

Laboratory	Hemshell Services-Testing Division, 903/1, Makarpura G.I.D.C, Makarpura, Vadodara, Gujarat		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Chemical Testing	Issue Date	22.09.2016
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S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
I.	FOOD AND AGRICULTURAL PRODUCTS			
1.	Tea	Loss in Mass at 103°C	IS 13853: 2014	0.1 g/100g to 15 g/100g
		Total ash	IS 13854: 2009	0.1 g/100g to 15 g/100g
		Acid insoluble ash	IS 13857: 2014	0.01 g/100g to 5 g/100g
		Water soluble ash	IS 13855: 2014	1 g/100g to 70 g/100g
		Alkalinity of water soluble ash	IS 13856: 2009	0.5 g/100g to 50 g/100g
		Water insoluble ash	IS 13855: 2014	0.1 g/100g to 60 g/100g
		Water extract	IS 13862: 2014	0.1 g/100g to 50 g/100g
		Crude fiber	IS 10226 (Part 1): 2010	0.5 g/100g to 30 g/100g
2.	Coffee And Coffee Products	Moisture	IS 3077: 2014	0.1 g/100g to 15 g/100g
		Total ash	IS 3077: 2014	0.1 g/100g to 15 g/100g
		Water Soluble ash	IS 3077: 2014	1 g/100g to 99 g/100g
		Solubility in boiling water	IS 2791: 2009	>10 s
		Solubility in cold water	IS 2791: 2009	>1 min
		Acid insoluble ash	IS 3077: 2014	0.01 g/100g to 2 g/100g
		Alkalinity of ash	IS 3077: 2014	1 g/100g to 20 g/100g
		Water Soluble matter	IS 3077: 2014	1 g/100g to 55 g/100g

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3.	Milk And Dairy Products			
a.	Milk (Raw, Whole, Pasteurized, Skimmed, Evaporated, Toned, Flavored)	Moisture content Total Solids Titratable acidity Fat Nitrogen Lactose Protein Ash Solid not Fat Adulteration Detection Test in Milk Detection of Urea Detection of Vegetable oil Detection of Cane Sugar Detection of Neutralizers Detection of Starch Detection of Hydrogen Peroxide	IS 1479 (Part 2): 2013 IS 1479 (Part 2): 2013 IS 1479 (Part 1): 2013 IS 1479 (Part 2): 2013 IS 1479 (Part 2): 2013 FSSAI LAB MANUAL IS 1479 (Part 2): 2013 IS 1479 (Part 2): 2013 IS 1479 (Part 1): 2003 / IS 1479 (Part 2): 2013	0.5 g/100g to 20 g/100g 5 g/100g to 99 g/100g 0.1 g/100g to 15 g/100g 0.2 g/100g to 40 g/100g 0.1 g/100g to 15 g/100g 0.5 g/100g to 50 g/100g 0.5 g/100g to 50 g/100g 0.1 g/100g to 15 g/100g 5 g/100g to 90 g/100g Qualitative
b.	Ice Cream And Frozen Desserts	Total solids Fat	IS 2802: 2011 IS 2802: 2011	5 g/100g to 65 g/100g 0.2 g/100g to 40 g/100g

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	Ice Cream And Frozen Desserts	Sucrose	IS 2802: 2011	0.2 g/100g to 20 g/100g
		Protein	FSSAI LAB MANUAL, Page.61	0.5 g/100g to 15 g/100g
		Ash	AOAC (20 th Edition) 920.108: 2012	0.1 g/100g to 10 g/100g
		Carbohydrate	IS 1656: 2012	1 g/100g to 100 g/100g
		Acidity	IS 2802: 2011	0.01 g/100g to 25 g/100g
c.	Butter , Processed Cheese,Cream, Paneer, Shrikhand, Khoa & Indigenous Milk Product	Loss on Drying	IS 3507: 2013/ IS 2785: 2011/ IS 4079: 2011/ IS 10484: 1999	1 g/100g to 80 g/100g
		Ash	IS 9532: 2010	0.1 g/100g to 15 g/100g
		Fat	IS 3507: 2013/ IS 2785: 2011/ IS 4079: 2011/ IS 10484: 1999	0.5 g/100g to 90 g/100g
		Protein	FSSAI Lab Manual-1:2015, Page. 61	0.5 g/100g to 50 g/100g
		Salt	IS 3507: 2013	0.1 g/100g to 10 g/100g
		Acidity	IS 3507: 2013/ IS 2785: 2011/ IS 4079: 2011/ IS 10484: 1999	0.01 g/100g to 50 g/100g
		Sucrose	IS 4079: 2011	0.1 g/100g to 60 g/100g 0.2

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d.	Milk Powder(Skimmed Milk Powder, Whole Milk Powder& Infant Milk Food)	Total Ash	IS 1656: 2012	0.1 g/100g to 15 g/100g
		Moisture	IS 11623: 2013	0.1 g/100g to 15 g/100g
		Acid insoluble Ash	IS 1656: 2012	0.01 g/100g to 10 g/100g
		Protein	IS 1656: 2007,2012/ AOAC (20 th Edition) 920.87	0.5 g/100g to 40 g/100g
		Total fat	IS 1656: 2012/ AOAC (20 th Edition) 945.48	0.2 g/100g to 30 g/100g
		Total Carbohydrate	IS 1656: 2012	1 g/100g to 100 g/100g
4.	Spices and Condiments (Whole, Powder And Mix Masala)	Extraneous matter	IS 1797: 2013	0.1-20 g/100g
		Total ash	IS 1797: 2013	0.1 g/100g to 20 g/100g
		Water insoluble ash	IS 1797: 2013	0.01 g/100g to 5 g/100g
		Acid insoluble ash	IS 1797: 2013	0.01 g/100g to 5 g/100g
		Moisture content	IS 1797: 2013	0.2 g/100g to 15 g/100g
		Crude fiber	IS 1797: 2013	1 g/100g to 50 g/100g
		Nonvolatile ether extract	IS 1797: 2013	0.5 g/100g to 25 g/100g
		Volatile oil	IS 1797: 2013	0.2 g/100g to 10 g/100g
		Total Starch	IS 4706 (Part 1): 2005	1 g/100g to 70 g/100g
		Salt	IS 1797: 2013	0.1 g/100g to 20 g/100g

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5a.	Cereals , Pulses, Flour & Flour Based Product	Moisture	IS 1009: 2015 / IS 1155: 1968/ AOAC (20 th Edition) 925.10	0.1 g/100g to 15 g/100g
		Ash	IS 1009: 2015/ AOAC (20 th Edition) 923.03/ IS 1155: 1968	0.1 g/100g to 15 g/100g
		Acid insoluble ash	IS 1155: 1968 / AOAC (20 th Edition) 923.03	0.01 g/100g to 5 g/100g
		Crude protein	AOAC (20 th Edition) 920.87	0.5 g/100g to 40 g/100g
		Fat	IS 7874 (Part 1): 2009/ AOAC (20 th Edition) 922.06	0.2 g/100g to 20 g/100g
		Carbohydrates	IS 1656: 2012	1 g/100g to 100 g/100g
		Crude fiber	IS 1155: 1968	0.1 g/100g to 12 g/100g
		Total Starch	IS 4706: 2005	1 g/100g to 70 g/100g
		Gluten	IS 1155: 1968/ IS 1009: 2015	1 g/100g to 15 g/100g
		Alcoholic acidity	IS 1009: 2015/ IS 1155: 1968	0.01 g/100g to 5 g/100g
5b.	Corn Flakes	Moisture	IS 1158: 2010	0.1 g/100g to 10 g/100g
		Total Ash	IS 1158: 2010	0.1 g/100g to 10 g/100g
		Acid Insoluble Ash	IS 1158: 2010	0.01 g/100g to 5 g/100g

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	Corn Flakes	Crude Fiber	IS 1158: 2010	0.5 g/100g to 20 g/100g
		Alcoholic Acidity	IS 1158: 2010	0.01 g/100g to 5g/100g
6.	Oils, Fats And Ghee	Moisture	IS 548 (Part 1): 2015/ IS 3508: 2013	0.01 g/100g to 10 g/100g
		Acid value	IS 548 (Part 1): 2015/ IS 3508: 2013	0.01 g/100g to 10 g/100g
		Peroxide value	IS 548 (Part 1): 2015/ IS 3508: 2013	0.1 meq/kg to 100 meq/kg
		Unsaponifiable matter	IS 548 (Part 1): 2015/ IS 3508: 2013	0.01 g/100g to 5 g/100g
		Saponification value	IS 548 (Part 1): 2015/ IS 3508: 2013	100 to 300
		Free Fatty Acid	IS 548 (Part 1): 2015/ IS 3508: 2013	0.1 g/100g to 5 g/100g
		Refractive Index	IS 548 (Part 1): 2015/ IS 3508: 2013	1.30 to 1.70
		Specific Gravity	IS 548 (Part 1): 2015/ IS 3508: 2013	0.5 to 1.5
		Reichert-Meissl Value	IS 548 (Part 1): 2015/ IS 3508: 2013	2 to 30
		Polenske Value	IS 548 (Part 1): 2015/ IS 3508: 2013	0.5 to 25

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	Oils, Fats And Ghee	Adulteration Test Detection of Vegetable Fat Detection of Presence of Sesame Oil.	IS 548 (Part 2): 2015	Qualitative
7.	Fruit And Fruit Products (Fruit Juices, Concentrates, Puree, Pickles, Jam)	Total Solids	AOAC (20 th Edition) 920.151: 2012	1 g/100g to 90 g/100g
		Moisture	AOAC (20 th Edition) 920.151: 2012	0.1 g/100g to 95g/100g
		Ash	IS 13846: 2009	0.1 g/100g to 40g/100g
		Acid Insoluble Ash	IS 13846: 2009	0.01 g/100g to 5g/100g
		Total Soluble Solids	AOAC (20 th Edition) 932.12 / 976.20 / 983.17	1 g/100g to 100 g/100g
		Titrateable Acidity as tartaric acid	IS 13844: 2003/ AOAC (20 th Edition) 942.15	0.1 g/100g to 10 g/100g
		Titrateable Acidity as citric acid monohydrate	IS 13844: 2003/ AOAC (20 th Edition) 942.15	0.1 g/100g to 10 g/100g
		Titrateable Acidity as oxalic acid	IS 13844: 2003/ AOAC (20 th Edition) 942.15	0.1 g/100g to 10 g/100g
		Titrateable Acidity as malic acid	IS 13844: 2003/ AOAC (20 th Edition) 942.15	0.1 g/100g to 10 g/100g
		Titrateable Acidity as acetic acid	IS 13844: 2003/ AOAC (20 th Edition) 942.15	0.1 g/100g to 10 g/100g

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	Fruit And Fruit Products (Fruit Juices, Concentrates, Puree, Pickles, Jam)	Titrateable Acidity as sulfuric acid	IS 13844: 2003/ AOAC (20 th Edition) 942.15	0.1 g/100g to 10 g/100g
		Volatile acidity	AOAC (20 th Edition) 925.34	0.1 g/100g to 10 g/100g
8a.	Sugar and Sugar Products (Jaggery Honey, Sugar Syrups)	loss on drying	IS 15279: 2003	0.02 g/100g to 5 g/100g
		Sulphated ash	IS 15279: 2003	0.1 g/100g to 20 g/100g
		Total ash	IS 14433 (Part 1): 1997/ IS 4941: 2011	0.1 g/100g to 5 g/100g
		Specific gravity	IS 4941: 2011	0.8 g/ml to 2.0 g/ml
		Fructose-Glucose ratio	IS 4941: 2011	0.1 g/100g to 50 g/100g
		Acidity	IS 4941: 2011	0.02 g/100g to 1.0 g/100g
		Moisture	IS 4941: 2011	0.1 g/100g to 20 g/100g
		Total reducing sugar as invert sugar	IS 4941: 2011	5.0 g/100g to 85 g/100g
		Protein	IS 7219: 2000	5.0 g/100g to 20g/100g
		Fat	IS 6287: 1985	1.0 g/100g to 10g/100g
	Carbohydrate	IS 1656: 2012	1.0 g/100g to 90g/100g	
8b.	Iodized Salt & Edible Common Salt	Water insoluble matter	IS 7224: 2016	0.01 g/100g to 5 g/100g 0.02
		Chloride as NaCl	IS 7224: 2016	90 g/100g to 99.9 g/100g
		Alkalinity as Na ₂ CO ₃	IS 7224: 2016	0.01 g/100g to 1 g/100g

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	Iodized Salt & Edible Common Salt	Moisture content	IS 7224: 2016	0.1 g/100g to 10 g/100g
		Matter Soluble in water other than NaCl	IS 7224: 2016	0.1 g/100g to 2 g/100g
9a.	Bakery And Confectionery Products (Biscuits, Bread)	Total solid	IS 12711: 2015	10 g/100g to 100 g/100g
		Alcoholic acidity	IS 12711: 2015	0.1 g/100g to 5 g/100g
		Moisture	IS 12711: 2015	0.1 g/100g to 60 g/100g
		Protein	IS 7219: 2010	0.5 g/100g to 40 g/100g
		Total ash	IS 12711: 2015	0.1 g/100g to 20 g/100g
		Acid insoluble ash	IS 12711: 2015	0.01 g/100g to 5 g/100g
		Acidity of extracted fat	IS 12711: 2015	0.01 g/100g to 2 g/100g
		Sucrose	IS 12711: 2015	0.1 g/100g to 85 g/100g
		Fat	IS 12711: 2015	0.2 g/100g to 40 g/100g
		Carbohydrate	IS 1656: 2012	1 g/100g to 100 g/100g
		Crude Fiber	IS 12711: 2015	0.5 g/100g to 30 g/100g
9b.	Bakery And Confectionery Products (Chocolates)	Total Fat	IS 1163: 2009	10 g/100g to 70 g/100g
		Milk Fat	IS 1163: 2009	0.5 g/100g to 20 g/100g
		Milk solids	IS 1163: 2009	5 g/100g to 70g/100g
		Sucrose	IS 1163: 2009	10 g/100g to 85 g/100g

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	Bakery And Confectionery Products (Chocolates)	Total Ash	IS 1163: 2009	0.5 g/100g to 20g/100g
		Acid Insoluble Ash	IS 1163: 2009	0.01 g/100g to 5 g/100g
		Moisture	IS 1163: 2009	0.1 g/100g to 20g/100g
		Protein	AOAC (20 th Edition) 950.48	5.0 g/100g to 20g/100g
		Carbohydrate	IS 1656: 2012	1 g/100g to 100 g/100g
10.	Vegetable, Processed, Canned Vegetable and Ready to Eat Product	Drained Weight	IS 2860: 1964 (RA 2001)	1 g to 1000g
		Acidity	AOAC (20 th Edition) 942.15	0.05 g/100g to 5 g/100g
		Sodium Chloride in Brine	AOAC (20 th Edition) 935.43/986.26	0.5 g/100g to 50 g/100g
		pH	AOAC (20 th Edition) 943.02: 2012	2 to 10
11.	Migration	Distilled water, 3% Acetic acid, 10% & 50% Ethanol, n-heptane	IS 9845 : 2010	5 mg/kg or mg/l to 100 mg/kg or mg/l & 0.1 mg/dm ² to 50 mg/dm ²
12.	Nuts And Nuts Product	Moisture	AOAC (20 th Edition) 934.06/925.40	0.1 g/100g to 20 g/100g
		Fat	AOAC (20 th Edition) 948.22	0.1 g/100g to 70 g/100g
		Protein	AOAC (20 th Edition) 950.48	0.5 g/100g to 50 g/100g
		Ash	AOAC (20 th Edition) 950.49	0.1 g/100g to 5 g/100g
		Chloride	AOAC (20 th Edition) 950.52	0.1 g/100g to 10 g/100g
		Crude fiber	AOAC (20 th Edition) 935.53	0.2 g/100g to 5 g/100g

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13.	Nutraceuticals And Functional Foods	Moisture	IS 1656: 2013/ AOAC (20 th Edition) 927.05	0.1 g/100g to 15 g/100g
		Total Ash	IS 1656: 2013/ AOAC (20 th Edition) 945.46	0.1 g/100g to 15 g/100g
		Acid Insoluble Ash	AOAC (20 th Edition) 923.03 / IS 7874: 2009	0.01 g/100g to 1 g/100g
		Total fat	IS 1656: 2013/ AOAC (20 th Edition) 945.48	0.2 g/100g to 50 g/100g
		Protein	IS 14433 (Part 1): 1997	0.5 g/100g to 50 g/100g
		Titratable acidity	IS 1166: 1986	0.1 g/100g to 15 g/100g
		Total Carbohydrates	IS 1656: 2012	1 g/100g to 100 g/100g
		Energy Value	HS/FC/SOP/50, (Issue Dated. 01/10/2015, Issue. 01)	(50 kcal to 700 kcal)/100 g
	Sugar	IS 6287: 1985/ AOAC (20 th Edition) 923.09	0.5 g/100g to 80 g/100g	
II.	WATER			
1.	Packaging Drinking Water / Packaged Natural Mineral Water/Drinking Water	Taste	IS 3025 (Part 8): 2012	Qualitative
		Turbidity	IS 3025 (Part 10): 2012	0.1 NTU to 100 NTU
		Electrical Conductivity	IS 3025 (Part 16): 2006	0.1 μ s/cm to 20000 μ s/cm
		Total Dissolved Solid	IS 3025 (Part 16): 2006	10 mg/l to 10000 mg/l

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	Packaging Drinking Water / Packaged Natural Mineral Water/Drinking Water	pH	IS 3025 (Part 11): 2012	3.0 to 10.0
		Total Hardness (as CaCO ₃)	IS 3025 (Part 21): 2009	10 mg/l to 100 mg/l
		Chloride	IS 3025 (Part 32): 1999	0.5 mg/l to 50 mg/l
		Sulphate	IS 3025 (Part 24): 1998	0.5 mg/l to 500 mg/l
III. PLASTIC & RESINS				
1.	PET, Resins Preforms & Bottles	Acetaldehyde Content	ASTM F: 2013	0.01 mg/kg to 100 mg/kg
		Solution Intrinsic Viscosity	ASTM D 4603	0.1 dl/g to 1 dl/g

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*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**.