

Laboratory National Test House (N.W.R.), E-763, Road No. 9F-1, VKI Area, Jaipur, Rajasthan

Accreditation Standard ISO/IEC 17025: 2017

Certificate Number TC-5391

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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
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BIOLOGICAL TESTING

I.	WATER			
1.	Packaged Drinking Water	Detection of E.coli	IS 5887 (Part 1) & IS 15185	Absent/ Present per 250 ml
		Detection of Coliform	IS 5401 (Part 1) & IS 15185	Absent/ Present per 250 ml
2.	Packaged Natural Mineral Water	Detection of Faecal streptococci	IS 15186	Absent/ Present per 250 ml
		Detection of Staphylococcus aureus	IS 5887 (Part-2)	Absent/ Present per 250 ml
		Detection of Sulphite reducing anaerobes	IS 13428: 2005 Annex-C	Absent/ Present per 50 ml
		Detection of Pseudomonas aeruginosa	IS 13428: 2005 Annex-D	Absent/ Present per 250 ml
		Aerobic Plate Count		
		At 20-22°C for 72 hrs	IS 5402	≥ 1 cfu/ml
		At 37°C for 24 hrs	IS 5402	≥ 1 cfu/ml
		Detection of Yeast and Mould	IS 5403	Absent/ Present per 250 ml
		Detection of Salmonella spp.	IS 15187	Absent/ Present per 250 ml
		Detection of Shigella spp.	IS 5887 (Part 7)	Absent/ Present per 250 ml
	Detection of Vibrio cholera	IS 5887 (Part 5)	Absent/ Present per 250 ml	
	Detection of Vibrio parahaemolyticus	IS 5887 (Part 5)	Absent/ Present per 250 ml	
3.	Drinking Water	Detection of Coliform	IS 1622: 1981	Absent/Present per 100 ml
		Detection of E.coli	IS 1622: 1981	Absent/Present per 100 ml

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II.	FOOD & AGRICULTURAL PRODUCTS			
1.	Maida/ Atta	Total Plate Count	IS 5402	≥10 cfu/gm
		Total Coliform Count	IS 5401 (Part 1)	≥10 cfu/gm
		E. coli	IS 5887 (Part 1)	Absent/Present per gm
		Yeast and Mould Count	IS 5403	≥10 cfu/gm
		Rope Spore Count	IS 7463 Annex C	≥10 cfu/gm
		Detection of Salmonella	IS 5887 (Part 3)	Absent/Present per 25 gm
2.	Milk and Dairy Products, Condensed Milk	Total Plate Count	IS 5402	≥10 cfu/gm
		Total Coliform Count	IS 5401 (Part 1)	≥10 cfu/gm
		Detection of E. coli	IS 5887 (Part 1)	Absent/Present per gm or ml
		Detection of Salmonella spp.	IS 5887 (Part 3)	Absent/Present/25gm or ml
		Detection of Staphylococcus aureus	IS 5887 (Part 2) IS 15186	Absent/Present per gm or ml
		Yeast and Mould Count	IS 5403	≥10 cfu/gm or ≥1 cfu / ml
		Aerobic Spore Count	IS 4238(Appendix E)	≥1 cfu/gm or ≥1 cfu / ml
	Detection of Listeria monocytogenes	IS 14988 (Part 1)	Absent/Present per gm or ml	

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CHEMICAL TESTING

I.	BUILDING MATERIALS			
1.	Cement: OPC, PPC, PSC, WPC & SRPC	Lime	IS 4032 (RA 2014) Cl. 4.7	40 % to 70 %
		Iron oxide	Cl. 4.5	0.5 % to 12 %
		Alumina	Cl. 4.6	1 % to 12 %
		Sulphuric anhydride	Cl. 4.9	0.5 % to 5 %
		Magnesium oxide	Cl. 4.8	0.05 % to 10 %
		Chloride		0.01 % to 3.0 %
		Insoluble residue	Cl. 4.10	0.05% to 50 %
		Loss on ignition	Cl. 4.2	0.01% to 20 %
		Sulphide sulphur (only PSC)	Cl. 6.12	0.01% to 3 %
		Silica	Cl. 4.3	0.1% to 25 %
2.	Pozzolonic-Materials (Fly Ash & Calcined Clay)	Silica	IS 1727 (RA 2013) Cl. 5.4	20 % to 70 %
		Combined Oxides	Cl. 5.5	5.0 % to 35 %
		Magnesia	IS 3812 (Part 1), Cl. 5.9	0.5 % to 10 %
		Loss on Ignition	IS 3812 (Part 2) (RA 2017), Cl. 5.3	0.2 % to 12 %
		Available alkalis (as Na ₂ O)	IS 3812 (Part 1) Annx. C	0.02 % to 5.0 %
		Sulphuric anhydride	Cl. 5.10	0.5 % to 10.0 %
		Insoluble Residue		0.05 % to 50 %
3.	Cement Concrete	Lime	ASTM C-1084	0.5 % to 20%
		Silica	ASTM C-1084	0.1 % to 10%
II.	ORES AND MINERALS			
1.	Lime Stone Dolomite Calcite Magnesite	Loss on ignition	IS 1760 (Part 1) (RA 2017) ASTM C 25, Cl.19	1 % to 50 %
		Silica	IS 1760 (Part 2) RA 2017) ASTM C25, Cl. 10	1 % to 30 .0%

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		Iron Oxide	IS 1760 (Part 3) (RA 2017) ASTM C 25, Cl. 13	0.2 % to 4.0 %
		Alumina	IS 1760 (Part 3) (RA 2017) ASTM C 25, Cl. 15	0.2 % to 12.0 %
		Lime	IS 1760 (Part 3) (RA 2017) ASTM C 25, Cl. 16	0.5 % to 80 %
		Magnesia	IS 1760 (Part 3) (RA 2017) ASTM C 25, Cl. 18	0.2 % to 52 %
		Chloride	IS 1760 (Part 5) (RA 2017)	0.01 % to 3.0 %
III.	WOOD AND WOOD PRODUCTS			
1.	Treated Plywood	(Arsenic Pentoxide) Arsenic (A)	NTH/NWR/CH/SOP/WP/0 1	0.5 kg/m ³ to 20 kg/m ³
		(Copper Sulphate) Copper (C)		0.5 kg/m ³ to 40 kg/m ³
		(Sodium Dichromate / Potassium Dichromate) Chromium (Cr)		0.5 kg/m ³ to 50 kg/m ³
		Boric acid as Boron (B)		0.5 kg/m ³ to 20 kg/m ³
IV.	METALLIC COATING & TREATMENT SOLUTION			
1.	Coated sheet (GI sheet, GI Pipe wire 2.5 mm above)	Mass of zinc coating	IS 6745 RA 2016 (By Stripping Method)	50 g/m ² to 2000 g/m ²
		Uniformity of Zinc coating	IS 2633 RA 2016	Qualitative
V.	PAINTS & SURFACE COATINGS			
1.	Enamel Paint (Finishing/ Under Coating)	Surface dry Cl. 5.1 Hard dry Cl. 5.2 Tack free Cl. 5.3	IS 101 (Part 3/Sec 1) (RA 2017)	2 hrs to 48 hrs
		Color (visual)	IS 5 (RA 2017)	Qualitative
		Finish	IS 101 (Part 3/Sec IV)	Qualitative

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			(RA 2014)	
		Resistance to water	IS 101 (Part 3/Sec 1) (RA 2017)	Qualitative
		Protection against corrosion	IS 101 (Part 6/Sec 1) (RA 2015)	Qualitative
		Resistance to alkali	IS 158 IS 9862 (RA 2009)	Qualitative
		Resistance to heat	IS 158	Qualitative
		Resistance to acid	IS 9862 (RA 2009)	Qualitative
2.	Painted Metal Panel	Scratch hardness	IS 101 (Part 5/Sec 2) (RA 2014)	Qualitative
		Pencil Hardness	IS 101 (Part 5/Sec 1) (RA 2014)	Qualitative
		Salt Spray	IS 101 (Part 6/Sec 1) (RA 2015)	Qualitative
VI.	METALS & ALLOYS			
1.	Alloy Steel (Medium Carbon Alloy Steel, Construction Steel/Tool Steel), Carbon Steel, Stainless Steel	Chemical Elemental Analysis		
		Carbon	IS 228 (Part 1) (RA 2018)	0.05 % to 2.50 %
		Manganese	IS 228 (Part 2) (RA 2018)	0.1 % to 2.0 %
		Silicon	IS 228 (Part 8) (RA 2014)	0.05 % to 5.00 %
		Sulphur	IS 228 (Part 9) (RA 2014)	0.01% to 0.25 %
		Phosphorus	IS 228 (Part 3) (RA 2018)	0.01 % to 1.0 %
		Chromium	IS 228 (Part 6) (RA 2014)	0.10 % to 20.0 %
	Nickel	IS 228 (Part 5) (RA 2014)	0.10 % to 22.0 %	
2.	Alloy cast Iron	Chemical Elemental Analysis		
		Silicon	IS 12308 (Part 6) (RA 2014)	0.1 % to 6.0 %
		Manganese	IS 12308 (Part 3) (RA 2014)	0.1 % to 2.5 %
		Phosphorus	IS 12308 (Part 5) (RA 2014)	0.01% to 0.50 %
3.	Brass/Bronze	Chemical Elemental Analysis		
		Tin	IS 4027 (Part 5) (RA 2018)	0.1 % to 11 %

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		Zinc	IS 4027 (Part 6) (RA 2018)	0.1 % to 6.0 %
		Lead	IS 4027 (Part 1) (RA 2018)	0.1 % to 23 %
		Iron	IS 4027 (Part 8) (RA 2018)	0.1 % to 0.40 %
		Copper	IS 4027 (Part 1) (RA 2018)	0.5 % to 83.0 %
4.	Stainless Steel	Chemical Elemental Analysis by OES	ASTM E 1086	
		Chromium		17.0 % to 23.0 %
		Nickel		7.4 % to 23.0 %
		Molybdenum		0.05 % to 3.0 %
		Manganese		0.1% to 2.0 %
		Silicon		0.05 % to 2.5 %
		Copper		0.037 % to 0.3 %
		Carbon		0.015 % to 0.25 %
		Phosphorus		0.01 % to 0.08 %
		Sulphur		0.003 % to 0.10 %
5.	Carbon & Low Alloy Steel	Carbon	ASTM E 415	0.03 % to 1.50 %
		Silicon		0.03 % to 1.20 %
		Manganese		0.10 % to 2.0 %
		Chromium		0.02 % to 2.5 %
		Nickel		0.04 % to 4.0 %
		Phosphorus		0.005 % to 0.10 %
		Sulphur		0.003 % to 0.055 %
		Aluminium		0.014 % to 0.10 %
		Molybdenum		0.007 % to 0.21 %
6.	Aluminium Metal/ Alloy	Copper	ASTM E 1251	0.02 % to 6.0 %
		Manganese		0.03 % to 1.5 %
		Silicon		0.03 % to 13.0 %
		Iron		0.20 % to 0.5 %
		Magnesium		0.03 % to 3.0 %
		Zinc		0.15 % to 6.0 %
		Titanium		0.01 % to 0.12 %
		Chromium		0.01 % to 0.15 %
		Lead		0.031 % to 0.04%
		Tin		0.02 % to 0.35 %
7.	Cast Iron	Carbon	ASTM E 1999	1.9 % to 3.5 %

Vivek Vardhan
Convenor

Alok Jain
Program Manager

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		Sulphur		0.06 % to 0.08 %
		Phosphorous		0.06 % to 0.4 %
		Manganese		0.1 % to 1.8 %
		Chromium		0.1 % to 2.0 %
		Silicon		0.2 % to 2.5 %
8.	Copper/ Brass/ Bronze	Tin	NTH/NWR/CH/SOP/OES/01	0.2 % to 8.0 %
		Zinc		0.05 % to 40.50 %
		Lead		0.1 % to 6.0 %
		Nickel		0.05 % to 2.50 %
		Silicon		0.05 % to 1.0 %
		Iron		0.1 % to 2.0 %
		Phosphorus		0.005 % to 1.00 %
9.	Anodic Coatings	Thickness of Anodic Coating (by Eddy Current Method)	IS 1868 (RA 2016) IS 6012 (RA 2016)	1 microns to 100 microns
VII.	SOLID FUELS			
1.	Coal, Petcoke , Anthracites, Lignite, Bitumen	Moisture	IS 1350 (Part 1) (RA 2013)	0.25 % to 30.0 %
		Ash	IS 1350 (Part 1) (RA 2013)	0.1 % to 60.0 %
		Volatile Matter	IS 1350 (Part 1) (RA 2013)	1 % to 40.0 %
		Fix Carbon	IS 1350 (Part 1) (RA 2013)	10 % to 95 %
		Gross calorific value	IS 1350 (Part 2)	500 kcal/kg to 10,000 kcal/kg
		Sulphur	IS 1350 (Part 3)	0.1 % to 20 %
VIII.	WATER			
1.	Drinking Water, Water for Construction Purpose, Packaged Drinking water	Color	IS 3025 (Part 4) Platinum Cobalt method	1.0 to 100 True color unit
		Odour	IS 3025 (Part5)	Qualitative
		Taste	IS 3025 (Part 8)	Qualitative
		Turbidity	IS 3025 (Part 10)	0.1 NTU to 100 NTU
		pH	IS 3025 (Part 11)	1 to 14

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	Packaged Natural Mineral Water	Total Hardness	IS 3025 (Part 21) EDTA Method	1 mg/l to 1000 mg/l
		Iron	IS 3025 (Part 2) IS 3025 (Part 53)	0.01 mg/l to 10 mg/l
		Chlorides	IS 3025 (Part 32)	1 mg/l to 2000 mg/l
		Residual free chlorine	IS 3025 (Part 26) O-toluidine method	0.1 mg/l to 10 mg/l
		Total Dissolved solids	IS 3025 (Part 16)	1 mg/l to 5000 mg/l
		Phenolic Compound	IS 3025 (Part 43) Clause 6	0.01 mg/l to 10 mg/l (Present/Absent)
		Chromium	IS 13428 Annex J or IS 3025 (Part 2)	0.01 mg/l to 10 mg/l
		Calcium	IS 3025 (Part 40) or IS 3025 (Part 2)	0.1 mg/l to 500 mg/l
		Magnesium	IS 3025 (Part 46) or IS 3025 (Part 2)	0.1 mg/l to 300 mg/l
		Copper	IS 3025 (Part 42) or IS 3025 (Part 2)	0.01 mg/l to 10 mg/l
		Sulfates	IS 3025 (Part 24)	1 mg/l to 1000 mg/l
		Nitrates	IS 3025 (Part 34)	0.1 mg/l to 500 mg/l
		Fluoride	IS 3025 (Part 60)	0.1 mg/l to 10 mg/l
		Cyanide	IS 3025 (Part 27) Clause 2	0.1 mg/l to 10 mg/l (Present/Absent)
		Conductivity	IS 3025 (Part 14)	1 μ s/cm to 500 μ s/cm
		Alkalinity	IS 3025 (Part 23)	1 to 1000mg/l (NMT-25 ml of 0.02 H ₂ SO ₄)
		Acidity	IS 3025 (Part 22)	1 to 1000mg/l (NMT-5ml of 0.02 NaOH)
		Inorganic solids	IS 3025 (Part 18)	1 mg/l to 5000 mg/l
		Organic solids	IS 3025 (Part 18)	1 mg/l to 1000 mg/l
		Total Suspended solids	IS 3025 (Part 17)	1 mg/l to 2000 mg/l
	Sodium	IS 3025 (Part 45) or IS 3025 (Part 2)	0.01 mg/l to 500 mg/l	
	Nitrite	IS 3025 (Part 34)	0.01 mg/l to 10 mg/l	
	Antimony	Annex G of IS 13428 or	0.001 mg/l to 10 mg/l	

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			IS 3025 (Part 2)	
		Sulphide	IS 3025 (Part 29)	0.02 mg/l to 5 mg/l
		Manganese	IS 3025 (Part 59) or IS 3025 (Part 2)	0.01 mg/l to 10 mg/l
		Barium	IS 13428 Annex F or IS 3025 (Part 2)	0.01 mg/l to 10 mg/l
		Mercury	IS 3025 (Part 48)	0.0005 mg/l to 10 mg/l
		Selenium	IS 3025 (Part 56) or IS 3025 (Part 2)	0.01 mg/l to 10 mg/l
		Arsenic	IS 3025 (Part 37) or IS 3025 (Part 2)	0.01 mg/l to 10 mg/l
		Lead	IS 3025 (Part 47) or IS 3025 (Part 2)	0.01 mg/l to 10 mg/l
		Cadmium	IS 3025 (Part 41) or IS 3025 (Part 2)	0.001 mg/l to 10 mg/l
		Zinc	IS 3025 (Part 49) or IS 3025 (Part 2)	0.01 mg/l to 10mg/l
		Aluminium	IS 3025 (Part 55) or IS 15302 or IS 3025 (Part 2)	0.01 mg/l to 10 mg/l
		Boron/Borates	IS 13428 Annex H or IS 3025 (Part 57) or IS 3025 (Part 2)	0.01 mg/l to 10 mg/l
		Silver	IS 13428 Annex J or IS 3025 (Part 2)	0.01 mg/l to 10 mg/l
		Nickel	IS 13428 Annex L or IS 3025 (Part 2)	0.01 mg/l to 10 mg/l
		Anionic Surface Active Agents (MBAS)	IS 13428 Annex. K	0.1 mg/l to 10 mg/l
		Mineral Oil	IS 3025 (Part 39) Clause 6	0.1 mg/l to 10 mg/l (Present/Absent)
IX.	RESIDUES IN WATER			
1.	Residues in Water	Polychlorinated biphenyl	Annexure M of IS 13428	0.05 µg/ml to 100 µg/ml

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		(PCB)		(Not Detectable)
		Polynuclear aromatic hydrocarbons (PAH)	APHA 6440 (23 Edition-2017)	0.05 µg/ml to 100 µg/ml (Not Detectable)
2.	Water for Drinking purpose as per Packaged Drinking water Packaged Natural Mineral Water	Pesticide Residues (Individually)	LAB SOP No. NTH/ NWR/ CH/SOP/GC-MS/01LAB SOP No.NTH/ NWR/CH (UHPLC)/SOP/ 01	
		O,p DDT	USEPA 508	0.03 µg/ml to 100 µg/ml
		P,p DDT	USEPA 508	0.03 µg/ml to 100 µg/ml
		O,p DDE	USEPA 508	0.03 µg/ml to 100 µg/ml
		P,p DDE	USEPA 508	0.03 µg/ml to 100 µg/ml
		O,p DDD	USEPA 508	0.03 µg/ml to 100 µg/ml
		P,p DDD	USEPA 508	0.03 µg/ml to 100 µg/ml
		γ-HCH (Lindane)	USEPA 508	0.03 µg/ml to 100 µg/ml
		α – HCH	USEPA 508	0.03 µg/ml to 100 µg/ml
		β – HCH	USEPA 508	0.03 µg/ml to 100 µg/ml
		δ – HCH	USEPA 508	0.02 µg/ml to 100 µg/ml
		Endosulfan Sulphate	USEPA 508	0.05 µg/ml to 100 µg/ml
		α- Endosulfan	USEPA 508	0.05 µg/ml to 100 µg/ml
		β – Endosulfan	USEPA 508	0.05 µg/ml to 100 µg/ml
		Monocrotophos	USEPA 8141A	0.05 µg/ml to 100 µg/ml
		Ethion	USEPA 1657A	0.02 µg/ml to 100 µg/ml
		Chlorpyrifos	USEPA 525.2, 8141A	0.02 µg/ml to 100 µg/ml
		Phorate	USEPA 8141A	0.05 µg/ml to 100 µg/ml
		Phorate sulphoxide	USEPA 8141A	0.05 µg/ml to 100 µg/ml
		Phorate Sulphone	USEPA 8141A	0.05 µg/ml to 100 µg/ml
		Butachlor	USEPA 525.8, 8141A	0.02 µg/ml to 100 µg/ml
		Alachor	USEPA 525.2, 507	0.02 µg/ml to 100 µg/ml
		Atrazine	USEPA 525.2, 8141A	0.02 µg/ml to 100 µg/ml
		Methyl Parathion	USEPA 8141A	0.05 µg/ml to 100 µg/ml
		Methyl Paraoxon	USEPA 8141A	0.05 µg/ml to 100 µg/ml
		Malathion	USEPA 8141A	0.05 µg/l to 100 µg/l
		Malaoxon	USEPA 8141A	0.05 µg/ml to 100 µg/ml
		Aldrin	USEPA 525.2	0.03 µg/ml to 100 µg/ml

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		Dieldrin	USEPA 525.2	0.03 µg/ml to 100 µg/ml
		2,4 D	USEPA 515.1	0.05 µg/ml to 100 µg/ml
		Isoproturon	USEPA 532	0.01 µg/ml to 100 µg/ml
X.	PAPER & PULP			
1.	(Paper Cups and Plates, Plastic Spoon, Glasses & Bowl, Disposable Plastic Containers, Zip-lock Polythene Pouches, Thermocol Glass & Plates, Disposable Containers with Aluminum Coating for Cooked Food)	(Overall migration)Amount of Extractive stimulants with respect of surface (Area / Volume)	IS 9845 (RA 2015)	By Area0.5 to 50 mg / dm ²
		Migration of Heavy metals (Pigments and colorants) (% by mass, Max.)	IS 9833	By Volume1 to 100 mg/l
		Lead (as Pb)		0.01 % to 1.0 %
		Arsenic (as As)		0.001 % to 0.1 %
		Mercury (as Hg)		0.001 % to 0.01 %
		Cadmium (as Cd)		0.001% to 0.1 %
		Selenium (as Se)		0.001 % to 0.1 %
		Barium (as Ba)		0.01 % to 1.0 %
		Chromium (as Cr)		0.001 % to 0.01 %
		Antimony (as Sb)		0.001 % to 0.1 %
		Zinc (as Zn)		0.01 % to 1.0 %
XI.	FOOD & AGRICULTURAL PRODUCTS			
1.	Wheat (Atta)	Moisture	IS 1155 Appendix 'A'	0.5% to 15 %
	Fortified Wheat	Total Ash(on dry basis)	IS 1155 Appendix 'B'	0.5% to 2 %
	Atta (Including Fortified & Paushtick Atta)	Acid Insoluble Ash (on dry basis)	IS 1155 Appendix 'C'	0.01% to 0.5 %
		Gluten(on dry basis)	IS 1155 Appendix 'D'	0.1% to 20 %
		Crude Fibre(on dry basis)	IS 1155 Appendix 'E'	0.5% to 20 %
		Alcoholic Acidity	IS 1155 Appendix 'F'	0.01% to 0.5 %
		Granularity	IS 1155 Appendix 'G'	0.1% to 10 %
		Calcium	IS 5949	0.1% to 2 %

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		Iron (as Fe)	IS 14433 Annexure 'D'	0.01% to 10 %
2.	Wheat Maida (for General Purpose) Fortified Wheat Maida	Moisture	IS 1009 Appendix 'A'	0.5% to 10 %
		Total Ash(on dry basis)	IS 1009 Appendix 'B'	0.5% to 2 %
		Acid Insoluble Ash (on dry basis)	IS 1009 Appendix 'C'	0.01% to 0.5 %
		Gluten (on dry basis)	IS 1009 Appendix 'D'	0.1% to 20 %
		Alcoholic Acidity	IS 1009 Appendix 'E'	0.01% to 0.5 %
		Granularity	IS 1009 Appendix 'F'	0.1% to 10 %
		Calcium	IS 5949	0.01% to 2 %
		Iron (as Fe)	IS 14433 Annexure 'D'	0.01% to 10 %
		Crude Fibre(on dry basis)	IS 1009 Appendix 'E'	0.5% to 20 %
XII.	HAZARDOUS & RESTRICTED CHEMICALS			
1.	Toys and Sports Equipment			
a.	Safety of Toys	Estimation of Migration of certain elements		
		Antimony (as Sb)	IS 9873 (Part 3)	0.5 mg/kg to 100 mg/kg
		Arsenic (as As)	ISO 8124-3/ICP/AAS	0.5 mg/kg to 100 mg/kg
		Barium (as Ba)		2.5 mg/kg to 1000 mg/kg
		Cadmium (as Cd)		0.5 mg/kg to 100 mg/kg
		Chromium (as Cr)		2.5 mg/kg to 100 mg/kg
		Lead (as Pb)		2.5 mg/kg to 100 mg/kg
		Mercury (as Hg)		0.5 mg/kg to 100mg/kg
		Selenium (as Se)		2.5 mg/kg to 1000mg/kg
b.	Safety of Toys	Estimation of migration of certain phthalate Esters in toys and children's products		
		BIS (2-ethyl hexyl) phthalate (DEHP)	IS 9873 (Part 6) ISO 8124-6, GC-MS	0.001 % to 0.01 %
		Di-n-butyl phthalate (DBP)		0.001 % to 0.01 %
		Benzyl butyl phthalate		0.001 % to 0.01 %

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		(BBP)		
		Di-n-Octyl phthalate (DNOP)		0.001 % to 0.01 %
		Di-iso-nonyl phthalate (DINP)		0.004 % to 0.04 %
		Di-iso-decyl phthalate (DIDP)		0.004 % to 0.04 %

Vivek Vardhan
Convenor

Alok Jain
Program Manager

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ELECTRICAL TESTING

I.	CABLES & ACCESSORIES			
1.	PVC Insulated Cable	Annealing Test (copper)	IS 694 and IS 10810 Parts - 1, 5, 6, 7, 10, 12, 14, 15, 20, 21, 43, 45, 53, 60	1 % to 50 %
		Conductor resistance test		0.1 mΩ to 2 kΩ
		Thickness of insulation		0.01 mm to 25 mm
		Tensile strength and percentage elongation for Insulation		0 to 500 N 10 % to 800 %
		Loss of mass in air oven		0.5 mg/cm ² to 10 mg/cm ²
		Insulation resistance test		0.2 x 10 ⁶ to 10 ¹⁴ Ω-cm
		D.C. High voltage test (water immersion test)		3.0 kV
		Flammability test		50 mm to 400 mm
		Shrinkage test		8 % at 200 mm
		Thermal Stability		10 minutes to 200 minutes
		Overall diameter		2 mm to 150 mm
		Heat shock test		Upto 155°C & 240mm ²
		Hot deformation test		10% to 60 %
		Additional Ageing		-15°C to 100°C
2.	XLPE insulated Cable	Cold Bend	IS:7098 (Pt-1) and IS 10810 Parts- 2, 3, 5, 6, 7, 10, 12, 14, 15, 20, 21, 30, 37, 38, 39, 42, 43, 45, 53, 60	Upto -15°C
		Cold Impact		Upto -5°C
		Tensile test (Aluminum)		10 N to 2000 N
		Wrapping test (Aluminum)		Upto 5 mm Dia
		Conductor resistance test		0.1 mΩ to 2 kΩ
		Armor resistance test		0.1 mΩ to 11 Ω
Tensile test and Elongation test for armor	10 N to 2000N 2 % to 12 %			

Vivek Vardhan
Convenor

Alok Jain
Program Manager

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		strip/wire		
		Winding test on strip/wire		Upto 6.1mm
		Torsion test on armor strip/ wire		Upto 5 mm Dia
		Thickness of insulation and sheath		0.01 mm to 25 mm
		Tensile strength and percentage elongation for Insulation and sheath		0 to 500 N 10 % to 800 %
		Hot deformation test		25 % to 60 %
		Loss of mass in air oven		1 mg/cm ² to 10 mg/cm ²
		Heat shock test		155°C, 240 mm ²
		Insulation resistance test		0.2x10 ⁶ to 10 ¹⁴ Ω-cm
		a.c. High voltage test (water immersion test)	IS:7098 (Part-1)and IS 10810	10 kV
		Flammability test		50 to 400 mm
		Overall diameter		5 mm to 150 mm
		Shrinkage test		8 % at 200mm
		Cold Bend		Upto - 15° C
		Cold Impact		Upto -5° C
		Thermal Stability		5 to 200 minutes
		Hot Set Test		Elongation 200%Permanent Set Elongation up to 20%
II.	SWITCH GEAR EQUIPMENTS			
1.	Low Voltage Switchgears and Control Gear	Degree of protection IP-33 Degree of protection	IS/IEC 60947(Part 1)(Annexure-C) IS/IEC 60529	Qualitative
2.	Luminaires	For IP 1X to 6X For IP X1 to X6 Degree of protection For IP 1X to 6X For IP X1 to X6	IS:10322(Part-4)	Qualitative

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III.	TRANSMISSION LINE EQUIPMENT & ACCESSORIES			
1.	Aluminum Conductor All Aluminum Conductor AAAC Conductor ACSR ACSR for EHV Application	Conductor Resistance test	IS 398 (Part 1) IS 398 (Part 2) IS 398 (Part 3) IS 398 (Part 4) IS 398 (Part 5)	2 mΩ to 200 mΩ L.C.=0.0001 m Ω
2.	Winding Wires- Aluminum / Copper (including Round, Rectangular, Enameled/ Insulated/Paper Covered)	Dimension/Diameter test	IS 13778 (Part 2) (RA 2003) IEC Pub 851-2	0.01mm to 25.0 mm
		Elongation test	IS 13778 (Part 3) IEC 60851-1	5 % to 50 %
		Electrical Resistance test	IS 13778 (Part 5) IEC 60851-5	0.1 mΩ to 2 kΩ
3.	Fuse - Wire used in Rewireable type Electric Fuses	Diameter test	IS 9926 Cl 7.2.1	0.10 mm to 2.0 mm
		Conductor Resistance test	IS 9926, Cl. 7.3.2 IS 8130	2 mΩ to 5 Ω

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MECHANICAL TESTING

I.	BUILDING MATERIAL			
1.	Cement 33 grade OPC43 grade OPC53 grade OPC Portland Slag Cement Sulphate Resisting Cement Portland Pozzolana Cement (Fly Ash and Calcined Clay Based) White Portland Cement Portland Cement Clinker	Standard Consistency	IS 4031 (Part 4) (RA 2014) Amds 2	20 % to 40 %
		Density	IS 4031 (Part 11) (RA 2014)	2.5 gm/cc to 3.5 gm/cc
		Setting Time		
		Initial setting time	IS 4031 (Part 5) (RA 2014) Amds 2	30 mints to 200 mints
		Final setting time	IS 4031 (Part 5) (RA 2014) Amds 2	170 mints to 400 mints
		Fineness by Specific Surface	IS 4031 (Part 2) (RA 2013) Amds 1	200 m ² /kg to 500 m ² /kg
		Soundness by Le – Chatelier Method	IS 4031 (Part 3) (RA 2014) Amds 2	0.5 mm to 40 mm
		Soundness by Autoclave	IS 4031 (Part 3) (RA 2014) Amds 2	0.01 % to 4.8 %
		Compressive Strength	IS 4031 (Part 6) (RA 2014) Amds 4	1 N/mm ² to 75 N/mm ²
			Drying Shrinkage	IS 4031 (Part 10) (RA 2014) Amds 1
	Sulphate Expansion	IS 12330 (RA 2014) Amds 6	0.01 to 0.065	
2.	Fly Ash (Pulverized Fuel Ash For use as Pozzolana in Cement, cement	Density	IS 4031 (Part 11) (RA 2014)	2 gm/cc to 3.5 gm/cc
		Fineness-Specific Surface by Blaine's permeability	IS 1727 (RA 2013)	200 m ² /kg to 800 m ² /kg
		Lime reactivity	IS 1727 (RA 2013)	1 N/mm ² to 20 N/mm ²

Vivek Vardhan
Convenor

Alok Jain
Program Manager

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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
	Mortar and Concrete.For use as admixture in Cement mortar and Concrete)	Average Compressive Strength	IS 1727 (RA 2013)	1 N/mm ² to 40 N/mm ²
		Compressive Strength 28 days	IS 1727 (RA 2013)	1 % to 40 %
		Particles retained on 45 micron IS Sieve (wet sieving) Soundness by autoclave test	IS 1727 (RA 2013)	0.01 % to 4.8 %
3.	Cement Concrete Flooring Tiles	Dimensions	IS 1237 (RA 2017) Amends 3	L =(1 mm to 300 mm) W=(1 mm to 300 mm) T=(1 mm to 20 mm)
		Water Absorption	IS 1237 (RA 2017) Amends 3	1 % to 30 %
		Wet Transverse Strength	IS 1237 (RA 2017) Amends 3	1 N/mm ² to 20 N/mm ²
		Resistance to Wear	IS 1237 (RA 2017) Amends 3	1 mm to 15 mm
4.		Chequered Cement Concrete Tiles	Dimension	IS 13801 (RA 2018)
	Water Absorption		IS 13801 (RA 2018)	1 % to 30 %
	Wet Transverse Strength		IS 13801 (RA 2018)	1 to 19 N/mm ²
	Resistance to Wear		IS 13801 (RA 2018)	1 mm to 15 mm
5.	Precast Cement Concrete Blocks for Paving	Dimension	IS 15658 (RA 2017) Amends 3	1 mm to 500 mm
		Water Absorption	IS 15658 (RA 2017) Amends 3	1 % to 30 %
		Compressive Strength	IS 15658 (RA 2017) Amends 3	1 N/mm ² to 80 N/mm ²
		Resistance to Wear	IS 15658 (RA 2017) Amends 3	1 mm to 20 mm
6.		Cement Concrete Cubes	Compressive Strength	IS 516 (RA 2013) Amendments 2
7.	Aggregates Coarse and Fine		Sieve Analysis	IS 2386 (Part 1) (RA 2016) Amds 4

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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
		Specific Gravity	IS 2386 (Part 3) (RA 2016)	2.2 to 3
		Water absorption	IS 2386 (Part 3) (RA 2016)	0.1 % to 5 %
		Crushing value	IS 2386 (Part 4) (RA 2016) Amds 3	5 to 40 %
		Impact value	IS 2386 (Part 4) (RA 2016) Amds 3	5 % to 25 %
		Abrasion value (by los Angeles)	IS 2386 (Part 4) (RA 2016) Amds 3	5 % to 50 %
		Deleterious Materials & Organic impurities	IS 2386 (Part 2) (RA 2016) Amds 1	0.1 % to 5 % Qualitative
		Soundness of Aggregates	IS 2386 (Part 5) (RA 2016)	1 % to 15 %
		Flakiness Index	IS 2386 (Part 1) (RA 2016) Amds 4	5 % to 40 %
		Elongation Index	IS 2386 (Part 1) (RA 2016) Amds 4	5 % to 40 %
		Silt content	of CPWD Specification Volume-I, Revised IS 2386 (Part 2) (RA 2016) Amds1 Cl.3.1.4.2	Upto 50 %
8.	Common Burnt Clay Building Bricks	Dimensions	IS 1077 (RA 2016) Amds 1	L=(4520 to 4680) W=(2160 to 2240) H=(1360 to 1440)
		Water absorption	IS 3495 (Part 2) (RA 2016)	1 % to 30 %
		Compressive strength	IS 3495 (Part 1) (RA 2016)	0.5 to 30 N/mm ²
		Efflorescence	IS 3495 (Part 3) (RA 2016)	Qualitative
9.	Pulverized Fuel Ash-Lime Bricks	Dimensions	IS 12894 (RA 2017) Amds 2	L=(4520 to 4680) W=(2160 to 2240) H=(1360 to 1440)
		Water absorption	IS 3495 (Part 2) (RA 2016)	1 % to 30 %
		Compressive strength	IS 3495 (Part 1) (RA 2016)	0.5 N/mm ² to 30 N/mm ²
		Efflorescence	IS 3495 (Part 3) (RA 2016)	Qualitative
10.	Ceramic Tiles	Dimensions & Surface Quality	IS 13630 (Part 1) (RA 2016)	1 mm to 1000 mm
		Water Absorption	IS 13630 (Part 2) (RA 2016)	1 % to 20 %

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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
		Moisture Expansion	IS 13630 (Part 3) (RA 2016)	0.01 mm/m to .05 mm/m
		Coefficient of Linear Expansion	IS 13630 (Part 4) (RA 2016)	9 x 10 ⁻⁶ Kelvin ⁻¹
		Modulus of Rupture	IS 13630 (Part 6) (RA 2016)	1 N/mm ² to 60 N/mm ²
		Breaking Strength	IS 13630 (Part 6) (RA 2016)	1 N to 3000 N
		Chemical Resistance	IS 13630 (Part 7 & 8) (RA 2016)	Qualitative (Visual Examination) Qualitative (Visual Examination)
		Crazing Resistance	IS 13630 (Part 9) (RA 2016)	Qualitative (Visual Examination) Qualitative (Visual Examination)
		Scratch Hardness (Mohs)	IS 13630 (Part 13) (RA 2016)	Qualitative (Visual Examination) Qualitative (Visual Examination)
11.	Adhesives for Use with Ceramic & Mosaics Tiles	Rheology	IS 15477 (RA 2015) Clause 4.3	Qualitative (Visual Examination) Qualitative (Visual Examination)
		Tensile Adhesion Strength	IS 15477 (RA 2015) Clause 4.4	1 N to 5 kN
		Shear Adhesion Strength	IS 15477 (RA 2015) Clause 4.5 & 4.6	1 kN to 30 kN
		Open Time	IS 15477 (RA 2015) Clause 4.7	Qualitative (Visual Examination) Qualitative (Visual Examination)
		Adjustability	IS 15477 (RA 2015) Clause 4.8	Qualitative (Visual Examination)

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12.	Hollow and Solid Concrete Blocks	General Quality	IS 2185 (Part 1) (RA 2015) Clause 9.1	Qualitative (Visual Examination)
		Dimensions	IS 2185 (Part 1) (RA 2015) Clause 9.2	1 to 1000 mm
		Block Density	IS 2185 (Part 1) (RA 2015) Clause 9.2	100 kg/m ³ to 3000 kg/m ³
		Compressive Strength	IS 2185 (Part 1) (RA 2015) Clause 9.4	1 N/mm ² to 30 N/mm ²
		Water Absorption	IS 2185 (Part 1) (RA 2015) Clause 9.5	1 % to 20 %
		Drying Shrinkage	IS 2185 (Part 1) (RA 2015) Clause 9.6	0.01% to 0.15 %
		Moisture Movement	IS 2185 (Part 1) (RA 2015) Clause 9.7	0.01 % to 0.15 %
13.	Autoclaved Cellular (Aerated) Blocks	General Quality	IS 2185 (Part 3) (RA 2015) Clause 8.1	Qualitative (Visual Examination)
		Dimensions	IS 2185 (Part 3) (RA 2015) Clause 8.2	1 to 1000 mm
		Block Density	IS 2185 (Part 3) (RA 2015) Clause 8.3	100 to 2000 Kg/m ³
		Compressive Strength	IS 2185 (Part 3) (RA 2015) Clause 8.4	1 N/mm ² to 15 N/mm ²
		Drying Shrinkage	IS 2185 (Part 3) (RA 2015) Clause 8.6	0.01 % to 0.15 %
14.	Fibre Cement Flat Sheet	Dimensions	IS 14862 (RA 2015) Clause 7.1, Amends 3	1 mm to 3000 mm
		Bending Strength	IS 14862 (RA 2015) Clause 7.1, Amends3	1 MPa to 30 MPa
		Apparent Density	IS 14862 (RA 2015) Clause 7.1, Amends 3	100 kg/m ³ to 2500 kg/m ³
II.	WOOD & WOOD PRODUCTS			
1.	Block Boards	Dimensions	IS 1659 (RA 2014) Amds 2	1 mm to 2500 mm
		Dimensional Changes	IS 1659 (RA 2014) Amds 2	1 mm to 250 mm

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		Caused By humidity		
		Resistance to water	IS 1659 (RA 2014) Amds 2	Qualitative
		Modulus of rupture & elasticity	IS 1659 (RA 2014) Amds 2	5 N/mm ² to 150 N/mm ² 5 N/mm ² to 15000 N/mm ²
		Moisture Content	IS 1659 (RA 2009) Amds 2	1 % to 25 %
		Adhesion of Plies	IS 1659 (RA 2009) Amds 2	Qualitative
		Spot test		Qualitative
2.	Ply Wood, (Gen. Plywood, Marine Ply wood, Veneered Decorative Ply Wood Concrete Shuttering Plywood)	Dimension	IS 303 (RA 2013) Amds 6	1 mm to 2500 mm
		Water Resistance test		Qualitative
		Modulus of rupture & elasticity	IS 710 (RA 2017) IS 4990 (RA 2017)	5 N/mm ² to 150 N/mm ² 5 to 15000 N/mm ²
		Moisture Content	IS 1328 (RA 2017) Amds 6	1 % to 25 %
		Glue Shear Strength		5 N to 3500 N
		Adhesion of plies	IS 1708 (Part 1 & Part 2)	Qualitative
		Tensile Strength		5 N/mm ² to 75 N/mm ²
		Identification of declared Wood	IS 4970 (RA 2010) FRI Publication Hand Book for field identification of Timber in India	Qualitative
3.	Plain particle Boards, Pre-Laminated Particle Boards, Medium Density Fibre Boards, Veneered Particle Board	Dimension	IS 2380 (Part 2) (RA 2013) Amds 4	1 mm to 2500 mm
		Density	IS 2380 (Part 3) (RA 2013) Amds 4	100 to 1000 kg/m ²
		Moisture Content	IS 2380 (Part 3) (RA 2013) Amds 4	1 % to 15 %
		Water Absorption	IS 2380 (Part 16) (RA 2013) Amds 4	1 % to 55 %
		Water Resistance	IS 2380 (Part 19 & 20) RA 2013) Amds 4 IS 3097	Qualitative
		Modulus of rupture & elasticity	IS 2380 (Part 4) (RA 2013)	5 N/mm ² to 150 N/mm ² 10 N/mm ² to 10000 N/mm ²
		Screw withdrawal strength	IS 2380 (Part 14) (RA 2013)	10 N to 4000 N

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		Tensile Strength	IS 2380 (Part 5) (RA 2013)	1 N/mm ² to 10 N/mm ²
		Surface Abrasion Resistance	IS 12823 Annex. C	20 Revolution to 3000 Revolution
		Linear Expansion and thickness swelling (swelling in water) Swelling in thickness due to surface absorption	IS 2380 (Part 17) (RA 2013)	1 % to 20 %
4.	Wooden Flush Door Shutter	Dimensions & Squareness	IS 4020 (Part 2) (RA 2018)	1 mm to 2500 mm
		General Flatness	IS 4020 (Part 3) (RA 2018)	1 mm to 10 mm
		Adhesion of Plies (Knife test)	IS 4020 (Part 14) (RA 2018)	Qualitative
		Slamming Test	IS 4020 (Part 10) (RA 2018)	Qualitative
		Local planeness	IS 4020 (Part 4) (RA 2018)	1 mm to 10 mm
		Impact Indentation	IS 4020 (Part 5) (RA 2018)	0.1 mm to 1 mm
		Flexure Test	IS 4020 (Part 6) (RA 2018)	1 mm to 75 mm
		Edge Loading Test	IS 4020 (Part 7) (RA 2018)	0.1 mm to 5 mm
		Shock Resistance	IS 4020 (Part 8) (RA 2018)	Qualitative
		Buckling Resistance Test	IS 4020 (Part 9) (RA 2018)	1 mm to 60 mm
		Glue Adhesion Test	IS 4020 (Part 15) (RA 2018)	Qualitative
		End Immersion Test	IS 4020 (Part 13) (RA 2018)	Qualitative
		Varying Humidity	IS 4020 (Part 12) (RA 2018)	1 mm to 2400 mm
	Screw withdrawal resistance	IS 4020 (Part 16) (RA 2018)	10 N to 4000 N	
III.	MECHANICAL PROPERTIES OF METALS			
1.	Metals & Alloys (Ferrous & Non Ferrous)	Tensile Test Tensile strength	IS 1608 (Part 1)	Upto 1000 kN
		Yield Stress/		Upto 1000 kN

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		0.2 %Proof stress		
		% Elongation		Upto 50 %
		% Reduction in Area		Upto 70 %
2.	High Strength Deformed bar and Wire	Tensile strength	IS 1786 (RA 2013)	Upto 1000 kN
		Yield Stress/ 0.2%Proof stress		Upto 1000 kN
		% Elongation		Upto 70 %
3.	Uncoated Stress Relieved 7-Ply Strand	Breaking Load	IS 14268	Upto 1000 kN
		0.2% Proof stress		Upto 1000 kN
		%Elongation		Upto 50 %
4.	Threaded Steel Fasteners Bolts Nuts	Ultimate Breaking strength / Proof load	IS 1367 (Part 3)	Upto 1000 kN (M 3 to M 39 mm) Upto 1000 kN
		Proof Load	IS 1367 (Part 6) (RA 2017)	Upto 1000 kN (M 3to M 39 mm)
		Bend Test	IS 1599 (RA 2017)	(Upto 32 mm) Qualitative Mandrel Size-16, 25, 32, 40, 60, 80, 100, 120, 140, 160, 180, 200, 224 mm
		Re-bend Test	IS 1786 (RA 2013)	(Upto 32 mm) Qualitative Mandrel size-16, 25, 32, 40, 60, 80, 100, 120, 140, 160, 180, 200, 224 mm
		Brinell Hardness Test	IS 1500 (Part 1, Part 2, Part 3 & Part 4)	100 HBW to 400 HBW (2.5/187.5) & (2.5/62.5)
		Vickers Hardness Test	IS 1501 (Part 1)	100 HV30 to 750 HV30 100 HV10 to 750 HV10 100 HV5 to 750 HV5
		Rockwell Hardness Test	IS 1586 (Part 1 & Part 2)	B-scale/20 to100 HRBW C-scale/20 to 70HRC A-scale/20 to 90HRA

Vivek Vardhan
Convenor

Alok Jain
Program Manager

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		Flattening Test	IS 2328	Up to 300 mm O.D.
		Reverse Bend Test	IS 1716 (RA 2017)	Up to 10 mm Dia.
		Wrapping Test	IS 1755	Up to 6 mm Dia.
		Dimensions	IS 1239 (Part 1) or as per relevant product specification	0-2000 mm/L.C.= 1mm 0-300mm/L.C. =0.02mm 0-25 mm/L.C.=0.001mm
		Mass	IS 1239 (Part 1) or as per Relevant Product Specification	0 to 50 kg L.C= 50g 0 to 15 kg L.C.=0.5 g 0 to 500 g L.C.=0.1 g
		IMPACT TEST		
		IZOD Impact Test of Metals	IS 1598 (RA 2015) or as per relevant product specification	0 to 168 Joule / L.C.= 2J
		CHARPY Impact (V-notch) Test of Metals	IS 1757 (Part 1) or as per relevant product specification	0 to 300 Joule / L.C=2 J
		Erichsen Cupping test	IS 10175 or as per relevant product specification for sheet thickness of 0.1 to 2 mm	Erichsen Index 0 to 20IE L.C 0.01 mm, Dia of Spherical end of Punch 20 mm
		Stress-Strain Test/ Ultimate Breaking Load Test Surface Condition Test on Stranded Conductor	IS 398(Part 2) (RA 2012) IS 398 (Part 5) (RA 2012)	0 to 250 kN/ L.C.=1 N
IV.	PERFORMANCE/DURABILITY/SAFETY TEST			
1.	Performance Tests (Gate Valve, Globe Valve,	Hydraulic Pressure test	IS 778 (RA 2015) IS 1239 (Part 2) or as per relevant product	Upto 70 kg/cm ²

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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
	Check Valve, Sluice Valve, Water meter, G.I. Pipes, CID Joints)		specification	
2.	(Transformer Tank, Metal Containers & Domestic Pressure Cooker)	Air Pressure Test	IS 2347 IS 2471 (RA 2016) IS 1180 (Part 1) or as per relevant product specification	Upto 10 kg/cm ²
		Bituminous Coating Test at 0°C & 65°C temperature	IS 8329 (RA 2014)	Qualitative
V.	PLASTIC & POLYMERS			
1.	High Density Polyethylene Pipe	Carbon Black content	IS 2530 (RA 2013)	0 to 6.0 %
		Carbon Black dispersion	IS 2530 (RA 2013)	Qualitative
		Dimensions	IS 14151 (Part 1) (RA 2015) Amds3	0 to 630 mm
		Visual Appearance	IS 14151 (Part 1) (RA 2015) Amds 3	Qualitative
		Reversion test	IS 14151 (Part 1) (RA 2015) Amds 3	0 to 10 %
		Tensile Strength at yield	IS 14151 (Part 1) (RA 2015) Amds 3	0 to 50 N/mm ²
		Elongation at break	IS 14151 (Part 1) (RA 2015) Amds 3	100 % to 600 %
		Hydraulic pressure test	IS 14151 (Part 1) (RA 2015) Amds 3	1 kg/cm ² to 200 kg/cm ²
		Fusion compatibility test	IS 14151 (Part 1) (RA 2015) Amds 3	Qualitative
		Density (at 27 °C)	IS 7328 (RA 2013) Amds 2	900 kg/m ³ to 998 kg/m ³
		Melt flow index (at 190 °C and 50 N load)	IS 2530 (RA 2013)	0.15 to 25 g per 10 minutes

Vivek Vardhan
Convenor

Alok Jain
Program Manager

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2.	Quick Coupled Polyethylene Pipe and Fittings (Coupler)	Carbon Black content	IS 2530 RA 2013	0.1 % to 6.0 %
		Carbon Black dispersion	IS 2530 (RA 2013)	Qualitative
		Density (at 27 °C)	IS 7328 (RA 2013) Amds2	900 kg/m ³ to 998 kg/m ³
		Melt flow index (at 190 °C and 50 N load)	IS 2530 (RA 2013)	0.15 to 25 g per 10 minutes
		Workmanship & Visual Appearance	IS 14151 (Part 2) RA 2015	Qualitative
		Holding attachment for coupler part	IS 14151(Part 2) RA 2015	Qualitative
		Hardness, Shore-A	By Durometer method ASTM -D 2240 -05	10 to 90
3.	Un-Plasticized PVC Pipes for Potable Water Supplies	Dimensions	IS 4985 (RA 2010) Amds4	1 mm to 630 mm
		Colour of pipe & visual appearance	IS 4985 (RA 2010) Amds4	Qualitative
		Opacity	IS 12235 (Part 3) (RA 2014)	0 to 90 %
		Effect on water	IS 12235 (Part 4, Part 10 & Part 11) (RA 2009)	Pb-0 to 1.0 ppm Sn-0 to 0.02 ppm Cd-0 to 0.01 ppm Hg-0 to 0.001 ppm
		Reversion test	IS 12235 (Part 5) RA 2014	Within ± 10 %
		Vicat softening temperature	IS 6307 RA 2013	35 °C to 100 °C
		Density (at 27 °C)	IS 13360 (Part 3 & Sec-1) (RA 2008)	1 g/cm ³ to 2 g/cm ³
		Sulphatate ash content	IS 4985 (RA 2010) Amds4 (Annex. B)	0 to 25 %
		Hydraulic pressure test	IS 12235 (Part 8) (RA 2014)	1 kg/cm ² to 200 kg/cm ²
		Resistance to external blows at 0 °C	IS 4985 (RA 2010) Amds5 (Annex. C)	Qualitative
		4.	HDPE Pipes	Density (at 27 °C)
		M.F.I. (At 190 °C & 50 N)	IS 2530 (RA 2013)	0.15 to 25 g per 10

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		Load		minutes
		Carbon Black content	IS 2530 (RA 2013)	0 to 6.0 %
		Carbon Black dispersion	IS 2530 (RA 2013)	Qualitative
		Dimensions	IS 4984	0.1 mm to 630 mm
		Visual Appearance	IS 4984	Qualitative
		Out of squareness	IS 4984	0.1 mm to 2.0 mm
		Hydraulic pressure test	IS 4984	1 to 200 kg/cm ²
		Reversion test	IS 4984	Within ± 10 %
		Overall migration	IS 9845 (RA 2010) IS 10146 (RA 2008) Amds 1	0.1 mg/l to 90.0 mg/l
5.	High Density Polyethylene Pipes for Sewerage	Dimensions	IS 14333 (RA 2012) Amds 4	Upto 355 mm
		Colour of Pipe	IS 14333 (RA 2012) Amds 4	Qualitative
		Hydraulic pressure test	IS 14333 (RA 2012) Amds 4	1 kg/cm ² to 200 kg/cm ²
		Reversion test	IS 14333 (RA 2012) Amds4 (Annexure 'C')	0 to 10 %
		Density (at 27 °C)	IS 7328 (RA 2013) Amds 2	900 kg/m ³ to 998 kg/m ³
		Melt flow Index (at 190 °C and 50 N load)	IS 2530 (RA 2013)	0.15 to 25 gm per 10minutes
		Carbon black content	IS 2530 (RA 2013)	0 to 6.0 %
		Carbon black dispersion	IS 2530 (RA 2013)	Qualitative
		Out of square of pipe end	IS 14333 (RA 2012) Amds 4	0-2 mm
6.	Container for Packaged Drinking Water	Material	IS 15410 (RA 2013) Amnd 3, 2009	Qualitative
		Design & Shape	IS 15410 (RA 2013) Amnd 3, 2009	Qualitative
		Dimensions Overall height Diameter Neck height Wall thickness	IS 2798 (RA 2014) Amnd 2, 2009	50 mm to 1000 mm 1 mm to 300 mm 1 mm to 300 mm 0.1 mm to 25 mm

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		Capacityi. Nominalii. Brimful	IS 2798 (RA 2014) Amnd 2, 2009	100 ml to 5 litre
		Transparency	IS 15410 (RA 2013) Amnd 3, 2009	1 % to 100 %
		Leakage Testi. Closureii. Vibration iii. Air Pressure	IS 2798 (RA 2014) Amnd 2, 2009	Qualitative
		Drop test	IS 2798 (RA 2014) Amnd 2, 2009	Qualitative
		Migration test	IS 9845 (RA 2010)	0 to 90 mg/l
		Water Potability test	IS 15410 (RA 2013) Amnd 3, 2009	Qualitative
7.	Polyethylene Bag for General Purposes	Material	IS 9738 (RA 2010)	Qualitative
		Dimensions and tolerances	IS 9738 (RA 2010)	0.001 mm to 5 mm 1 mm to 600 mm 0.1 mm to 25 mm
		Appearance	IS 9738 (RA 2010)	Qualitative
		Water leak test	IS 9738 (RA 2010)	Qualitative
		Printing Ink Adhesion test	IS 9738 (RA 2010)	Qualitative
		Drop test	IS 9738 (RA 2010)	Qualitative
8.	Un-plasticized Polyvinyl Chloride (PVC-U) pipes for soil and waste discharge system for inside and outside buildings including ventilation and rain water system	Dimensions	IS 13592	1 mm to 630 mm 0.0 2 mm to 300 mm 0.01 mm to 25 mm
		Colour of pipe & visual appearance	IS 13592	Qualitative
		Reversion test	IS 12235 (Part 5) (RA 2009)	Within ± 10 %
		Stress relief test	IS12235 (Part 6) (RA 2009)	1 °C to 200 °C
		Vicat softening temperature	IS 12235 (Part 2) (RA 2009)	0 to 100 °C
		Effect on Sunlight	IS12235 (Part 13) (RA 2009)	1 N/mm ² to 100 N/mm ²
		Resistance to Sulphuric acid	IS 12235 (Part 7) (RA 2009)	0.001 g to 50 g
	Resistance to external	IS 12235 (Part 9)	Qualitative	

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		blows at 0 ^o c	(RA 2009)	
		Tensile Strength	IS 12235 (Part 13) (RA 2009)	1 N/mm ² to 100 N/mm ²
		Axial Shrinkage	IS 13592:2013	Within ± 10 %
		Water Tightness of joint	IS 12235 (Part 8) (RA 2009)	1 kg/cm ² to 200 kg/cm ²
		Resistance to Dichloromethane at specified temperature	IS 12235 (Part 11) (RA 2009)	0.02 mm to 300 mm
VI.	PAPER & PAPER PRODUCTS			
1.	Paper	One Minute Cobb test for water penetration	IS 1060 (Part 1) (RA 2014) Amnd 6	1 g/m ² to 90 g/m ²
		Tensile Index,	IS 1060 (Part 1) (RA 2014) Amnd 6	1 N.m/g to 100 N.m/g
		Moisture Content	IS 1060 (Part 1) (RA 2014) Amnd 6	1 % to 50 %
		Ash content	IS 1060 (Part 1) (RA 2014) Amnd 6	1 % to 50 %
		Weight(G.S.M)	IS 1060 (Part 1) (RA 2014) Amnd 6	10 g/m ² to 400 g/m ²
		Thickness	IS 1060 (Part 1) (RA 2014) Amnd 6	1 µm to 5 mm
		Tear Factor	IS 1060 (Part 1) (RA 2014) Amnd 6	0.5 mNm ² /g to 20 mNm ² /g
		M.D.		
		C.D.		
		Bursting Strength	IS 1060 (Part 1) (RA 2014) Amnd 6	1 kg/cm ² to 60 kg/cm ²
		Double fold (nos.) Folding Endurance tester	IS 1060 (Part 1) (RA 2014) Amnd 6	1 cycles to 100 cycles
		Smoothness & Porosity (Bendtsen type)	IS 9894 (RA 2013)	Upto 1000 ml/min.
		Brightness / Gloss/ Opacity	IS 1060 (Part 1 & Part 2) (RA 2014) Amnd 6	Qualitative

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Vivek Vardhan
Convenor

Alok Jain
Program Manager