Laboratory	**Bureau of Indian Standards, Southern Regional Office Laboratory, CIT Campus, IV Cross Road, Taramani, Chennai, Tamil Nadu**
Accreditation Standard	**ISO/IEC 17025: 2005**
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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
		BIOLOGICAL TESTING		
I.	**WATER**			
1.	**Packaged Drinking Water**	E.coli (Thermo tolerant Bacteria)	IS 15185	Qualitative (Present/Absent/250ml)
		Coliform	IS 15185	Qualitative (Present/Absent/250ml)
		Faecal streptococci	IS 15186	Qualitative (Present/Absent/250ml)
		Staphylococcus aureus	IS 5887 (Part 2)	Qualitative (Present/Absent/250ml)
		Sulphite reducing anaerobes	IS 13428 Annex C	Qualitative (Present/Absent/50ml)
		Pseudomonas aeruginosa	IS 13428 Annex D	Qualitative (Present/Absent/250ml)
		Aerobic Microbial count @ 20-22°C for 72hrs	IS 5402	≥1cfu/ml
		Aerobic Microbial count @ 37°C for 24hrs	IS 5402	≥ 1cfu/ml
		Yeast & Mould	IS 5403	Qualitative (Present/Absent/250ml)
		Salmonella	IS 15187	Qualitative (Present/Absent/250ml)
		Shigella	IS 5887 (Part 7)	Qualitative (Present/Absent/250ml)
		Vibrio cholerae	IS 5887 (Part 5)	Qualitative (Present/Absent/250ml)
		Vibrio parahemolyticus	IS 5887 (Part 5)	Qualitative (Present/Absent/250ml)

***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.**

Amit Kumar
Convenor

N. Venkateswaran
Program Director

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		CHEMICAL TESTING		
I	**FOODS AND AGRICULTURAL PRODCUTS**			
1.	**Iodised Salt and Refined Idoised Salt**	Moisture by mass	IS 7224	0.1% to10 %
		Water insoluble matter by mass		0.1% to 5 %
		Chloride content (as NaCl)		50% to 100 %
		Matter soluble in water other than NaCl.		0.1% to 5 %
		Calcium by mass(Ca)		0.1% to 2 %
		Magnesium by mass (Mg)		0.1% to 2 %
		Sulphate (as SO4)		0.1% to 2 %
		Iodine content		5 mg/kg to 50 mg/kg
		Alkalinity, (As Na_2CO_3)		0.1 % to 2 %
		Lead as Pb		Qualitative
		Arsenic as As		Qualitative
		Iron as Fe		Qualitative
II	**BUILDING MATERIALS**			
1.	**Cement & Clinker** **OPC 33** **OPC 43** **OPC 43S** **OPC 53** **OPC 53S** **PPC** **PSC**	Loss on Ignition	IS 4032	0.20% to 10.00%
		SiO_2		12.00% to 35.00%
		Al_2O_3		1.00% to 10.00%
		Fe_2O_3		0.10% to 10.00%
		CaO		25.00% to 70.00%
		MgO		1.00% to 10.00%

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	White Cement Masonry Cement SRP Cement	Sulphuric anhydride (as SO_3)		0.20% to 7.00%
		Insoluble Residue		0.20% to 35.00%
		Sulphide Sulphur		0.1% to 2.0%
		Chloride		0.01% to 3 %
III.	**WATER**			
1.	**Packaged Drinking Water**	Colour	IS 3025 (Part 4)	1 Hazen to 50 Hazen
		Odour	IS 3025 (Part 5)	Qualitative
		Taste	IS 3025 (Part 8)	Qualitative
		Turbidity	IS 3025 (Part 10)	0.1 NTU to 10 NTU
		pH value	IS 3025 (Part 11)	4.0 to 11.0
		Total Dissolved Solids	IS 3025 (Part 16)	1 mg/l to 1000 mg/l
		Calcium as Ca	IS 3025 (Part 40)	1mg/l to 200 mg/l
		Magnesium as Mg	IS 3025 (Part 46)	0.2 mg/l to 30 mg/l
		Manganese	IS 3025(Part -59)	0.1 mg/l to 3.0 mg/l
		Chloride as Cl	IS 3025 (Part 32)	1 mg/l to 200 mg/l
		Alkalinity as HCO_3	IS 3025 (Part 23)	1 mg/l to 500 mg/l
		Sulphate(as SO_4)	IS 3025 (Part 24)	2.0 mg/l to 100 mg/l
		Iron as Fe	IS 3025 (Part 53)	0.02 mg/l to 5.0 mg/l
		Copper as Cu	IS 3025 (Part 42)	0.02 mg/l to 5.0 mg/l
		Zinc as Zn	IS 3025 (Part 49)	1mg/l to 10 mg/l
		Mercury as Hg	IS 3025 (Part 48)	0.0005mg/l to 2.0 mg/l

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
IV.	**METALS AND ALLOYS**			
1.	**Gold And Gold Alloys**	Assay (Purity/Fineness)	IS 1418	999 PPT to 330 PPT
2.	**Silver in Silver and Silver Alloys**	Assay (Purity/Fineness)	IS 2113	800 PPT to 990 PPT

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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
		ELECTRICAL TESTING		
I.	**DOMESTIC ELECTRICAL APPLIANCES**			
1.	**Electric food-mixers (liquidizers and grinders)**	Protection against electric shock	IS 302 (Part 1)	Qualitative
		Input	IS 302 (Part 1)	1W to 4500W
		Electrical insulation and leakage current at operating temperature	IS 302 (Part 1)	0.1 kV to 5 kV ac 0.1 µA - 2000 µA
		Moisture resistance	IS 302 (Part 1)	Qualitative
		Leakage current and Electric strength	IS 302 (Part 1)	0.1 kV to 5 kV ac, 0.1 µA -2000 µA
		Provision for earthing	IS 302 (Part 1)	1A to 35A, 0.01V to 20V
		Operational Tests	IS 4250	Qualitative
		Temperature withstand Test for Bowl	IS 4250	Qualitative
II	**CABLES AND ACCESSORIES**			
1.	**PVC Insulated Cables For Working Voltages Upto And Including 1100 Volts**	Annealing	IS 10810 (Part 1)	0.5N to10kN
		Tensile test for Aluminium wire	IS 10810 (Part 2)	Upto 10kN
		Wrapping test for Aluminium wire	IS 10810 (Part 3)	Qualitative
		Conductor resistance test	IS 10810 (Part 5)	0.01 mΩ to 199.9 Ω
		Overall dimensions, thickness of insulation and sheath	IS 10810(Part 6)	0.001mm to 60 mm
		Tensile strength and elongation at break of insulation and sheath	IS 10810 (Part 7)	0.5 kN to 2500 N

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Loss of mass test for insulation and sheath	IS 10810 (Part 10)	1 mg to 220 g
		Thermal ageing in air of Insulation and sheath	IS 10810 (Part 11)	Upto 250° C
		Shrinkage test on insulation and sheath	IS 10810 (Part 12)	Upto 250° C
		Heat shock test on insulation and sheath	IS 10810 (Part 14)	Upto 250° C
		Hot deformation and sheath	IS 10810 (Part 15)	Upto 250° C
		Cold Bend	IS 10810 (Part 20)	Qualitative
		Cold Impact	IS 10810 (Part 21)	Qualitative
		Insulation resistance on Cables	IS 10810 (Part 43)	Upto 100 G Ω
		High voltage test on cables	IS 10810 (Part 45)	Upto 2 kV peak dc and 6 kV ac (rms)
		Flammability	IS 10810 (Part 53)	Stop watch L.C – 1 S, Scale 1m, LC – 1mm
		Thermal Stability	IS 10810 (Part 60)	Upto 200° C
2.	**PVC Insulated (Heavy Duty) Electrical Cables For Working Voltages Upto And Including 1100 V**	Annealing	IS 10810 (Part 1)	Upto10kN
		Tensile test for Aluminium	IS 10810(Part.2)	Upto10kN
		Wrapping test for Aluminium	IS 10810(Part.3)	Qualitative
		Conductor resistance	IS 10810(Part.5)	0.001 mΩ to 199.9 Ω
		Overall dimensions, thickness of insulation and sheath, jacket	IS 10810(Part.6)	Magnification 10 X, Resolution 0.001 mm
		Tensile strength and elongation at break of insulation and sheath, jacket	IS 10810(Part.7)	Upto 2500 N

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Loss of mass test on insulation and sheath	IS 10810(Part.10)	0.1 mg - 220g
		Thermal ageing in air of Insulation and sheath	IS 10810(Part.11)	Upto 250° C
		Shrinkage test on insulation and sheath, jacket	IS 10810(Part.12)	Upto 250° C
		Heat shock test on insulation and sheath	IS 10810(Part.14)	Upto 250° C
		Hot deformation test on insulation and sheath	IS 10810(Part.15)	Upto 250° C
		Dimensions of armouring material	IS 10810(Part.36)	0.001 mm to 25 mm 0.01mm to 150mm
		Tensile strength and elongation at break of armouring material	IS 10810(Part.37)	Upto 2500 N
		Torsion test on galvanized steel wire for armouring	IS 10810(Part.38)	Qualitative
		Winding test on galvanized steel strips for armouring	IS 10810(Part.39)	Qualitative
		Uniformity of zinc coating of steel armour	IS 10810(Part.40)	Qualitative
		Mass of zinc coating on steel and armour	IS 10810(Part.41)	0.1 mg to 220g
		Resistivity test of armour wires and strips and conductance test of armour (Wires and strips)	IS 10810(Part.42)	0.001 mΩ to 199.9 Ω
		Insulation resistance on Cables	IS 10810(Part.43)	Upto 100 G Ω
		High voltage test on cables	IS 10810(Part.45)	Upto 2 kV peak dc and 6 kV ac

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Flammability test	IS 10810(Part.53)	Stop watch L.C – 1 S, Scale 1m, LC – 1mm
		Thermal stability of PVC Insulation and sheath	IS 10810 (Part.60)	Upto 200° C
3.	**Aluminum Conductors For Over Head Transmission Purposes. Aluminum Stranded Conductors (Aluminium Magnesium Silicon type)**	Diameter of individual aluminum wires	IS 398 (Part 1) Cl 12.2	Upto 25 mm
		Breaking load	IS 398 (Part 1) Cl 12.3	Upto 2500 N
		Wrapping	IS 398 (Part 1) Cl 12.5	Qualitative
		Resistance	IS 398 (Part 1) Cl 12.5	0.001 mΩ to 199.9 Ω
		lay ratio	IS 398 (Part 1) Cl 12.6	1000 mm, L.C 1 mm
4.	**Aluminium Conductors for Overhead Transmission Purposes- Aluminium Conductors, Galvanized Steel Reinforced**	lay ratio	IS 398 (Part 2) Cl 13.8	1000 mm, L.C 1 mm
		Diameter of individual aluminium wires	IS 398 (Part 2) Cl 13.2	0.001 mm -25 mm
		Breaking load of aluminium and steel conductors	IS 398 (Part 2) Cl 13.3	Upto 50 kN
		Ductility	IS 398 (Part 2) Cl 13.4	Qualitative
		Torsion	IS 398 (Part 2) Cl 13.4.1	Qualitative
		Elongation	IS 398 (Part 2) Cl 13.4.2.	Upto 2500N, Scale 1m, LC-1mm
		Wrapping	IS 398 (Part 2) Cl 13.5	Qualitative
		Resistance	IS 398 (Part 2) Cl 13.6	0.001 mΩ to 199.9 Ω
		Galvanizing	IS 398 (Part 2) Cl 13.7	0.01mm to 25mm 0.1 mg to 220 g

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
5.	**Aluminium Conductors For Over Head Transmission Purposes. Aluminium Alloy Stranded Conductors (Aluminium Magnesium Silicon Type)**	Diameter of individual aluminium wires	IS 398 (Part 4) Cl 7.1	0.001 mm to 25 mm
		lay ratio	IS 398 (Part 4) Cl9.2	1000mm
		Breaking load	IS 398 (Part 4) Cl 12.2	Upto 2500 N
		Elongation	IS 398 (Part 4) Cl12.3	Upto 2500N
		Resistance	IS 398 (Part 4) Cl12.4	0.001 mΩ to 199.9 Ω
6.	**Aluminium Conductors For Over Head. Aluminium Conductors Galvanised Steel Reinfored For Extra High Voltage (transmission purpose)**	Diameter of individual aluminium and galvanized steel wire	IS 398 (Part 5) Cl13.3	0.001 mm to 25 mm
		lay ratio	IS 398 (Part 5) Cl13.4	1mm to 1000mm
		Breaking load	IS 398 (Part 5) Cl13.5	0.01 kN to 50kN
		Elongation	IS 398 (Part 5) Cl13.6.2	0.5 N to 2500N
		Wrapping test for aluminium and steel wire	IS 398 (Part 5) Cl 13.7	Qualitative
		Resistance	IS 398 (Part 5) Cl 13.3	0.001 mΩ to 199.9 Ω
		Galvanising test on steel wires	IS 398 (Part 5) Cl13.9	0.01 mm to 25 mm , 0.1 mg to 220 g

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
III	**WIRING ACCESSORIES**			
1.	**Conduits For Electrical installations - Rigid Plain Conduits of Insulating Materials**	Dimension	IS 9537 (Part 3) Cl. 7	Qualitative
		Length	IS 9537 (Part 3) Cl. 7.3	1mm -15000 mm
		Uniformity of wall Thickness	IS 9537 (Part 3) Cl. 7.4	Qualitative
		Mechanical Properties	IS 9537 (Part 3) Cl. 9	Qualitative
		Compression	IS 9537 (Part 3) Cl. 9.3	0.01mm -25mm, Digital 0.01mm -150mm
		Impact	IS 9537 (Part 3) Cl. 9.4	Qualitative
		Collapse	IS 9537 (Part 3) Cl. 9.5	Qualitative
		Resistance to Heat	IS 9537 (Part 3) Cl. 10	Upto 250° C, 0.01mm -150mm
		Resistance to Burning	IS 9537 (Part 3) Cl. 11	Stop watch L.C – 1 S
		Electrical Strength	IS 9537 (Part 3) Cl. 12.1.1	Qualitative
		Insulation Resistance	IS 9537 (Part 3) Cl. 12.1.2	Upto 100 G Ω

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		MECHANICAL TESTING		
I.	**MECHANICAL PROPERTIES OF METALS**			
1.	**Metals & Alloys (Ferrous & Non-Ferrous**)	Ultimate tensile strength	IS 1608	10kN to 400kN
		Yield Strength		10kN to 400kN
		% Elongation		Upto 80%
		Brinell Hardness	IS 1500 (Part 1)	100HBW to 350 HBW 2.5/187.5
		Rockwell Hardness	IS 1586 (Part 1)	22 HRC to 70 HRC
		Vickers Hardness	IS 1501(Part 1)	100 HV10 to 800 HV10 100HV30 to 800 HV30
		Bend	IS 1599	Qualitative (3 mm to 25 mm Thick Bend Angle: 180º Mandrel Dia: 9mm to 208mm)
2.	**Metallic tubes (Steel, Aluminium, Aluminium alloy, Copper & Copper alloy)**	Flattening	IS 2328	10 mm to 400 mm OD 5 mm to 60 mm Thick 5 mm to 100 mm OD 2 mm to 10 mm Thick
		Crushing Strength	IS 3601	10 mm to 360 mm OD
		Drift Expansion	IS 2325	10 mm to 150 mm OD 2 mm to 10 mm Thick
		Dimensions Thickness	IS 3601	0.1 mm to 25 mm
3.	**HSD bars**	Re-Bend	IS 1786	Qualitative (Mandrel Dia: 40 mm to 210 mm)

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
II.	**PERFORMANCE TEST**			
1.	**Domestic Gas Stove (For Use With LPG)**	Burners Gas Consumption	IS 4246 IS 5116 IS 4246 Cl. 17 Annexure D	10 l/h to 450 l/h
		Strength	IS 4246 Cl. 15 Annexure C	Vert. Top Surface Deflection not >2 mm
		Ignition & Flame Travel	IS 4246 Cl. 18	Qualitative
		Flame Stability	IS 4246 Cl. 19	Qualitative
		Noise Control	IS 4246 Cl. 20	Qualitative
		Flash Back	IS 4246 Cl. 21	Qualitative
		Formation of Soot	IS 4246 Cl. 22	Qualitative
		Resistance To Draugh	IS 4246 Cl. 23	Qualitative
		Combustion	IS 4246 Cl. 24 Annexure E	Qualitative
		Fire Hazard & Limiting Temperature	IS 4246 Cl. 25	Qualitative
		Thermal Efficiency	IS 4246 Cl.26 Annexure F	64% to 85 %
2.	**Domestic Pressure Cooker**	Capacity	IS 2347 Cl. 4.1 Annexure B	1 l to 22 l
		Air pressure	IS 2347 Cl. 8.1	Qualitative (0.04 to 0.1N/mm²) (0.4 to 1.0 kgf/cm²)
		Proof Pressure	IS 2347 Cl. 8.2 Annexure E	Qualitative (0.2 to 0.3 N/mm²) (2 to 3 kgf/cm²)
		Pressure Regulating Device Operation	IS 2347 Cl. 8.3 Annexure F	Qualitative (0.11 to 0.12 N/mm²) (1.1 to 1.2 kgf/cm²)
		Bursting Pressure	IS 2347 Cl. 8.5 Annexure H	Qualitative (0.6 to 0.7N/mm²) (6 to 7 kgf/cm²)
		Lid Removal Under Pressure	IS 2347 Cl. 8.6	Qualitative

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Spring Loaded Mechanism	IS 2347 Cl. 8.7	Qualitative
3.	**LPG Cylinder (5 - 250 L) Water Capacity**	Valve Protecting Ring	IS 3196 (Part 1) IS 3196 (Part 3) IS 3196 (Part 1) Cl. 10.1	Qualitative
		Drop Test ,1.2 m	IS 3196 (Part 1) Cl. 9.3.5	Qualitative
		Hydrostatic	IS 3196 (Part 1) Cl. 15	Qualitative (At 2.5 N/mm²) (At 25.4 kgf/cm²)
		Pneumatic Leakage	IS 3196 (Part 1) Cl. 16	Qualitative (At 1.2 N/mm²) (At 12 kgf/cm²)
		Bursting	IS 3196 (Part 1) Cl. 17	Qualitative (6 to 12N/mm²) (60 kgf/cm² to 120 kgf/cm²)
4.	**Square Tins**	Dimension	IS 10325 WI/MECH/05 Issue Date: 12/2014	235 mm² x 325 mm Height
		Hydraulic Pressure	IS 2087 IS 2471 Cl. 4	Qualitative (0.03 to 0.05N/mm²) (0.30 to 0.5 kgf/cm², for 3 Min)
		Air Pressure	IS 2471 Cl. 3	Qualitative (0.03 to 0.05N/mm²) (0.30 to 0.5 kgf/cm², for 3 Min)
		Handle Pull Test	IS 2471 Cl. 5	Qualitative (100 to 400 kN, for 2 Min)
5.	**Flexible Rubber Tubing For LPG**	Grip Strength	IS 10908 Cl. 4.4 Annexure A	Qualitative

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		Pressure Length	IS 10908 Cl. 4.5	2.5 kg/cm^2 to 5 kg/cm^2 Upto 60 cm
		Flexibility	IS 10908 Cl. 4.8 Annexure B	Qualitative
		Crushing	IS 10908 Cl. 4.9	Qualitative
		Resistance To LPG	IS 10908 Cl. 4.10 Annexure C	Qualitative
		Burning Behaviour	IS 10908 Cl. 4.12 Annexure E	Qualitative
III	**PLASTICS AND PLASTIC PRODUCTS**			
1.	**Container for Packaging of Natural Mineral Water and Packaged drinking water**	Design, Shape and Dimensions	IS 15410	Qualitative
		Finish and Appearance	IS 15410	Qualitative
		Capacity	IS 2798	200 ml to 30 l
		Wall Thickness	IS 2798	0.05 mm to 5.0 mm
		Transparency	IS 15410 Annex A	50% to 100 %
		Leakage	--	--
		Closure Leakage	IS 2798	Qualitative
		Vibration Leakage	IS 2798	Qualitative
		Air Pressure Leakage	IS 2798	Qualitative
		Drop Test	IS 2798	Qualitative
		Migration test	-	
		Over all Migration	IS 9845	0.1 mg/dm^{2}to 20 mg/dm^2 0.1 mg/l to 60 mg/l
		Colour Migration	IS 9845	Qualitative
		Water Portability Test	IS 15410 Annex. B	Qualitative
2.	**Polyethylene Flexible Pouches for the Packing of**	Description	IS 15609	Qualitative
		Odour	IS 15609	Qualitative

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Natural Mineral Water and Packaged Drinking Water	Thickness	IS 2508	30 µ to100 µ
		Width	IS 15609	200 mm to 400 mm
		Overall Migration	IS 9845	0.1 mg/dm^{2}to 20 mg/dm^2
		Tensile Strength	IS 2508 Annex 4	10 MPa to 40 MPa
		Elongation at Break	IS 2508 Annex 4	100 % to 900 %
		Dart Impact Resistance	IS 2508	0.52 N to 4.00 N
		Water Potability	IS 15609 Annex. E	Qualitative
		Stack load	IS 15609 Annex. F	Qualitative
		Drop Test	IS 15609 Annex. G	Qualitative
		Ink Adhesion Test for Printed Pouches	IS 15609 Annex. H	Qualitative
		Product Resistance Test for Printed Pouches	IS 15609 Annex. J	Qualitative

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