b>2.</b>	<b>Bauxite Ore</b>	Loss on Ignition	IS 2000 (Part 1)	5.0% to 32.0%
		Moisture	ITG/LABSOP/BXT/011, Issue No. 02 dt. 25.08.2018	0.5% to 20.0%
		SiO <sub>2</sub>	IS 2000 (Part 2)	0.5% to 25.0%
		Al <sub>2</sub> O <sub>3</sub>	IS 2000 (Part 3) ITG/LABSOP/BXT/002, Issue No. 01	20.0% to 65.0%

Laboratory Italab (Goa) Pvt. Ltd., Italab House, Victor Hospital Road, Malbhat-Margao, Goa

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-8070 (in lieu of T-1850 & T-1851)

Page 29 of 36

Validity 26.11.2018 to 25.11.2020

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
			dt. 27.06.2018	
		Fe <sub>2</sub> O <sub>3</sub>	IS 2000 (Part 4)	0.5% to 60.0%
		TiO <sub>2</sub>	IS 2000 (Part 5) ITG/LABSOP/BXT/007, Issue No. 01 dt. 27.06.2018	0.5% to 6.0%
3.	Manganese Ore	SiO <sub>2</sub>	IS 1473	0.2% to 30.0%
		MnO <sub>2</sub>	IS 1473	10.0% to 90.0%
		Manganese (Mn)	IS 1473	5.0% to 61.0%
		Al <sub>2</sub> O <sub>3</sub>	IS 1473 ITG/LABSOP/MN/003, Issue No. 01 dt. 27.06.2018	0.2% to 20.0%
		Iron (Fe)	IS 1473	5.0% to 35.0%
		Phosphorus (P)	IS 1473	0.01% to 0.20%
		Sulphur (S)	IS 1473	0.005% to 0.025%
4.	Limestone & Dolomite	Moisture	IS 2109	0.1% to 15.0%
		CaO	IS 1760 (Part 3) ITG/LABSOP/LIM/009, Issue No. 01 dt. 27.06.2018	15.0% to 56.0%
		MgO	IS 1760 (Part 3) ITG/LABSOP/LIM/009, Issue No. 01 dt. 27.06.2018	0.1% to 20.0%
		Fe <sub>2</sub> O <sub>3</sub>	IS 1760 (Part 3)	0.2% to 10.0%
		SiO <sub>2</sub>	IS 1760 (Part 2)	0.5% to 15.0%
		Al <sub>2</sub> O <sub>3</sub>	IS 1760 (Part 3) ITG/LABSOP/LIM/004, Issue No. 01 dt. 27.06.2018	0.2% to 10.0%

Laboratory Italab (Goa) Pvt. Ltd., Italab House, Victor Hospital Road, Malbhat-Margao, Goa

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-8070 (in lieu of T-1850 & T-1851)

Page 30 of 36

Validity 26.11.2018 to 25.11.2020

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
		Loss On Ignition	IS 1760 (Part 1)	1.0% to 50.0%
5.	Gypsum	CaO	IS 1288	10.0 % to 45%
		SO <sub>3</sub>	IS 1288	10.0 % to 60.0%
		Purity By calculation as SO <sub>3</sub> basis	IS 1288	40.0 % to 98.0%
		Insoluble Residue	IS 1288	0.5 % to 25%
VIII.	SOLID FUELS			
1.	Coal & Coke	Total Moisture	IS 1350 (Part 1)	0.1% to 54.0%
		Moisture on Air dry Basis.	IS 1350 (Part 1)	0.1% to 25.0%
		Ash Content	IS 1350 (Part 1)	0.5% to 50.0%
		Volatile Matter	IS 1350 (Part 1)	0.5% to 50.0%
		Fixed Carbon	IS 1350 (Part 1)	By calculation
		Sulphur	IS 1350 (Part 3)	0. 1% to 3.0%
		Gross Calorific Value	IS 1350 (Part 2)	2000 Kcal/Kg to 8000 Kcal/kg
		Hard Groove Index	IS 4433	25.0 to 100.0
		Crucible Swelling Number	IS 1353	0.0 to 7.0
		Phosphorus	IS 1355	0.01% to 1.0%
IX.	RESIDUES IN FOOD PRODUCTS			
1.	(Milk (Liquid)	Trace metals		
		Lead	AOAC 999.11	0.2 mg/kg to 50.0 mg/kg
		Copper	AOAC 999.11	0. 5 mg/kg to 50.0 mg/kg
		Arsenic	AOAC 986.15	0.05 mg/kg to 20.0 mg/kg
		Zinc	AOAC 999.11	0.1 mg/kg to 200.0 mg/kg
		Cadmium	AOAC 999.11	0.10 mg/kg to 50.0 mg/kg
		Mercury	AOAC 971.21	0.020 mg/kg to 20.0 mg/kg
		Tin	AOAC 985.16	5.0 mg/kg to 250 mg/kg

Laboratory **Italab (Goa) Pvt. Ltd., Italab House, Victor Hospital Road, Malbhat-Margao, Goa**

Accreditation Standard **ISO/IEC 17025: 2005**

Certificate Number **TC-8070** *(in lieu of T-1850 & T-1851)*

Page 31 of 36

Validity **26.11.2018 to 25.11.2020**

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
2.	Milk & Milk Products	Lead	AOAC 999.11	0.2 mg/kg to 50.0 mg/kg
		Copper	AOAC 999.11	0.5 mg/kg to 50.0 mg/kg
		Arsenic	AOAC 986.15	0.05 mg/kg to 20.0 mg/kg
		Zinc	AOAC 999.11	0.1 mg/kg to 200.0 mg/kg
		Cadmium	AOAC 999.11	0.10 mg/kg to 50.0 mg/kg
		Mercury	AOAC 971.21	0.020 mg/kg to 20.0 mg/kg
		Tin	AOAC 985.16	5.0 mg/kg to 250 mg/kg+
3.	Fish & Fishery Products	Arsenic	AOAC 986.15	0.05 mg/kg to 20.0 mg/kg
		Mercury	AOAC 971.21	0.020 mg/kg to 20.0 mg/kg
		Cadmium	AOAC 999.11	0.10 mg/kg to 50.0 mg/kg
		Lead	AOAC 999.11	0.2 mg/kg to 50.0 mg/kg
		Tin	AOAC 985.16	5.0 mg/kg to 250 mg/kg
		Zinc	AOAC 999.11	0.1 mg/kg to 200.0 mg/kg
		Copper	AOAC 999.11	0.5 mg/kg to 50.0 mg/kg
4.	Alcoholic Drinks & Beverages (Alcoholic/Non Alcoholic) (Whisky, Gin, Vodka & Rum Analysis)	Lead	AOAC 999.11	0.2 mg/kg to 50.0 mg/kg
		Arsenic	AOAC 986.15	0.05 mg/kg to 20.0 mg/kg
		Zinc	AOAC 999.11	0.1 mg/kg to 200.0 mg/kg
		Cadmium	AOAC 999.11	0.10 mg/kg to 50.0 mg/kg
		Mercury	AOAC 971.21	0.020 mg/kg to 20.0 mg/kg
		Tin	AOAC 985.16	5.0 mg/kg to 250 mg/kg
		Lead	AOAC 999.11	0.2 mg/kg to 50.0 mg/kg
5.	(Edible Oils & Fats (Fats/Oils& Fat emulsion/Milk Fat/Table Butter/Margarin)	Copper	AOAC 999.11	0.5 mg/kg to 50.0 mg/kg
		Arsenic	AOAC 986.15	0.05 mg/kg to 20.0 mg/kg
		Zinc	AOAC 999.11	0.1 mg/kg to 200.0 mg/kg
		Cadmium	AOAC 999.11	0.10 mg/kg to 50.0 mg/kg
		Mercury	AOAC 971.21	0.020 mg/kg to 20.0 mg/kg
		Tin	AOAC 985.16	5.0 mg/kg to 250 mg/kg
		Lead	AOAC 999.11	0.2 mg/kg to 50.0 mg/kg

Laboratory **Italab (Goa) Pvt. Ltd., Italab House, Victor Hospital Road, Malbhat-Margao, Goa**

Accreditation Standard **ISO/IEC 17025: 2005**

Certificate Number **TC-8070** *(in lieu of T-1850 & T-1851)*

Page 32 of 36

Validity **26.11.2018 to 25.11.2020**

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
6.	<b>Coffee &amp; Cocoa Products (Edible Fat-Cocoa Butter)</b>	Lead	AOAC 999.11	0.2 mg/kg to 50.0 mg/kg
		Copper	AOAC 999.11	0.5 mg/kg to 50.0 mg/kg
		Arsenic	AOAC 986.15	0.05 mg/kg to 20.0 mg/kg
		Zinc	AOAC 999.11	0.1 mg/kg to 200.0 mg/kg
		Cadmium	AOAC 999.11	0.10 mg/kg to 50.0 mg/kg
		Mercury	AOAC 971.21	0.020 mg/kg to 20.0 mg/kg
		Tin	AOAC 985.16	5.0 mg/kg to 250 mg/kg
7.	<b>Herbs, spices &amp; Condiments</b>	Lead	AOAC 999.11	0.2 mg/kg to 50.0 mg/kg
		Copper	AOAC 999.11	0.5 mg/kg to 50.0 mg/kg
		Arsenic	AOAC 986.15	0.05 mg/kg to 20.0 mg/kg
		Zinc	AOAC 999.11	0.1 mg/kg to 200.0 mg/kg
		Cadmium	AOAC 999.11	0.10 mg/kg to 50.0 mg/kg
		Mercury	AOAC 971.21	0.020 mg/kg to 20.0 mg/kg
		Tin	AOAC 985.16	5.0 mg/kg to 250 mg/kg
8.	<b>(Canned, Tinned Packaged &amp; Processed Food)</b>	Lead	AOAC 999.11	0.2 mg/kg to 50.0 mg/kg
		Copper	AOAC 999.11	0.5 mg/kg to 50.0 mg/kg
		Arsenic	AOAC 986.15	0.05 mg/kg to 20.0 mg/kg
		Zinc	AOAC 999.11	0.1 mg/kg to 200.0 mg/kg
		Cadmium	AOAC 999.11	0.10 mg/kg to 50.0 mg/kg
		Mercury	AOAC 971.21	0.020 mg/kg to 20.0 mg/kg
		Tin	AOAC 985.16	5.0 mg/kg to 250 mg/kg
9.	<b>Tea</b>	Lead	AOAC 999.11	0.2 mg/kg to 50.0 mg/kg
		Copper	AOAC 999.11	0.5 mg/kg to 50.0 mg/kg
		Arsenic	AOAC 986.15	0.05 mg/kg to 20.0 mg/kg
		Zinc	AOAC 999.11	0.1 mg/kg to 200.0 mg/kg
		Cadmium	AOAC 999.11	0.10 mg/kg to 50.0 mg/kg
		Mercury	AOAC 971.21	0.020 mg/kg to 20.0 mg/kg
		Tin	AOAC 985.16	5.0 mg/kg to 250 mg/kg



Laboratory **Italab (Goa) Pvt. Ltd., Italab House, Victor Hospital Road, Malbhat-Margao, Goa**

Accreditation Standard **ISO/IEC 17025: 2005**

Certificate Number **TC-8070** *(in lieu of T-1850 & T-1851)*

Page 33 of 36

Validity **26.11.2018 to 25.11.2020**

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
10.	<b>Vegetable &amp; Vegetable Products</b>	Lead	AOAC 999.11	0.2 mg/kg to 50.0 mg/kg
		Copper	AOAC 999.11	0.5 mg/kg to 50.0 mg/kg
		Arsenic	AOAC 986.15	0.05 mg/kg to 20.0 mg/kg
		Zinc	AOAC 999.11	0.1 mg/kg to 200.0 mg/kg
		Cadmium	AOAC 999.11	0.10 mg/kg to 50.0 mg/kg
		Mercury	AOAC 971.21	0.020 mg/kg to 20.0 mg/kg
		Tin	AOAC 985.16	5.0 mg/kg to 250 mg/kg
11.	<b>Sugar &amp; Sugar Products</b>	Lead	AOAC 999.11	0.2 mg/kg to 50.0 mg/kg
		Copper	AOAC 999.11	0.5 mg/kg to 50.0 mg/kg
		Arsenic	AOAC 986.15	0.05 mg/kg to 20.0 mg/kg
		Zinc	AOAC 999.11	0.1 mg/kg to 200.0 mg/kg
		Cadmium	AOAC 999.11	0.10 mg/kg to 50.0 mg/kg
		Mercury	AOAC 971.21	0.020 mg/kg to 20.0 mg/kg
		Tin	AOAC 985.16	5.0 mg/kg to 250 mg/kg
12.	<b>Meat &amp; Meat Products</b>	Lead	AOAC 999.11	0.2 mg/kg to 50.0 mg/kg
		Copper	AOAC 999.11	0.5 mg/kg to 50.0 mg/kg
		Arsenic	AOAC 986.15	0.05 mg/kg to 20.0 mg/kg
		Zinc	AOAC 999.11	0.1 mg/kg to 200.0 mg/kg
		Cadmium	AOAC 999.11	0.10 mg/kg to 50.0 mg/kg
		Mercury	AOAC 971.21	0.020 mg/kg to 20.0 mg/kg
		Tin	AOAC 985.16	5.0 mg/kg to 250 mg/kg
13.	<b>Fruit &amp; Fruit Products, Juices</b>	Lead	AOAC 999.11	0.2 mg/kg to 50.0 mg/kg
		Copper	AOAC 999.11	0.5 mg/kg to 50.0 mg/kg
		Arsenic	AOAC 986.15	0.05 mg/kg to 20.0 mg/kg
		Zinc	AOAC 999.11	0.1 mg/kg to 200.0 mg/kg
		Cadmium	AOAC 999.11	0.10 mg/kg to 50.0 mg/kg
		Mercury	AOAC 971.21	0.020 mg/kg to 20.0 mg/kg

**Laboratory** Italab (Goa) Pvt. Ltd., Italab House, Victor Hospital Road, Malbhat-Margao, Goa

**Accreditation Standard** ISO/IEC 17025: 2005

**Certificate Number** TC-8070 (in lieu of T-1850 & T-1851)

**Page 34 of 36**

**Validity** 26.11.2018 to 25.11.2020

**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
14.	Cereals & Cereals Products	Tin	AOAC 985.16	5.0 mg/kg to 250 mg/kg
		Lead	AOAC 999.11	0.2 mg/kg to 50.0 mg/kg
		Copper	AOAC 999.11	0.5 mg/kg to 50.0 mg/kg
		Arsenic	AOAC 986.15	0.05 mg/kg to 20.0 mg/kg
		Zinc	AOAC 999.11	0.1 mg/kg to 200.0 mg/kg
		Cadmium	AOAC 999.11	0.10 mg/kg to 50.0 mg/kg
15.	Milk (Liquid), Fruit & Fruit Products, Juices, Vegetable & Vegetable Products, Tea, Canned, Tinned Packaged & Processed Food, Herbs, spices & Condiments, Milk & Milk Products, Meat & Meat Products, Fish & Fish Products	Free Formaldehyde	India Pharmacopoeia 2018 ITG/SOP/FOOD/010 Issue 01 , Rev 01 Dt. 25/08/2018	0.2 mg/kg to 20 mg/kg
X.	RESIDUES IN WATER			
1.	Effluents/Sewage /Waste water	Trace Metal Element		
		Arsenic	IS 3025 Part 37	0.002 mg/L to 5 mg/L
		Cadmium	IS 3025 Part 41	0.003 mg/L to 2 mg/L
		Copper	IS 3025:Part 42	0.05 mg/L to 5mg/L
		Lead	IS 3025 Part 47	0.01 mg/L to 10 mg/L

Laboratory **Italab (Goa) Pvt. Ltd., Italab House, Victor Hospital Road, Malbhat-Margao, Goa**

Accreditation Standard **ISO/IEC 17025: 2005**

Certificate Number **TC-8070** *(in lieu of T-1850 & T-1851)*

Page 35 of 36

Validity **26.11.2018 to 25.11.2020**

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
		Mercury	IS 3025 Part 48 APHA	0.001 mg/L to 10 mg/L
		Zinc	IS 3025 Part 49	0.1 mg/L to 2.0 mg/L
		Nickel	IS 3025:Part 54	0.02 mg/L to 2.0 mg/L
		Selenium	IS 3025 Part 56	0.005 to 10 mg/L
		Chromium	IS 3025:Part 52	0.05 mg/L to 20mg/L
2.	Potable & Domestic Water/Surface Water/ Demineralised water/Reagent grade water/Distilled water/Purified water/Ground Waters/Packaged Drinking Water	Nickel	IS 3025 (Part 54)	0.02 mg/L to 2.0 mg/L
		Cobalt	APHA 3111B:	0.4 mg/L to 2.0 mg/L
		Zinc	IS 3025 (Part 49)	0.1 mg/L to 5mg/L
		Arsenic	IS 3025 (Part 37)	0.002 mg/L to 5 mg/L
		Mercury	IS 3025 (Part 48) APHA	0.001 mg/L to 10 mg/L
		Cadmium	IS 3025 (Part 41)	0.003 mg/L to 2 mg/L
		Lead	IS 3025 (Part 47)	0.01 mg/L to 10 mg/L
		Selenium	IS 3025 (Part 56)	0.005 mg/L to 10 mg/L
		Boron	IS 3025 (Part 57)	0.01 mg/L to 10.0 mg/L
		Copper	IS 3025 (Part 42)	0.05 mg/L to 5mg/L
3.	Boiler Water/ Feed Water/ Condensate Water	Copper	IS 3025 (Part 42)	0.05 mg/L to 5mg/L
4.	(Potable & Domestic Water/ Surface Water/ Demineralised water/Reagent grade water/Distilled	Phenols	IS 3025 (Part 43)	0.1mg/L to 10mg/L
		Pesticides	SOP/NMN/WAT/062)	
		Organochlorine Pesticides	Issue 01 Rev 00 Issue date 31.10.2016	
		Alpha BHC	USEPA 508/ APHA	0.025 µg/L to 10 µg/L
		Beta BHC		0.025 µg/L to 10 µg/L
		Gamma BHC		0.025 µg/L to 10 µg/L
		Delta BHC		0.025 µg/L to 10 µg/L

**Laboratory** Italab (Goa) Pvt. Ltd., Italab House, Victor Hospital Road, Malbhat-Margao, Goa

**Accreditation Standard** ISO/IEC 17025: 2005

**Certificate Number** TC-8070 (in lieu of T-1850 & T-1851)

**Page 36 of 36**

**Validity** 26.11.2018 to 25.11.2020

**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
	water/Purified water/Ground Waters/Packaged Drinking Water)	Aldrin		0.025 µg/L to 10 µg/L
		Dieldrin		0.025 µg/L to 10 µg/L
		Alpha endosulphan		0.025 µg/L to 10 µg/L
		Beta endosulphan		0.025 µg/L to 10 µg/L
		Endosulphan sulphate		0.025 µg/L to 10 µg/L
		44 DDE		0.025 µg/L to 10 µg/L
		44 DDD		0.025 µg/L to 10 µg/L
		44 DDT		0.025 µg/L to 10 µg/L
XI.	MARINE/AQUA CULTURE FOOD PRODUCTS			
1.	Fish & Fish Products	Formaldehyde	AOAC 931.08	0.1 mg/l to 10 mg/l
		Histamine	FSSAI Manual of Methods for Analysis of Meat and Fish Products	0.05 mg/l to 200 mg/l