

Laboratory **Food Testing Laboratory, School of Food Technology, Jawaharlal Nehru Technological University Kakinada, Kakinada, Andhra Pradesh**

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

Certificate Number **TC-5185**

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Validity **26.10.2017 to 25.10.2019**

Last Amended on **30.10.2017**

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**

I.	<b>FOOD &amp; AGRICULTURAL PRODUCTS</b>			
1.	<b>Raw / Frozen Meat &amp; Meat Products, Poultry and Marine Products Raw/Frozen</b>	Total Plate Count	IS 5402:2012 RA 2012/ FDA BAM Chapter 3	10 cfu/g; 10-10 <sup>6</sup> cfu/g
		Total Coliforms	IS 5401 Part 1 2002/ FDA BAM Chapter 4	MPN:3/g; <3->1100 10 cfu/g; 10-10 <sup>3</sup> cfu/g
		E. Coli	IS 5887 : 1976 RA 2005/ FDA BAM Chapter 4	10 cfu/g; 10-10 <sup>3</sup> cfu/g MPN:3/g; <3->1100
		Thermo tolerant Coliforms	BAM 8th Ed Ch-4, Sep:2002	MPN: 3/g; MPN <3->1100
		F. Coliforms	BAM 8th Ed Ch-4, Sep:2002	MPN: 3/g; MPN <3->1100
		Enterobacteriaceae	IS/ISO 7402:1993	10 cfu/g; 10-10 <sup>4</sup> cfu/g
		Yeast & Mould	IS 5403:1999 RA 2005	10 cfu/g; 10-10 <sup>4</sup> cfu/g
		Staphylococcus aureas	IS 5887 (Part 8/See 1) :2002/IS : 5887 ( Part II ) - 1976 BAM 8th Ed Ch-12 Jan:2001, AOAC Petrifilm Method	10 cfu/g; 10-10 <sup>4</sup> cfu/g
		Clostridium perfringens	IS 5887 (Part 4) :1999	10 cfu/g; 10-10 <sup>4</sup> cfu/g
		Faecal streptococci	IS : 5887 ( Part II ) - 1976	10 cfu/g; 10-10 <sup>4</sup> cfu/g
		Salmonella	IS 5887 Part 3 1999 RA 2005/ FDA BAM Chapter-5	Absent/Present in 25g
		Shigella	IS5887( Part7): 1999	Absent/Present in 25g
		Vibrio cholerae	IS : 5887 ( Part V ) - 1976 ; BAM 8th Ed Ch-9 May: 2004	Absent/Present in 25g
		vibrio parahaemolyticus	IS : 5887 ( Part V ) - 1976; BAM 8th Ed Ch-9 May: 2004	Absent/Present in 50g
Vibrio vulnificus	BAM 8th Ed Ch-9 May: 2004	Absent/Present in 50g		
Bacillus cereus	IS 5887 (Part 6) : 2012, BAM 8th Ed Ch-14 Jan 2001	10 cfu/g; 10-10 <sup>3</sup> cfu/g MPN:3/g; <3->1100		
Qualitative & Enumeration Test	IS 14988 (Part 1) :2001 ; BAM 8th Ed Ch-10 Jan 2003,	Absent/Present in 25g, ≤ 10 cfu per g		

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		Listeria monocytogenes	Petrifilm Method ISO 11290-2 :1998	
2.	<b>Tea/Coffee &amp; Cocoa Products</b>	Total Plate Count	IS 5402:2012 RA 2012/ FDA BAM Chapter 3	10 cfu/g; 10-10 <sup>6</sup> cfu/g
		Salmonella	IS 5887 Part 3 1999 RA 2005/ FDA BAM Chapter-5	Absent/Present in 25g
		Yeast & Mould	IS 5403:1999 RA 2005	10 cfu/g; 10-10 <sup>4</sup> cfu/g
		Staphylococcus aureus	IS: 5887(P-2)1976 Reaffirmed 2005, US FDA BAM-2001(chapter 12)	10 cfu/g; 10-10 <sup>4</sup> cfu/g MPN:3/g; <3->1100
		Total Coliforms	IS 5401 Part 1 2002/ FDA BAM Chapter 4	MPN:3/g; <3->1100 10 cfu/g; 10-10 <sup>3</sup> cfu/g
3.	<b>Cooked Food Stuffs Ready To Eat snacks/Foods/Cutlery Products &amp; Processed Food Stuffs</b>	Total Plate Count	AOAC Petrifilm Method IS 5401 : 2002, BAM 8th Ed Ch 3, Jan 2001	10 cfu/g; 10-10 <sup>6</sup> cfu/g
		Total Coliforms	AOAC Petrifilm Method IS 5401 (Part 1): 2002, BAM 8th Ed Ch 4 Sep 2002	MPN:3/g; <3->1100 10 cfu/g; 10-10 <sup>3</sup> cfu/g
		Yeast & Mould	AOAC Petri Method; IS: 5403, 1999, BAM 8th Ed Ch 18	10 cfu/g; 10-10 <sup>4</sup> cfu/g
		E.Coli	AOAC Petrifilm Method; IS : 5887 ( Part I ) - 1976 Reaffirmed 1995 ; BAM 8th Ed Ch-4 Sep: 2002	10 cfu/g; 10-10 <sup>3</sup> cfu/g MPN:3/g; <3->1100
		Faecal streptococci	IS 5887 (Part 2) :1976	10 cfu/g; 10-10 <sup>3</sup> cfu/g MPN:3/g; <3->1100
		Staphylococcus aureas	AOAC Petrifilm Method, IS 5887 (part 2) 1976, BAM 8th Ed Ch 12 Jan 2001	10 cfu/g; 10-10 <sup>4</sup> cfu/g
		Clostridium perfringens	BAM 8th ed Ch- 16 Jan 2001	10 cfu/g; 10-10 <sup>4</sup> cfu/g
		Salmonella	IS 5887 (part 3) 1999, BAM 8th Ed Ch 5 Apr 2003	Absent/Present in 25g

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		Shigella	IS 5887 (part 7) 1999, BAM 8th Ed Ch 6 Jan 2001	Absent/Present in 25g
		Bacillus cereus	BAM 8th Ed Ch-14 Jan 2001, IS 5881 (part 6) 2002	10 cfu/g; 10-10 <sup>3</sup> cfu/g MPN:3/g; <3->1100
		Enterobacteriaceae	Petri film method IS 7402:1993	10 cfu/g; 10-10 <sup>4</sup> cfu/g
		Qualitative & Enumeration Test Listeria monocytogens	IS: 14988 Part-1,2:2001, BAM 8th Ed Ch-10 Jan 2003	Absent/Present in 25g, ≤ 10 cfu per g
		Vibrio cholerae	IS : 5887 Part -5-1976, Reaffirmed 2005; BAM 8th Ed Ch-9 May: 2004	Absent/Present in 25g
		Vibrio parahaemolyticus	IS : 5887 Part -5-1976, Reaffirmed 2005; BAM 8th Ed Ch-9 May: 2004	Absent/Present in 50g
		Faecal streptococci	IS : 5887 ( Part II ) - 1976	10 cfu/g; 10-10 <sup>4</sup> cfu/g
		Thermo tolerant Coliforms/ Faecal Coliforms	BAM 8th Ed Ch-4, Sep:2002	MPN: 3/g; MPN <3->1100
4.	<b>Bakery &amp; Confectionery Products</b>	Total Plate Count	IS 5402:2002 RA 2012/ FDA BAM Chapter 3	10 cfu/g; 10-10 <sup>6</sup> cfu/g
		Yeast & Mould	AOAC Petri Method; IS: 5403, 1999, BAM 8th Ed Ch 18	10 cfu/g; 10-10 <sup>4</sup> cfu/g
		E.Coli	AOAC Petrifilm Method; IS : 5887 ( Part I ) - 1976 Reaffirmed 1995 ; BAM 8th Ed Ch-4 2001	10 cfu/g; 10-10 <sup>3</sup> cfu/g MPN:3/g; <3->1100
		Total Coliforms	AOAC Petrifilm Method IS 5401 (Part 1): 2002, BAM 8th Ed Ch 4 Sep 2002	MPN:3/g; <3->1100 10 cfu/g; 10-10 <sup>3</sup> cfu/g
		Staphylococcus aureas	AOAC Petrifilm Method, IS 5887 (part 2) 1976, BAM 8th Ed Ch 12 Jan 2001	10 cfu/g; 10-10 <sup>4</sup> cfu/g

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		Shigella	IS: 5887 (P-7) 1999	Absent/Present in 25g
		Qualitative & Enumeration Test Listeria monocytogens	IS: 14988 Part-1,2:2001, BAM 8th Ed Ch-10 Jan 2003	Absent/Present in 25g, ≤ 10 cfu per gm
		Vibrio cholerae	IS : 5887 Part -5-1976, Reaffirmed 2005	Absent/Present in 25g
		Vibrio parahaemolyticus	IS : 5887 Part -5-1976, Reaffirmed 2005	Absent/Present in 50g
5.	Soft Drinks/Non-Alcoholic Beverages/Alcoholic Beverages/Vinegar etc.	Total Plate Count	IS 5402:2002 RA 2012/ FDA BAM Chapter 3	10 cfu/g; 10-10 <sup>6</sup> cfu/g
		Yeast & Mould	AOAC Petri Method; IS: 5403, 1999, BAM 8th Ed Ch 18	10 cfu/g; 10-10 <sup>4</sup> cfu/g
		E.Coli	AOAC Petrifilm Method; IS : 5887 ( Part I ) - 1976 Reaffirmed 1995 ; BAM 8th Ed Ch-4 2001	10 cfu/g; 10-10 <sup>3</sup> cfu/g MPN:3/g; <3->1100
		Total Coliforms	AOAC Petrifilm Method IS 5401 (Part 2): 2002, BAM 8th Ed Ch 4 Sep 2002	MPN:3/g; <3->1100 10 cfu/g; 10-10 <sup>3</sup> cfu/g
		Staphylococcus aureas	AOAC Petrifilm Method, IS 5887 (part 2) 1976 Reaffirmed 2005, BAM 8th Ed Ch 12 Jan 2001	10 cfu/g; 10-10 <sup>4</sup> cfu/g
		Salmonella	IS 5887 (part 3) 1999, BAM 8th Ed Ch 5 Apr 2003	Absent/Present in 25g
		Shigella	IS 5887 (part 7) 1999, BAM 8th Ed Ch 6 Jan 2001	Absent/Present in 25g
		Qualitative & Enumeration Test Listeria monocytogens	IS: 14988 Part-1,2:2004, BAM 8th Ed Ch-10 Jan 2003	Absent/Present in 25g, ≤ 10 cfu per g
		Bacillus cereus	IS:5887 (PartVI): 2002; BAM 8th Ed Ch-14 Jan 2001	10 cfu/g; 10-10 <sup>3</sup> cfu/g MPN:3/g; <3->1100

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		Vibrio cholerae	IS : 5887 Part -5-1976, Reaffirmed 2005	Absent/Present in 25g
		Vibrio parahaemolyticus	IS : 5887 Part -5-1976, Reaffirmed 2005	Absent/Present in 50g
		Faecal streptococci	IS : 5887 ( Part II ) - 1976	10 cfu/g; 10-10 <sup>4</sup> cfu/g
		Flat Sour Organisms	Compendium for the methods of food microbiology (APHA)	<1 - 150cfu/Plate multiplied by dilution factor (cfu/ml)
		Thermophillic count	IS 4251:1967 RA 1992	<1 - 150cfu/Plate multiplied by dilution factor (cfu/ml)
		Proteolytic count & Lipolytic count	IS 4251:1967 RA 1992	01 cfu/ml; 01-10 <sup>5</sup> cfu/ml
		Incubation test	IS: 2860: 1964	Passes/ Fails the test
		Aciduric Bacteria Count	APHA Food 2001-4th Edition (Chapter-19)	1 (Absent) cfu or 250 cfu per plate multiplied by dilution factor (cfu )
6.	<b>Milk &amp; Milk products</b>	Coliform count	IS 5401(part 1) : 2002 / FDA BAM Chapter 4	10 cfu/g; 10-10 <sup>3</sup> cfu/g
		Total plate count	IS 5402 : 2012 RA 2012/ FDA BAM Chapter 3	10 cfu/g; 10-10 <sup>6</sup> cfu/g
		Detection of E.Coli	IS 5887 : 1976 RA 2005/ FDA BAM Chapter 4	10 cfu/g; 10-10 <sup>3</sup> cfu/g MPN:3/g; <3->1100
		Salmonella	IS 5887 : Part 3 1999 RA 2005 / FDA BAM Chapter-5	Present or absent/25g or ml
		Yeast & Mould count	IS 5403:1999 RA 2005/ FDA BAM Chapter 18	10 cfu/g; 10-10 <sup>4</sup> cfu/g
		Thermophillic count	IS 1479 Part 3 RA 2009	01 cfu/ml; 01-10 <sup>5</sup> cfu/ml
		Shigella	FAD-BAM 2001 Vol-I, Chapter-6	Absent/Present in 25g
		Staphylococcus aureus	FAD-BAM 2001 Vol-II, Chapter-12	10 cfu/g; 10-10 <sup>4</sup> cfu/g
		Qualitative & Enumeration Test Listeria monocytogenes	FDA-BAM 2003 Vol-I, Chapter-10; AOAC, 18th Edn. Ch.17, p.227,999.06	Absent/Present in 25g

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7.	Animal Feeds / Cereals, Pulses & Cereal Products/ Nuts & Nuts Products/ Dry Fruits/ Sugar/ Spices & Culinary Products	Yeast & Mould count	IS 5403:1999 RA 2005/ FDA BAM Chapter 18	10 cfu/g; 10-10 <sup>4</sup> cfu/g
		Total Plate Count	IS 5402:2012 RA 2012/ FDA BAM Chapter 3	10 cfu/g; 10-10 <sup>6</sup> cfu/g
		Total coliforms	IS 5401 Part 1 2002/ FDA BAM Chapter 4	MPN:3/g; <3->1100 10 cfu/g; 10-10 <sup>3</sup> cfu/g
		E.Coli	IS 5887 : 1976 RA 2005/ FDA BAM Chapter 4	Present or absent/25g
		Salmonella	IS 5887 Part 3 1999 RA 2005/ FDA BAM Chapter-5	Present or absent/25g
		Enterobacteriaceae	IS 5887 (Part 8/See 1) :2002/IS : 5887 ( Part II ) - 1976; AOAC Petrifilm Method, BAM 8th Ed Ch-12 Jan 2001	10 cfu/g; 10-10 <sup>4</sup> cfu/g
		Staphylococcus aureas	IS 5887 (Part 8/See 1) :2002/IS : 5887 ( Part II ) - 1976; AOAC Petrifilm Method, BAM 8th Ed Ch-12 Jan 2001	Absent/Present in 25g
		Clostridium perfringens	IS 5887 (Part 4) :1999	10 cfu/g; 10-10 <sup>4</sup> cfu/g
		Faecal streptococci	IS : 5887 ( Part II ) - 1976	10 cfu/g; 10-10 <sup>3</sup> cfu/g MPN:3/g; <3->1100
		Shigella	IS5887( Part7): 1999	Absent/Present in 25g
		Bacillus cereus	IS 5887 (Part 6) : 2012	10 cfu/g; 10-10 <sup>3</sup> cfu/g MPN:3/g; <3->1100
		Qualitative & Enumeration Test Listeria monocytogenes	IS 14988 (Part 1) :2001; BAM 8th Ed Ch-10 Jan 2003	Absent/Present in 25g, ≤ 10 cfu per g
		Flat Sour Organisms	Compendium for the methods of food microbiology (APHA)	<1 - 150cfu/Plate multiplied by dilution factor (cfu/ml)
8.	Unprocessed/Processed/Frozen/Fruits & Vegetables & their Products including frozen vegetables	Total Plate Count/Aerobic plate count	IS 5402:2012 RA 2012/ FDA BAM Chapter 3	10 cfu/g; 10-10 <sup>6</sup> cfu/g
		Coliforms( Enumeration)	IS 5401 Part 1 2002/ FDA BAM Chapter 4	MPN:3/g; <3->1100 10 cfu/g; 10-10 <sup>3</sup> cfu/g
		E.coli (Detection)	IS 5887 : 1976 RA 2005/ FDA BAM Chapter 4	Absent/Present/ g

Ashok Kumar  
Convenor

N. Venkateswaran  
Program Director

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		Yeast & Mold (Enumeration)	IS 5403:1999 RA 2005/ FDA BAM Chapter 18	10 cfu/g; 10-10 <sup>4</sup> cfu/g
		Salmonella spp (Detection)	IS 5887 Part 3 1999 RA 2005/ FDA BAM Chapter-5	Absent/Present/25g
		Staphylococcus aureas	IS 5887 (Part 8/See 1) :2002/IS : 5887 ( Part II ) - 1976; AOAC Petrifilm Method, BAM 8th Ed Ch-12 Jan 2001	MPN:3/g; <3->1100 10 cfu/g; 10-10 <sup>3</sup> cfu/g
		Shigella	IS5887( Part7): 1999	Absent/Present in 25g
		Qualitative & Enumeration Test Listeria monocytogenes	IS 14988 (Part 1) :2001; BAM 8th Ed Ch-10 Jan 2003	Absent/Present in 25g, ≤ 10 cfu per g
		Vibrio cholerae	IS : 5887 Part -5-1976, Reaffirmed 2005; BAM 8th Ed Ch-9 May: 2004	Absent/Present in 25g
		Vibrio parahaemolyticus	IS : 5887 Part -5-1976, Reaffirmed 2005; BAM 8th Ed Ch-9 May: 2004	Absent/Present in 50g
		Faecal streptococci	IS : 5887 ( Part II ) - 1976	10 cfu/g; 10-10 <sup>3</sup> cfu/g MPN:3/g; <3->1100
		Flat Sour Organisms	Compendium for the methods of food microbiology (APHA)	<1 - 150cfu/Plate multiplied by dilution factor (cfu/ml)
9.	Infant foods	Total Plate Count/Aerobic plate count	IS 5402:2012 RA 2012	10 cfu/g; 10-10 <sup>6</sup> cfu/g
		Coliforms( Enumeration)	IS 5401 Part 1 2002	MPN:3/g; <3->1100 10 cfu/g; 10-10 <sup>3</sup> cfu/g
		E.coli (Detection)	IS 5887 Part-1 1976 RA 2005	Absent/Present/ g
		Yeast & Mold (Enumeration)	IS 5403:1999 RA 2005	10 cfu/g; 10-10 <sup>4</sup> cfu/g
		Salmonella spp (Detection)	IS 5887 Part 3 1999 RA 2005/ USFDA BAM Chapter-5	Absent/Present/25g

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ii.	<b>WATER</b>			
1.	<b>Water (Portable water/ Packaged Drinking Water)</b>	Total viable colony count @ 37°C for 24hrs and 48hrs	IS 1622-1981	01 cfu/ml; 01-10 <sup>5</sup> cfu/ml
		E.Coli	IS 15185-2002	Present/Absent /250ml
		Coliform count	IS 15185-2002	Present/Absent /250ml
		Proteolytic count & Lipolytic count	IS 4251-1967 RA 1992	01 cfu/ml; 01-10 <sup>5</sup> cfu/ml
		Thermophillic count	IS 4251-1967 RA 1992	01 cfu/ml; 01-10 <sup>5</sup> cfu/ml
		Salmonella	IS 15187-2002	Present or absent/250ml
		Faecal streptococci/250ml	IS 5887 (part 2) : 1976	MPN 1.8/100 ml; ≤1.8- ≥1600
		Staphylococcus aureas/250ml	IS 5887 (part 2) : 1976	01 cfu/ml; 01-10 <sup>4</sup> cfu/ml
		Pseudomonas aeruginosa/250ml	IS 13428 ANNEX D.2005	MPN 1.8/100 ml; ≤1.8- ≥1600
		Sulphite reducing bacteria/50ml	IS 13428 ANNEX D.2005	Absent/Present
		Aerobic microbial count/ml at 22 C & 37 C	IS 5402:2012	01 cfu/ml; 01-10 <sup>5</sup> cfu/ml
		Yeast & Mould/250ml	IS 5403:1999	Absent/Present
		Shigella/250ml	IS 5887 (part 7) : 1999	Absent/Present
		Vibrio cholera/250ml	IS 5887 (Part V)	Absent/Present
		vibrio parahaemolyticus/250ml	IS 5887 (part 5) : 1976	Absent/Present

**NOTE:** The Laboratory has demonstrated competence for the stated scope for **WATER**. This however **does not fully cover** the specification requirements of **BIS** for the **Packaged Drinking Water** as per **IS:14543** and the **Packaged Natural Mineral Water IS:13428**.



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**CHEMICAL TESTING**

I.	<b>FOOD &amp; AGRICULTURAL PRODUCTS</b>			
1.	<b>Nutritional Value for Processed Food (Milk powder, Meat products, Biscuits, Chocolates, Fish products, Flour, Cheese, Macronic food, Bread, Ice-cream etc.</b>	Moisture	IS 1011: 2002 (RA 2009)/ AOAC 925.10/ AOAC 926.07/AOAC950.46 19 <sup>th</sup> Edn	0.01% to 10.0%
		Acid insoluble ash in biscuit	IS 1011: 2002 (RA 2009)	0.01% to 2.0%
		Acidity of extracted fat(as oleic acid),percent by mass,max,in biscuit	IS 1011: 2002 (RA 2009)	0.05% to 5.0%
		Total ash	IS 1011: 2002 (RA 2009)/ AOAC 19 <sup>th</sup> Edn 923.03	0.1% to 5.0%
		Protein	AOAC 984.13 /AOAC 920.87 19 <sup>th</sup> Edn	0.1% to 50.0%
		Total Fat	AOAC 2003.06/AOAC 920.85 19 <sup>th</sup> Edn	0.1% to 50.0%
		Total Carbohydrates	AOAC 986.25, 19 <sup>th</sup> Edn	0.1% to 99.9%
		Energy	Nutritive value of foods ICMR	10-1000kcal
		Calories from fat	Nutritive value of foods ICMR	10-1000kcal
		Crude fiber	AOAC 962.09 19 <sup>th</sup> Edn	0.1% to 5.0%
		Total Sugars	FSSAI manual; Lab Manual no. 4, 2016/IS 15279: 2003, RA 2013	0.5% to 50.0%
		Sucrose	FSSAI manual; Lab Manual no. 4, 2016/IS 15279: 2003, RA 2013	0.5% to 50.0%
		<b>Fatty acid profile</b>		
		Saturated	AOAC 996.06/AOAC 996.01 19 <sup>th</sup> Edn	1.0% to 50.0%
	Monounsaturated,		1.0% to 50.0%	
	Polyunsaturated		1.0% to 20.0%	
	Trans fat		0.01% to 10.0%	

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		Vitamin C	AOAC 967.21 19 <sup>th</sup> Edn	5.0 to 1000 mg/100gm
		Vitamin A(as retinol)	AOAC 2001.13 19 <sup>th</sup> Edn	20 IU to 10000 IU
		Sodium	AOAC 969.23/ AOAC 956.01 19 <sup>th</sup> Edn	0.1- 500 mg/100gm
		Potassium	AOAC 969.23 19 <sup>th</sup> Edn	0.05 to 1000 mg/100gm
		Calcium	AOAC 938.08 19 <sup>th</sup> Edn /IS 7874 (Pt:2) ;1975 RA 2009 / IS 3025 (Part 40) 1991	0.05 to 1000mg/100gm
		Thiamin(Vitamin B1)	FTL-T-STP001 Issue No:02 Issue Date :08.11.2016	1.0 mg/kg to 250 mg/kg
		Riboflavin(Vitamin B2)		1.0 mg/kg to 250 mg/kg
		Niacin(Vitamin B3)		1.0 mg/kg to 250 mg/kg
		Folic acid(Vitamin B9)		1.0 mg/kg to 250 mg/kg
<b>2.</b>	<b>Sugar and Sugar Products</b>	Colour in ICUMSA units	IS 15279: 2003, (RA 2013)	1.0-500.0 units
		Extraneous matter	FSSAI manual; Lab Manual no. 4, 2016	0.1% to 50%
		Dirt, Filth & Iron fillings	FSSAI manual; Lab Manual no. 4, 2016	0.1% to 50%
		Sulphur Di-oxide content	IS 15279: 2003, (RA 2013)/ FSSAI manual; Lab Manual no. 4, 2016	10 mg/kg to 1000 mg/kg
		Added Colouring matter	FSSAI manual; Lab Manual no. 4, 2016	Present/absent
		Moisture	FSSAI manual; Lab Manual no. 4, 2016	0.01% to 90.0%
		Total Sugars (Expressed as Sucrose)	FSSAI manual; Lab Manual no. 4, 2016	1.0% to 100%
		Reducing sugars	IS 15279: 2003, (RA 2013)/ FSSAI manual; Lab Manual no. 4 2016	0.1% to 2.0%
		Total Ash	AOAC 923.03 19 <sup>th</sup> Edn	0.01% to 2.0%
		Sulphated Ash	IS 15279: 2003, (RA 2013)/ AOAC 900.02C 19 <sup>th</sup> Edn	0.1% to 2.0%

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3.	<b>Nuts &amp; Oil Seeds</b>	Moisture	AOAC 925.40 19th Edn	0.1% to 20.0%
		Fat Crude / Oil content	AOAC 948.22 19th Edn	0.5% to 60%
		Crude Protein	AOAC 950.48 19th Edn	0.5% to 40%
		Ash	AOAC 950.49 19th Edn	0.2% to 15%
		Acidity of Extracted fats as expressed as oleic acid	IS 1011-2002 (RA 2009)	0.05% to 5.0%
		Extraneous Veg matter	IS 4333(part 1)-1996(RA 2012)	0.1% to 50%
4.	<b>Stimulant Foods Tea &amp; Tea Products, Coffee, Chicory, Cocoa and by products</b>	Moisture, % by mass	IS 13853:1994, (RA 2009) IS 2791-1992 RA 2009/AOAC 19th Edn 968.11	0.1% to 10%
		Crude fiber, % (on dry basis)	IS 10226 (PART 1) -1982 (RA 2015)/ IS 16041:2012	0.5% to 20%
		Total ash (on dry basis), % by mass	IS 2791-1992 RA 2009/AOAC 920.93 19th Edn	0.1% to 10%
		water soluble ash	IS 13855 -1993 RA 2009	1.0% to 50%
		Acid insoluble ash, % (on dry basis)	IS 13857 -1993 RA 2009	0.01% to 2.0%
		Alkalinity of water soluble ash	IS 13856 -1993 RA 2009	0.1% to 5.0%
		water extract, % by mass	AOAC 920.104 19th Edn / IS 13862 -1999 RA 2009	0.5% to 50%
		Caffeine (on dry basis), % by mass	FSSAI manual; Lab Manual no. 8, 2016 / IS 2791-1992 RA 2009/AOAC 969.15 19th Edn	0.5% to 5.0%
		Solubility in Boiling water	IS 2791-1992 (RA 2009)	20 seconds to 50 seconds
		Solubility in Cold water	IS 2791-1992 (RA 2009)	5 minutes to 50 minutes
5.	<b>Fruits &amp; Vegetables Products, Fruit Juices &amp; Concentrates a) Grapes b) pomegranate</b>	Total solids, % by mass	AOAC 920.151 19th Edn	0.1% and above
		Water Content	FSSAI manual; Lab Manual no. 5, 2016	0.1% to 100%
		Glucose/Fructose/Sucrose, % by mass	AOAC 925.35 19th Edn / FSSAI manual; Lab Manual no. 5, 2016	0.5% and above

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	c)Cabbage , d)fruit juice e)Fruit pulp, f)Soft drinks, g)Carbonated beverages	Titration acidity g/100g or 100ml	AOAC 942.15 19th Edn	0.5% to 5.0%
		Ascorbic acid	AOAC 967.21 19th Edn	5.0-500mg/100gm
		pH units	AOAC 981.12 19th edn	1.0-14.0 units
		Brix units	IS 2346-1992 (RA 2009) /AOAC 932.14 19th Edn	1.0-20 units
		Sulphated ash	IS 13019: 1991 (RA 2003)	0.02% to 5%
		Total Sugars	FSSAI manual; Lab Manual no. 5, 2016/ AOAC (19 <sup>th</sup> Edition) 923.09	1% to 90%
		Thiamin(Vitamin B1)	FTL-T-STP001 Issue NO:02	1.0 mg/kg to 250 mg/kg
		Riboflavin(Vitamin B2)	Issue Date :08.11.2016	1.0 mg/kg to 250 mg/kg
		Niacin(Vitamin B3)		1.0 mg/kg to 250 mg/kg
		Folic acid(Vitamin B9)		1.0 mg/kg to 250 mg/kg
6.	Meat & Meat Products, Marine & farmed aquatic Products and its by-products	Salt as NaCl	AOAC 937.09/	0.1% to 20.0%
		Moisture,% by mass	IS 5960 (Part-5)-2001 RA 2009 /AOAC 19th 950.46	0.1% to 85.0%
		Free Fatty acid value	IS 5960 (Part-4)-1997 RA 2009	0.1% to 10.0%
		Total Fat	AOAC 19 <sup>th</sup> edn;IS 5960 (3)-1970/	0.1% to 50.0%
		Total Ash	IS 5960 (Part-2) 2000 RA 2009	0.1% to 10.0%
		Protein	AOAC 19th Ed. 984.13	0.1% to 50.0%
7.	Infant Foods Milk-Cereal based complementary foods, Infant milk substitute	Moisture,% by mass	IS 11623-2008 RA 2013/AOAC 927.0519th edn	0.1% to 15%
		Total ash,%by mass	IS 14433 (Pt 1)-1997 RA 2005/AOAC19th edn 930.30	0.1% to 10%
		Acid insoluble ash,%(on dry basis)	IS 14433-2007 RA 2012/IS 6287-1985 RA 2010	0.01% to 10%
		Fat,%by mass	IS 11721-2013/AOAC 989.05 19th edn	0.5% to 50%

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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Protein,% by mass	IS 7219:1973 RA 2010/AOAC 984.13 19th edn	0.5% to 30%
		calcium as Ca,% by mass	IS:13433(Pt-1)-1992 (RA 2008)/ IS 7874 (Pt:2) ;1975 (RA 2009)	10.0-300mg/100gm
		Carbohydrates	AOAC 986.25 19th Edn	1% to 99%
		Sodium	AOAC 969.23 19th Edn	10 mg/kg to 1000 mg/kg
		Potassium	AOAC 969.23 19th Edn	10 mg/kg to 1000 mg/kg
		Vitamin A(as retinol)	AOAC 19th Edn2001.13/IS 5886 : 1970 (RA 2005)	50 -000µg/100gm
		Thiamin(Vitamin B1)	FTL-T-STP001 Issue NO:02	1.0 mg/kg to 250 mg/kg
		Riboflavin(Vitamin B2)	Issue Date :08.11.2016	1.0 mg/kg to 250 mg/kg
		Niacin(Vitamin B3)		1.0 mg/kg to 250 mg/kg
		Folic acid(Vitamin B9)		1.0 mg/kg to 250 mg/kg
<b>8.</b>	<b>Feed and Feed Stuffs</b>	Moisture,% by mass	IS 7874 (pt1)-1975( RA 2014)/AOAC 930.15 19th Edn	0.1% to 15%
		Total ash,%by mass	IS 7874 (pt1)-1975( RA 2014)/AOAC 19th Edn 942.05	0.1% to 10%
		Acid insoluble ash,% by mass	IS 7874 (pt1)-1975( RA 2014)	0.1% to 5.0%
		Crude fat,%by mass	IS 7874 (pt1)-1975( RA 2014)/AOAC 19th Edn 2003.06	0.5% to 10%
		Crude protein,% by mass	IS 7874 (pt1)-1975( RA 2014)/AOAC 19th Edn 984.13	0.5% to 30%
		Crude fiber,% by mass	IS 7874 (pt1)-1975( RA 2014)	0.5% to 10%
		Salt as NaCl	IS 7874 (pt1)-1975( RA 2014)	0.1% to 5.0%
		calcium as Ca,% by mass	IS:13433(Pt-1)-1992 ( RA 2008)	0.1% to 10%
		Carbohydrates	AOAC (19th Edition) 986.25: 2012	1% to 99%

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		Iodine	IS 7874 (Pt:2);1975 (RA 2009)	0.1 mg/kg to 100 mg/kg
		Sodium	AOAC 19th Edn 969.23	10 mg/kg to 2000 mg/kg
		Potassium	AOAC 19th Edn 969.23	10 mg/kg to 500 mg/kg
		Vitamin A (as Retinol)	AOAC 19th Edn 2001.13	20 to 10000 IU/100gm
		Vitamin D3 (as Cholecalciferol)	AOAC 19th Edn 2002.05	20 to 10000 IU/100gm
		Vitamin E (Tocopherol)	AOAC 19th Edn 948.26	0.5 to 10000 mg/100gm
		Phosphorous as P,% by mass	IS 7874 (pt2)-1975( RA 2009)/AOAC 19th Edn 965.17	0.1% to 15%
9.	<b>Food Grains, Cereals, Pulses, Flours &amp; their Products</b>	Moisture,% by mass in Flour	IS1155-1968 (RA 2015)/AOAC 19th Edn 925.10	0.5% to 15%
		Total Ash,(%on dry basis)	IS1155-1968 (RA 2015)/AOAC 19th Edn 923.03	0.1% to 10%
		Acid insoluble ash,(%on dry basis)	IS1155-1968 (RA 2015)	0.01% to 1%
		Crude fibre,(%on dry basis)	IS1155-1968 (RA 2015)/AOAC 19th Edn 962.06	0.1% to 5%
		Gluten,(%on dry basis)	IS1155-1968 (RA 2015)	1% to 15%
		Alcoholic acidity expresses as H <sub>2</sub> SO <sub>4</sub> , by mass	IS1155-1968 (RA 2015)	0.05% to 0.4%
		Total Carbohydrates	AOAC 19th Edn 986.25	1% to 99%
		Total protein,(%on dry basis)	AOAC 19th Edn 979.09/ AOAC 984.13 19th Edn	0.5% to 30%
		Argemone Seeds	Visual Examination	Present/Absent
		Khesari Dal	FSSAI manual; Lab Manual no. 3, 2016	Present/Absent
		Foreign Matter	FSSAI manual; Lab Manual no. 3, 2016/ IS 4333(part 1)-1996(RA 2012)	0.1% to 50.0%

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		Mineral matter	FSSAI manual; Lab Manual no. 3, 2016	0.1% to 50.0%
		Organic matter	FSSAI manual; Lab Manual no. 3, 2016	Present/Absent
		Damaged grains	FSSAI manual; Lab Manual no. 3, 2016/ IS 4333(part 1)-1996 (RA 2012)	0.1% to 50%
		weevilled grains	FSSAI manual; Lab Manual no. 3, 2016/IS 4333(part 1)-1996(RA 2012)	0.1% to 50%
		Other Edible grain	FSSAI manual; Lab Manual no. 3, 2016/IS: 4333: (Part-I): 1996 (RA 2012)	0.1% to 50%
		Insects	Visual Examination	Present/Absent
		Calcium Carbonate	FSSAI manual; Lab Manual no. 3, 2016	Present/Absent
		Hydrocyanic Acid	FSSAI manual; Lab Manual no. 3, 2016/AOAC 915.03 19 <sup>th</sup> Edn	0.1 mg/kg to 250 mg/kg
		Rodent hair & Excreta	FSSAI manual; Lab Manual no. 3, 2016	Present/Absent
10.	<b>Oils, Fats and Related Products</b>	Moisture ,% by mass	IS 548 (pt-1):1964 (RA2015)/ FSSAI manual; Lab Manual no. 2, 2016	0.05% to 2.0%
		Iodine value	IS 548 (pt-1):1964 (RA2015)/ FSSAI manual; Lab Manual no. 2, 2016	50-250
		Saponification value	IS 548 (pt-1):1964 (RA2015)/ FSSAI manual; Lab Manual no. 2, 2016	100-300
		Peroxide value	IS 548 (pt-1):1964 (RA2015)/ FSSAI manual; Lab Manual no. 2, 2016	1 meq/kg to 200meq/kg

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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Unsaponifiable matter% by mass	IS 548 (pt-1):1964 (RA2015)/ FSSAI manual; Lab Manual no. 2, 2016	0.5% to 2.0%
		Acid value	IS 548 (pt-1):1964 (RA2015)/ FSSAI manual; Lab Manual no. 2, 2016	0.1 to 10
		Free fatty acid value	IS 548 (pt-1):1964 (RA2015)/ FSSAI manual; Lab Manual no. 2, 2016	0.1 to 5
		Refractive index	IS 548 (pt-1):1964 (RA2015)/ FSSAI manual; Lab Manual no. 2, 2016	1.4000 to 1.6000
		Specific gravity	IS 548 (pt-1):1964 (RA2015)/ FSSAI manual; Lab Manual no. 2, 2016	0.5000 to 1.0000
		<b>Fatty Acid Profile</b>		
		Saturated	AOAC 996.06 19 th Edn	1% to 99%
		Monounsaturated		1% to 99%
		Polyunsaturated		1% to 99%
		Trans fat		0.01% to 10%
		Color on Lovibond scale	FSSAI manual; Lab Manual no. 2, 2016	0.1 to 79 Yellow & Red, 0.1 to 49 Blue, 0.1 to 3 Neutral
		Flash Point(Polensky Marten closed cup Method	IS 1448(Part-20): 1998 (RA2008)	50°C to 400°C
		Butyro Refractive Reading at 50 C	IS 548(P-1): 1964 (RA 2015)/ FSSAI manual; Lab Manual no. 2, 2016	35.5 to 44.0
		Hydrocyanic acid	IS 548(P-2): 1976 (RA2010)/ FSSAI manual; Lab Manual no. 2, 2016	0.1 mg/kg to 250 mg/kg
		BTT Test	IS 548(P-2): 1976 (RA2010)/ FSSAI manual; Lab Manual no. 2, 2016	37°C to 50°C

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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Melting point	IS 548(P-2): 1976 (RA2010)/ FSSAI manual; Lab Manual no. 2, 2016	4°C to 40°C
		Cholesterol	AOAC 19th Edn 994.10	1 to1000 mg/100g
		Betacarotene	FSSAI manual; Lab Manual no. 2, 2016	100 mg/kg to 1000mg/kg
		<b>Adulterants</b>		
		Argemone oil	IS 548 (pt-2):1976 (RA2010)/ FSSAI manual; Lab Manual no. 2, 2016	Present/Absent
		Mineral oil	IS 548 (pt-2):1976 (RA2010)/ FSSAI manual; Lab Manual no. 2, 2016	Present/Absent
		Castor oil	IS 548 (pt-2):1976 (RA2010)/ FSSAI manual; Lab Manual no. 2, 2016	Present/Absent
		Cotton seed oil	IS 548 (pt-2):1976 (RA2010)/ FSSAI manual; Lab Manual no. 2, 2016	Present/Absent
		Sesame seed oil	IS 548 (pt-2):1976 (RA2010)/ FSSAI manual; Lab Manual no. 2, 2016	Present/Absent
		Mustard oil	IS 548 (pt-2):1976 (RA2010)/ FSSAI manual; Lab Manual no. 2, 2016	Present/Absent
		Cloud Point	FSSAI manual; Lab Manual no. 2, 2016	5°C to 30°C
		Vitamin A (as retinol)	AOAC 2001.13 19 <sup>th</sup> Edn	300 to 1500µg/100gm
		Vitamin D3 (as cholecalciferol)	AOAC 19th Edn 2002.05	500 to 1500µg/100gm
<b>11.</b>	<b>Milk, Milk Powder &amp; Dairy products</b>	Total solids,% by mass	IS12333-1997(RA 2012)	0.1% to 100%
		Insolubility Index, ml	IS 12759-1989(RA2014)	0.1ml to 5.0ml
		Moisture,% by mass	IS11623-2008 (RA2013)	0.5% to 15%

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		Total milk Protein	IS7219:1973(RA2010)/AOAC19th edn 991.20	0.5% to 25.0%
		Milk fat,% by mass	IS 11721-2013/AOAC19th edn 932.06	0.5% to 10%
		Total Ash, ,(on dry basis)	IS 14433-2007(RA2012)/AOAC19th edn 945.46	0.01% to 10%
		Titration Acidity (Lactic acid),% by mass	IS 11766-1986(RA2013)/FSSAI manual; Lab Manual no. 1, 2016	0.1% to 4.0%
		pH	IS 1479 (Part 2):1961(RA2013)	1 to 14.0 units
		Lactose content	IS 1479 (Part 2):1961(RA2013)	1% to 50%
		Calcium	AOAC 19 th Edn985.01	0.05 to 1000mg/100gm
		Phosphorous	IS 12756-1989(RA2010)	0.05 to 1000mg/100gm
		Linoleic acid	AOAC 996.01 19 <sup>th</sup> Edn	1% to 20%
		Vitamin A (as retinol)	AOAC 19th Edn2001.13	2 to 1500µg/100gm
		Vitamin D3 (as cholecalciferol)	AOAC 19th Edn 2002.05	2 to 1500µg/100gm
12.	<b>Spices &amp; Condiments (Coriander, Turmeric Powder, Chili ,Mixed spice powder)</b>	Moisture,% by mass	IS 1797:2017/AOAC19th edn 986.21	0.5% to 25%
		Total ash,%by mass	IS 1797:2017/AOAC19th edn 941.12	0.5% to 15%
		Acid insoluble ash,(on dry basis)	IS 1797:2017	0.05% to 5.0%
		Crude fiber,% by mass	IS 1797:2017/AOAC19th edn 962.09E	0.5% to 20%
		Nonvolatile ether extract	IS 1797:2017/AOAC19th edn 920.172	1.0% to 15%
		Volatile oil content(V/w)	IS 1797:2017(RA2013)	0.2% to 10%
		Extraneous matter	FSSAI manual; Lab Manual no. 10, 2016	0.1% to 50%
		Alcohol soluble Extract	IS 1797:2017	1.0% to 50.0%

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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Salt	IS 1797:2017	0.1% to 5.0%
		Solubility in cold water (on dry basis)	FSSAI manual; Lab Manual no. 10, 2016	1.0% to 65.0%
13.	<b>Tinned/Packed/ Ready to Eat Foods</b>	Moisture ,% by mass	AOAC 19 th Edn925.10	0.2% to 15%
		Total ash% by mass	AOAC 19 th Edn923.03	0.2% to 15%
		Fat,% by mass	AOAC 19 th Edn920.85/AOAC 19 th Edn920.39	0.5% to 15%
		protein,% by mass	AOAC 19 th Edn984.13/AOAC 19 th Edn976.06	0.5% to 50%
		Carbohydrates,% by mass	AOAC 19 th Edn986.25/By calculation	0.1% to 99.9%
		Crude fiber,% by mass	IS 10226 (PART 1) -1982 (RA 2015)/ AOAC19th edn 962.09E	0.1% to 15%
		<b>Fatty acid profile</b>		
		Saturated	AOAC 996.06 19 th Edn	1% to 99%
		Monounsaturated		1% to 99%
		Polyunsaturated		1% to 99%
		Trans fat		0.01% to 10%
		Sugar analysis(Sugar profile-Sucrose, glucose, fructose)	AOAC 977.2019 th Edn	0.1% to 60%
		Total Calories	Nutritive value of foods ICMR	10 to 1000kcal
		Vitamin C	AOAC 19 th Edn967.21	2 to 1000mg/100gm
		Acid insoluble ash in Dil HCL(on dry basis)	IS 1011: 2002(RA 2009) /IS 12711: 1989	0.1% to 5.0%
		Acidity of extracted fat (as oleic acid),% by mass,Max	IS 1011:2002(RA 2009)/ IS 12711: 1989 (RA 2010)	0.1% to 5.0%
		Salt (as Sodium Chloride)	IS 7874 (pt2)-1975( RA 2009)	0.1% to 5.0%
		Total Sugars	AOAC 19 th Edn977.20/ FSSAI manual; Lab Manual no. 4, 2016	0.5% to 50.0%

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		Thiamin(Vitamin B1)	FTL-T-STP001 Issue NO:02	1.0 mg/kg to 250 mg/kg
		Riboflavin(Vitamin B2)	Issue Date :08.11.2016	1.0 mg/kg to 250 mg/kg
		Niacin(Vitamin B3)		1.0 mg/kg to 250 mg/kg
		Folic acid(Vitamin B9)		1.0 mg/kg to 250 mg/kg
<b>II.</b>	<b>WATER</b>			
<b>1.</b>	<b>Water (Natural Mineral water/Packaged drinking water/Water for Food Industry/Drinking water/Feed/Boiler Water; Drinking Water as per W.H.O)</b>	Description	Cl.5.2 of IS: 14543-2004 (RA 2009)	Qualitative
		Turbidity(NTU)	IS:3025(Pt-10)-1983(RA-2012) /APHA 22nd 2130B	1 NTU to 100NTU
		pH	IS:3025(Pt-11)-1983(RA-2012)/ APHA 22nd 4500H+B	3 units to 12units
		Nitrate as NO <sub>3</sub>	IS:3025(Pt-34)-1988 (RA 2014)/APHA 22nd edn 4500NO3 B	0.1 mg/L to 100 mg/L
		Chloride	IS:3025(Pt-32)-1988 (RA2014)/APHA 22nd edn 4500cl- B	1 mg/L to 1000 mg/L
		Ammonical Nitrogen	APHA 22nd Edn 4500/NH3 F	0.05 mg/L to 10 mg/L
		Conductivity	IS:3025(Pt-14)-1984 (RA 2013)/ APHA 22nd 2510 B	1 μS/cm to 2000 μS/cm
		Oxidisability	ISO 8467-1993	1 mg/L to 10 mg/L
		Silica	IS:3025(Pt-35)-1988 (RA 2014)/APHA 22nd 4500-Si C&D	0.1 mg/L to 50 mg/L
		Sulphate	IS:3025(Pt-24)-1986 (RA 2013)/APHA 22nd edn 4500SO4	0.5 mg/L to 250 mg/L
		Total Alkalinity	IS:3025(Pt-23)-1986 (RA2013)/APHA 22nd edn 2320 B	0.5 mg/L to 1000 mg/L
		Calcium	IS:3025(Pt-40)-1991 (RA2014)/APHA 22nd edn 3500Ca B	1 mg/L to 1000 mg/L

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		Fluoride	IS:3025(Pt-60)-2008/APHA 22nd edn 4500F- D	0.1 mg/L to 5.0 mg/L
		Phosphates	APHA 21st Edn 4500-Po4- - C,D&E	0.1 mg/L to 100 mg/L
		Magnesium	IS:3025(Pt-46)-1994 RA 2009/APHA 21st Edn 3500Ca B	1 mg/L to 1000 mg/L
		Total Dissolved Solids	IS 3025 (Part 16): 1984 (RA 2012)/ APHA 2540B 22nd edition	1.0 mg/L to 2500 mg/L
		Sodium	IS 3025 (Part 45, a ): 1993 (RA 2014)	0.2 mg/L to 1000 mg/L
		Potassium	IS 3025 (Part 45, a ): 1993 (RA 2014)	0.1 mg/L to 1000 mg/L
		Odour	IS 3025 (Part -5) 1983 (RA 2012); APHA 21st Ed 2150	Agreeable/disagreeable
		Colour	IS 3025 (Part -4) 1983 (RA 2012); 2120B APHA 21st Ed	1.0 to 50.0 units
		Total Hardness asCaCO <sub>3</sub>	IS:3025(Pt-21)-1983 (RA 2014)/ APHA 21st 2340C	1 mg/L to 1000mg/L

**NOTE:** The Laboratory has demonstrated competence for the stated scope for **WATER**. This however **does not fully cover** the specification requirements of **BIS for the Packaged Drinking Water as per IS:14543 and the Packaged Natural Mineral Water IS:13428.**