

**Laboratory** Food Analysis And Research Laboratory, Centre of Food Technology,  
Institute of Professional Studies, University of Allahabad, Allahabad,  
Uttar Pradesh

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

**Certificate Number** TC-6524

Page 1 of 8

**Validity** 15.11.2017 to 14.11.2019

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**

I.	FOOD AND AGRICULTURAL PRODUCTS			
1.	<b>Bakery and Confectionary products</b> Cakes, Pastries, Bread, Biscuits, Candies	Total Plate Count (Bacterial Count)	IS 5402: 2012 ISO 4833:2003	≥ 10 cfu/g
		Coliforms	IS 5401(Part 1): 2012 ISO 4832:1991	≥ 10 cfu/g
2.	<b>Milk &amp; Dairy Products</b> Sterilized milk, Flavored milk, Pasteurized milk, Condensed milk, Sweetened milk, UHT Milk, Cream, Butter, Milk powder, Whey powder, Khoa/Chhana/ Paneer, Ice cream, Milk lolly, Ice Candy, Infant/weaning milk food	Total Plate Count (Bacterial Count)	IS 5402: 2012 ISO 4833:2003	≥ 10 cfu/g ≥ 1 cfu/ml
		Coliforms	IS 5401 (Part-1): 2012 ISO 4832:1991	≥ 10 cfu/g ≥ 1 cfu/ml
		Yeast & Moulds	IS 5403:1999 (RA 2013)	≥ 10 cfu/g ≥ 1 cfu/ml

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**Certificate Number** TC-6524

Page 2 of 8

**Validity** 15.11.2017 to 14.11.2019

Last Amended on --

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3.	<b>Fruit and Fruit products</b>			
	<b>Canned/Processed Preserves, Jam and jelly Fruit candies</b>	Total Plate Count (Bacterial Count)	IS 5402: 2012 ISO 4833:2003	≥ 10 cfu/g
		Coliforms	IS: 5401(Part-1): 2012 ISO 4832:1991	≥ 1 cfu/ml ≥ 10 cfu/g
Yeast and Moulds		IS 5403:1999 (RA 2013)	≥ 10 cfu/g	
4.	<b>Vegetable and Vegetable Products</b>			
	<b>Canned/processed, Tomato juices and soups, Tomato puree and paste, Tomato ketchup and sauce, Pickles</b>	Total Plate Count (Bacterial Count)	IS 5402: 2012 ISO 4833:2003	≥ 10 cfu/g
		Coliforms	IS: 5401(Part-1): 2012 ISO 4832:1991	≥ 1 cfu/ml ≥ 10 cfu/g
Yeast and Moulds		IS 5403:1999 (RA 2013)	≥ 10 cfu/g	
5	<b>Nut &amp; Nut products</b>	Total Plate count (Bacterial Count)	IS 5402: 2012 ISO 4833:2003	≥ 10 cfu/g
		Yeast and Moulds	IS 5403:1999 (RA 2013)	≥ 10 cfu/g
		Coliforms	IS: 5401(Part-1): 2012 ISO 4832:1991	≥ 10 cfu/g
6.	<b>Beverages (Alcoholic/Non Alcoholic)</b>			
	<b>Soft drinks, carbonated beverages, Fruit juice, Fruit beer</b>	Total Plate Count	IS 5402: 2012 ISO 4833:2003	≥ 1 cfu/ml
		Yeast and Moulds	IS 5403: 1999 (RA 2013)	≥ 1 cfu/ml
Coliforms		IS 5401(Part-1): 2012 ISO 4832:1991	≥ 1 cfu/ml	

Laboratory **Food Analysis And Research Laboratory, Centre of Food Technology, Institute of Professional Studies, University of Allahabad, Allahabad, Uttar Pradesh**

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

Certificate Number **TC-6524**

Page 3 of 8

Validity **15.11.2017 to 14.11.2019**

Last Amended on --

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7.	<b>Cereals, Pulses and Cereal products</b>			
	<b>Maize flour, Soya Flour, Gram flour, Wheat flour,Flour blends,Malt, Cereals,Breakfast cereals,Semolina, Processed cereal based weaning food</b>	Total Plate Count (Bacterial Count)	IS 5402: 2012 ISO 4833:2003	≥ 10 cfu/g
		Yeast & Moulds	IS 5403:1999 RA 2013	≥ 10 cfu/g
		Coliforms	IS 5401:(Part I) 2012 ISO 4832:1991	≥ 10 cfu/g
II.		<b>WATER</b>		
1	<b>Drinking Water</b>	Total Plate Count (Bacterial Count)	IS 5402: 2012 ISO 4833:2003	≥ 1 cfu/ml
		Coliforms	IS 1622:1981, RA 2009 IS: 5401(Part-1): 2012	< 2 MPN/100 ml to 542 MPN/100 ml Present/Absent/ 100 ml Present/Absent/ 250 ml
2	<b>Packaged Natural Mineral Water</b>	Total Plate Count (Bacterial Count)	IS 5402: 2012 ISO 4833:2003	≥ 1 cfu/ml
		Coliforms	IS 1622:1981, RA 2009 IS: 5401(Part-1): 2012	< 2 MPN/100 ml to 542 MPN/100 ml Present/Absent/ 100 ml Present/Absent/ 250 ml
3	<b>Water for Processed Food Industries</b>	Total Plate Count (Bacterial Count)	IS 5402: 2012 ISO 4833:2003	≥ 1 cfu/ml
		Coliforms	IS 1622:1981, RA 2009 IS: 5401(Part-1): 2012	< 2 MPN/100 ml to 542 MPN/100 ml Present/Absent/ 100 ml Present/Absent/ 250 ml

**\*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**.

Laboratory **Food Analysis And Research Laboratory, Centre of Food Technology, Institute of Professional Studies, University of Allahabad, Allahabad, Uttar Pradesh**

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

Certificate Number **TC-6524**

Page 4 of 8

Validity **15.11.2017 to 14.11.2019**

Last Amended on --

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<b>CHEMICAL TESTING</b>				
<b>I.</b>	<b>FOODS &amp; AGRICULTURAL PRODUCTS</b>			
<b>1.</b>	<b>Fruits and Vegetables</b>			
<b>a.</b>	<b>Fruits &amp; Vegetable (Raw &amp; Processed)</b>	Total soluble solids	IS 13815:2009	4.0 g/100g to 80.0 g/100g
		pH Value	AOAC 20 <sup>th</sup> Ed. (2016) Method 981.12	1 to 8
		Titrateable acidity as citric acid	IS 13844:2003 (RA 2013)	0.5 g/100g to 10.0 g/100g
		Total ash	IS 3500:1966 (RA 2013)	0.5 g/100g to 5.0 g/100g
		Benzoic acid	FSSAI: Manual of Methods of Analysis of Foods : Food Additives; 2.1.2.1, 2016	100 mg/kg to 2000 mg/kg
		Vitamin C	AOAC 20 <sup>th</sup> Ed. (2016) Method 967.21	1 mg/100g to 2000 mg/100g
<b>2.</b>	<b>Food grains, Cereal and Cereal products</b>			
<b>a.</b>	<b>Bakery and Confectionary Products (Biscuit)</b>	Moisture	IS 1011:2002 (RA 2009)	1.0 g/100g to 5.0 g/100g
		Ash insoluble in dil HCl	IS 1011:2002 ( RA 2009)	0.005 g/100g to 3.0 g/100g
		Acidity of extracted Fat	IS 1011:2002 ( RA 2009)	0.1 g/100g to 5.00 g/100g
<b>b.</b>	<b>Food grains,/ Cereal and Cereal products</b>	Moisture	IS 4333(part 2):2002 (RA 2012)	5.0 g/100g to 20.0 g/100g
		Total ash	IS 1155:1968 (RA 2015)	0.5 g/100g to 5.0 g/100g
		Alcoholic Acidity (as H <sub>2</sub> SO <sub>4</sub> )	IS 1155:1968 (RA 2015)	0.05 g/100g to 0.5 g/100g
		Dry Gluten	IS 1155:1968 (RA 2015)	5.0 g/100g to 12.0 g/100g
		Crude fiber (Dry basis)	IS 1155:1968 (RA 2015)	0.5 g/100g to 2.0 g/100g
	Ash insoluble in dil HCl	IS 1155:1968 (RA 2015)	0.005 g/100g to 3.0g/100g	

Laboratory **Food Analysis And Research Laboratory, Centre of Food Technology, Institute of Professional Studies, University of Allahabad, Allahabad, Uttar Pradesh**

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

Certificate Number **TC-6524**

Page 5 of 8

Validity **15.11.2017 to 14.11.2019**

Last Amended on --

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<b>3.</b>		<b>Spices and condiments</b>		
<b>a.</b>	<b>Whole and Powder</b>	Crude Fiber	IS 1797:2017	5.0 g/100g to 30.0 g/100g
		Total Ash	IS 1797:2017	0.5 g/100g to 15.0 g/100g
		Ash insoluble in dil HCl	IS 1797:2017	0.05 g/100g to 3.0 g/100g
		Cold Water soluble Extract	IS 1797:2017	5.0 g/100g to 60.0 g/100g
		Alcohol Soluble Extract	IS 1797:2017	5.0 g/100g to 50.0 g/100g
		Non Volatile Ether Extract	IS 1797:2017	5.0 g/100g to 12.0 g/100g
<b>4.</b>		<b>Milk &amp; Dairy product</b>		
<b>a.</b>	<b>Milk</b>	Crude protein (N x6.38)	AOAC 20 <sup>th</sup> Ed. (2016) Method 991.20	2.0 g/100g to 6.0 g/100g
		Total Solids	IS 1479(Part 2): 1961 (RA 2013)	8.0 g/100g to 15.0 g/100g
		Total ash	AOAC 20 <sup>th</sup> Ed. (2016) Method 945.46	0.5 g/100g to 5.0 g/100g
		Fat	IS 1224(Part 1):1977 (RA 2012)	0.2 g/100g to 10.0 g/100g
		Lactose	IS 1479(Part 2):1961 (RA:2013)	2.5 g/100g to 5.5 g/100g
		Solid Not Fat	IS 10083:1982 (RA 2013)	5.0 g/100g to 10.0 g/100g
		Titratable Acidity as lactic acid	AOAC 20 <sup>th</sup> Ed. (2016) Method 947.05	0.1 g/100g to 4.0 g/100g
<b>b.</b>	<b>Channa</b>	Total ash	IS 5162: 1980 (RA 2014)	0.5 g/100g to 4.0 g/100g
<b>c.</b>	<b>Paneer</b>	Moisture	IS 10484:1983 (RA 2014)	50.0 g/100g to 80.0g/100g
		Titratable Acidity as lactic acid	IS 10484:1983 (RA 2014)	0.1 g/100g to 4.0 g/100g
<b>d.</b>	<b>Khoa</b>	Titratable Acidity as lactic acid	IS 4883:1980 (RA 2014)	0.1 g/100g to 4.0 g/100g
<b>e.</b>	<b>Cream</b>	Fat	IS 1224 (part 2): 1977 (RA 2013)	10.0 g/100g to 70.0g/100g

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**Certificate Number** TC-6524

Page 6 of 8

**Validity** 15.11.2017 to 14.11.2019

Last Amended on --

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f.	Cheese	Moisture	IS 2785:1979 (RA 2011)	32.0 g/100g to 70.0g/100g
		Fat	IS 1224 (part 2):1977 (RA 2013)	0.5 g/100g to 35.0 g/100g
g.	Milk powder	<b>Whole milk powder, skimmed milk powder</b>		
		Total ash	IS 1165:2002 (RA 2013)	0.1 g/100g to 8.0 g/100g
		Protein	AOAC 20 <sup>th</sup> Ed. (2016)Method 930.29	15 g/100g to 40.0 g/100g
		Fat	IS 1224 (part 2): 1977 (RA: 2013)	0.5 g/100g to 30.0 g/100g
		Titratable Acidity as lactic acid	FSSAI lab Manual 1 2016 (Method No. – 0.4)	0.1 g/100g to 4.0 g/100g
	Moisture content	FSSAI lab Manual 1 2016 (method no. 10.2)	0.1 g/100g to 15.0 g/100g	
h.	Milk & Dairy product	<b>Adulteration testing</b>		
		Cane Sugar	IS 1479 (Part II):1961 (RA 2013)	Qualitative (Present/Absent) Limit of detection – 0.01%
		Starch	IS 1479 (Part I):1961 ( RA 2013)	Qualitative (Present/Absent) Limit of detection – 0.02%
		Cellulose	FSSAI lab manual 1 2016 (1.2.3)	Qualitative (Present/Absent)
		Added Urea	IS 1479 (Part I):1961 (RA : 2013)	Qualitative (Present/Absent) Limit of detection – 0.2%
		Ammonium sulphate	FSSAI lab manual 1 2016(1.2.5)	Qualitative (Present/Absent)
		Sodium chloride	FSSAI lab manual 1 2016 (1.2.8)	Qualitative (Present/Absent) Limit of detection – 0.02%
	Neutralizers	IS 1479 (Part 2) :1961 (RA : 2013)	Qualitative (Present/Absent) Limit of detection- 0.1%	

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

**Certificate Number** TC-6524

Page 7 of 8

**Validity** 15.11.2017 to 14.11.2019

Last Amended on --

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				for NaOH 0.1% for Na <sub>2</sub> CO <sub>3</sub> 0.2% for NaHCO <sub>3</sub>
		Quaternary ammonium compounds (detergents)	FSSAI lab manual 1 2016 (1.2.13)	Qualitative (Present/Absent) Limit of detection-1 mg/kg
		Skim milk powder	FSSAI lab manual 1 2016 (1.2.15)	Qualitative (Present/Absent)
5	Fats and Oils	Peroxide value	IS 548 (Part 1):1964 (RA 2015)	0.1 meq /kg to10 meq /kg
		Refractive index	IS 548 (Part 1):1964 (RA 2015)	1.445 to11.479
		Acid value	IS 548 (Part 1): 1964 (RA 2015)	0.1 to110.0
		Iodine Value	AOAC 20 <sup>th</sup> Ed. (2016) Method 993.20	7.5 to1170.0
		Moisture content	FSSAI lab manual 2 (Method No. – 3.0)	0.001g/100g to12.00 g/100g
II.	<b>WATER</b>			
1.	Potable water, Drinking water, Processed Water, Surface Water	Alkalinity	IS 3025(Part 23):1986 (RA:2014)	30 mg/l to 500 mg/l
		Hardness (as CaCO <sub>3</sub> )	IS 3025(Part 21):2009 (RA:2014)	30 mg/l to 500 mg/l
		Conductivity	IS 3025(Part 14) :1984 (RA : 2013)	1 μS/cm to 2000 mS/cm
		Turbidity	IS 3025 (Part-10) : 1984 (RA:2012)	0.5 NTU to 1000 NTU
		Total Solids	IS 3025(Part 15) :1984 (RA:2014)	1 mg/l to 5000 mg/l
		Total dissolved solids	IS 3025(Part 16) :1984 (RA:2012)	1 mg/l to 5000 mg/l
		Chloride (Cl <sup>-</sup> )	IS 3025 (Part 32):1988 (RA:2014)	25 mg/l to 500 mg/l

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**Certificate Number** TC-6524

Page 8 of 8

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Last Amended on --

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		pH	IS 3025(Part-11):1983 (RA:2012 )	1 to 14
		Zinc (Zn)	IS 3025(Part-49):1994, RA:2014 AOAC 20 <sup>th</sup> edn (2016) 974.27	0.5 mg/l to 500 mg/l
		Iron (Fe)	IS 3025 (Part-53):2003, RA:2014 AOAC 20 <sup>th</sup> edn (2016) 974.27	0.1 mg/l to 500 mg/l
		Copper (Cu)	IS 3025(Part-42):1992, RA:2014 AOAC 20 <sup>th</sup> edn (2016) 974.27	0.02 mg/l to 500 mg/l
		Lead (Pb)	IS 3025 (Part-47) : 1994, RA:2014 AOAC 20 <sup>th</sup> edn (2016) 974.27	0.005 mg/l to 500 mg/l
		Cadmium (Cd)	IS 3025(Part-41):1992 , RA:2014 AOAC 20 <sup>th</sup> edn (2016) 974.27	0.001 mg/l to 500 mg/l
		Chromium (Cr)	IS 3025(Part-52) :2003, RA:2014 AOAC 20 <sup>th</sup> edn (2016) 974.27	0.03 mg/l to 500 mg/l
		Magnesium(Mg)	AOAC 20 <sup>th</sup> edn (2016) 974.27	3 mg/l to 500 mg/l
		Manganese (Mn)	AOAC 20 <sup>th</sup> edn (2016) 974.27	0.05 mg/l to 500 mg/l
		Carbonate (CO <sub>3</sub> <sup>-</sup> )	AOAC 20 <sup>th</sup> edn (2016) 920.194	10 mg/l to 100 mg/l
		Bicarbonate (HCO <sub>3</sub> <sup>-</sup> )	AOAC 20 <sup>th</sup> edn (2016) 920.194	10 mg/l o 1000 mg/l
		Nitrite (NO <sub>2</sub> <sup>-</sup> )	APHA 4500-NO <sub>2</sub> <sup>-</sup> .B (22 <sup>nd</sup> edn) 2012	0.01 mg/l to 10 mg/l
		Nitrate (NO <sub>3</sub> <sup>-</sup> )	APHA 4500-NO <sub>3</sub> <sup>-</sup> .B (22 <sup>nd</sup> edn) 2012	1.00 mg/l to 10.00 mg/l