Laboratory	**Krishna Digital Material Testing Laboratory, 2, Bhawani Nagar, J. K. Road, Bhopal, Madhya Pradesh**
Accreditation Standard	**ISO/IEC 17025: 2005**
Certificate Number	**TC-7016** ***(in lieu of T-2173, T-3404 & T-3405)*** **Page 1 of 44**
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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.	**FOOD AND AGRICULTURAL PRODUCTS**			
1.	**MILK & MILK PRODUCTS - Pasteurised Milk/Cream/Flavored Milk/Sterilized And Uht Milk/Cream Flovoured Milk/Evaprated Milk/Sweetened Condensed Milk/Pasteurized Butter) Dry Product:Milk Powder,Cream,Whey,Edible Casein,Ice Cream Mix,Ice Cream Frozen Dessert,Milk Lolly,Ice Candy,Processed Cheese/Cheese Spread,All Other Cheeses.Yogdurt. Dahi.Chakka Shrikhand/Paneer Chhana,Khoya**	Total Plate Count	IS 5402: 2012	≥10cfu/gm
		Coliform	IS 5401 (Pt 1) 2002 (RA 2012)	≥10cfu/gm ≥ 1 cfu/ml
		E.Coli	IS 5887 (Pt 1) 1976 (RA 2013)	Qualitative (Absent/Present) /gm or ml
		Faecal Streptococci	IS 5887 (Pt 2) 1976 (RA 2013)	≥10cfu/gm ≥ 1 cfu/ml
		Salmonella	IS 5887(Part 3): 1999 (RA 2013)	Qualitative (Absent/Present)/ 25 ml or 25 gm
		Shigella	IS 5887(Part 7): 1999 (RA 2013)	Qualitative (Absent/Present)/ 25 ml or 25 gm
		Staphylococcus aureus	IS 5887(Part 2):1976 RA 2013	Qualitative (Absent/Present)/ 25 gm
		Yeast & Mould	IS 5403: 1999 (RA 2013)	≥10cfu/gm ≥ 1 cfu/ml

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2.	**SPICES (Caraway, Cardamom, Chillies and Capsicum (Lal Mirchi), Cinnamon (Dalchini), Cassia(Taj), Cloves (Laung), Coriander (Dhania), Cumin (Zeera), Fennel (Saunf), Fenugreek (Methi), Ginger(Adrak,Sonth), Mace (Jaipatri), Mustard (Rai.Sarson),Nutmeg (Jaiphal), Pepper Black, Poppy (Khas Khas), Turmeric, Curry Powder, Mixed Masala, Aniseed (Saufe)**	Total Plate Count	IS 5402- 2012	≥10cfu/gm
		Coliform	IS 5401 (Pt-1) 2002 (RA 2012)	≥10cfu/gm
		E.Coli	IS 5887 (Pt 1) 1976 RA 2013	Qualitative (Absent/Present) /gm
		Faecal Streptococci	IS 5887 (Pt 2) 1976 RA 2013	≥10cfu/gm
		Bacilus cereus	IS 5887 Pt-6- 2012	≥10cfu/gm
		Salmonella	IS 5887(Part 3):1999 (RA 2013)	Qualitative (Absent/Present)/ 25 gm
		Shigella	IS 5887(Part 7): 1999 (RA 2013)	Qualitative (Absent/Present)/ 25 gm
		Staphylococcus aureus	IS 5887(Part 2): 1976 (RA 2013)	Qualitative (Absent/Present)/ 25 gm
		Yeast & Mould	IS 5403:1999 (RA 2013)	≥10cfu/gm
3.	**Fat, Oils and Fat Emulsions**	Total Plate Count	IS 5402:2012	≥10cfu/gm
		Coliform	IS 5401 (Pt-1) 2002 RA 2012	≥10cfu/gm ≥ 1 cfu/ml
		E.Coli	IS 5887 (Pt 1) 1976 RA 2013	Qualitative (Absent/Present) /gm or ml
		Salmonella	IS 5887(Part 3):1999 (RA 2013)	Qualitative (Absent/Present)/

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
				25 ml or 25 gm
		Shigella	IS 5887 (Part 7):1999 (RA 2013)	Qualitative (Absent/Present)/ 25 ml or 25 gm
		Yeast & Mould	IS 5403: 1999 (RA 2013)	≥10cfu/gm ≥ 1 cfu/ml
4.	**Fruit & Fruit Products**	Total Plate Count	IS 5402: 2012	≥10cfu/gm
		Coliform	IS 5401 (Pt-1) 2002 (RA 2012)	≥10cfu/gm ≥ 1 cfu/ml
		E.Coli	IS 5887 (Pt 1) 1976 (RA 2013)	Qualitative (Absent/Present) /gm or ml
		Bacilus cereus	IS 5887 Pt-6 2012	≥10cfu/gm ≥ 1 cfu/ml
		Salmonella	IS 5887(Part 3):1999 (RA 2013)	Qualitative (Absent/Present)/ 25 ml or 25 gm
		Shigella	IS 5887(Part 7) 1999(RA2013)	Qualitative (Absent/Present)/ 25 ml or 25 gm
		Staphylococcus aureus	IS 5887(Part 2) 1976 (RA 2013)	Qualitative (Absent/Present)/ 25 gm or 25 ml
		Yeast & Mould	IS 5403:1999 (RA 2013)	≥10cfu/gm ≥ 1 cfu/ml
5.	**Vegetables & Vegetables Products**	Total Plate Count	IS 5402: 2012	≥10cfu/gm
		Coliform	IS 5401 (Pt-1) 2002 (RA 2012)	≥10cfu/gm ≥ 1 cfu/gm or ml
		E.Coli	IS 5887 (Pt 1)1976 (RA 2013)	Qualitative (Absent/Present) /gm or ml
		Bacilus cereus	IS 5887 Pt-6 2012	≥10cfu/gm ≥ 1 cfu/ml

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Salmonella	IS 5887(Part 3): 1999 (RA 2013)	Qualitative (Absent/Present)/ 25 ml or 25 gm
		Shigella	IS 5887 (Part 7) 1999 (RA 2013)	Qualitative (Absent/Present)/ 25 ml or 25 gm
		Staphylococcus aureus	IS 5887(Part 2):1976 (RA 2013)	Qualitative (Absent/Present)/ 25 gm or 25 ml
		Yeast & Mould	IS 5403: 1999 (RA 2013)	≥10cfu/gm ≥ 1 cfu/ml
6.	**Cereals And Cereal Products**	Total Plate Count	IS 5402: 2012	≥10cfu/gm
		Coliform	IS 5401 (Pt-1) 2002 (RA 2012)	≥10cfu/gm
		Faecal Streptococci	IS 5887 (Pt 2) 1976 (RA 2013)	≥10cfu/gm
		Salmonella	IS 5887(Part 3):1999 (RA 2013)	Qualitative (Absent/Present)/ 25 gm
		Shigella	IS 5887(Part 7) 1999 (RA 2009)	Qualitative (Absent/Present)/ 25 gm
		Bacilus cereus	IS 5887 Pt-6 2012	≥10cfu/gm
		E.Coli	IS 5887 (Pt 1) 1976 (RA 2013)	Qualitative (Absent/Present) /gm
7.	**Sweets & Confectionery**	Total Plate Count	IS 5402: 2012	≥10cfu/gm
		Coliform	IS 5401 (Pt-1) 2002 RA 2012	≥10cfu/gm
		E.Coli	IS 5887 (Pt 1) 1976 (RA 2013)	Qualitative (Absent/Present) /gm
		Salmonella	IS 5887 (Part 3):1999 (RA 2013)	Qualitative (Absent/Present)/25 gm
		Shigella	IS 5887 (Part 7): 1999 (RA 2013)	Qualitative (Absent/Present)/ 25 gm
		Yeast & Mould	IS 5403: 1999 (RA 2013)	≥10cfu/gm

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
8.	**Sweetening agents including honey**	Total Plate Count	IS 5402:2012	≥10cfu/gm
		Coliform	IS 5401 (Pt-1) 2002 RA 2012	≥10cfu/gm ≥ 1 cfu/ml
		E.Coli	IS 5887 (Pt 1) 1976 (RA 2013)	Qualitative (Absent/Present) / gm or ml
		Salmonella	IS 5887(Part 3):1999 (RA 2013)	Qualitative (Absent/Present)/ 25 ml or 25 gm
		Shigella	IS 5887 (Part 7) 1999 (RA 2013)	Qualitative (Absent/Present)/ 25 ml or 25 gm
		Yeast & Mould	IS 5403:1999 (RA 2013)	≥10cfu/gm ≥ 1 cfu/ml
9.	**Other food product and ingredients (Packaged food)**	Total Plate Count	IS 5402: 2012	≥10cfu/gm
		Coliform	IS 5401 (Pt-1) 2002 (RA 2012)	≥10cfu/gm ≥ 1 cfu/ml
		E.Coli	IS 5887 (Pt 1) 1976 (RA 2013)	Qualitative (Absent/Present) /gm or ml
		Salmonella	IS 5887(Part 3):1999 (RA 2013)	Qualitative (Absent/Present)/ 25 ml or 25 gm
		Shigella	IS 5887(Part 7) 1999 (RA 2013)	Qualitative (Absent/Present)/ 25 ml or 25 gm
		Yeast & Mould	IS 5403:1999 (RA 2013)	≥10cfu/gm ≥ 1 cfu/ml
II.	**WATER**			
1.	**Drinking Water/ Ground Water/ Surface water/**	Total Plate Count	IS 1622:1981(RA 2014)	≥1cfu/ml
		Total Coliform	IS 1622:1981(RA 2014) (MPN & MFT)	≥2MPN/100ml Qualitative

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Potable water			(Absent/Present) /100ml
		E.Coli	IS 1622:1981(RA 2014) (MPN & MFT)	≥2MPN/100ml Qualitative (Absent/Present)/ 100ml
		Faecal streptococci	IS 1622:1981(RA 2014) (MPN & MFT)	Qualitative (Absent/Present)/ 100ml ≥2MPN/100ml
		Pseudomonas aeruginosa	IS 13428:2005 Annexure D RA 2014	Qualitative (Absent/Present)/ 100ml
		Salmonella	IS 5887(Part 3):1999 (RA 2013)	Qualitative (Absent/Present)/100ml
		Shigella	IS 5887(Part 7) 1999 (RA 2013)	Qualitative (Absent/Present)/100ml
		Staphylococcus aureus	IS 5887(Part 2):1976 (RA 2013)	Qualitative (Absent/Present)/100ml
		Sulphite Reducing Anaerobes	IS 13428: 2005 Annexure C, RA 2014	Qualitative (Absent/Present)/50ml
		Yeast & Mould	IS 5403:1999(RA 2013)	≥1cfu/100ml
		Heterotrophic Plate Count	APHA (23rd Edition) 9215A	≥1cfu/ml
		Faecal Coliforms	IS 1622:1981(RA 2014) (MPN & MFT)	≥2MPN/100ml Qualitative (Absent/Present)/100ml
		Sulphate Reducing Bacteria	IS 1622:1981(RA 2014)	Qualitative (Absent/Present)/ml
2.	**Water For Processed Food Industries**	Coliform Bacteria	IS 5401(Part 1):2002 IS 1622:1981(RA 2014)	≥1cfu/ml ≥2MPN/100ml
		Lypolytic Bacteria	IS 4251:1967(RA 2013)	≥1cfu/ml
		Proteolytic Bacteria	IS 4251:1967(RA 2013)	≥1cfu/ml
		Thermophyllic Bacteria	IS 4251:1967(RA 2013)	≥1cfu/ml
		Standard Plate Count	IS 1622:1981(RA 2014)	≥1cfu/ml
		Slime Forming Organism	IS 1622:1981(RA 2014) Only 3.10 page 18	Qualitative (Absent/Present)/ Drop

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
3.	**Industrial Water**	Total Plate Count	IS 5402:2012 IS 1622:1981(RA2014) IS 3328:1993	≥1cfu/ml ≥1cfu/ml ≥1cfu/ml
		Coliform Bacteria	IS 1622:1981(RA2014) (MPN & MFT)	≥2MPN/100ml Qualitative (Absent/Present)/100ml
		E.Coli	IS 1622:1981(RA2014) (MPN & MFT)	≥2MPN/100ml Qualitative (Absent/Present)/100ml
		Faecal Streptococci	IS 1622:1981(RA2014) (MPN & MFT)	≥2MPN/100ml Qualitative (Absent/Present)/100ml
		Faecal Coliform	IS 1622:1981(RA2014) (MPN & MFT)	≥2MPN/100ml Qualitative (Absent/Present)/100ml
		Sulphite Reducing Anaerobes	IS 13428:2005 Annexure C (RA 2014)	Qualitative (Absent/Present)/50ml
		Sulphate Reducing Bacteria	IS 1622:1981(RA 2014)	Qualitative (Absent/Present)/ml
		Slime Forming Organism	IS 1622:1981(RA 2014) Only 3.10 page 18	Qualitative (Absent/Present)/drop
		Yeast & Mould	IS 5403:1999 (RA 2013)	≥ 1cfu/100ml Qualitative (Absent/Present)/100ml
		Heterotrophic Plate Count	APHA (23rd Edition) 9215A	≥ 1cfu/ml
III.	**ENVIRONMENT AND POLLUTION**			
1.	**Liquid Effluent/ Waste Water**	Total Plate Count	IS 5402:2012 IS 1622:1981(RA 2014)	≥1 cfu/ml ≥1 cfu/ml
		Total Coliform	IS 5401(Part 1): 2002 (RA 2012) IS 1622:1981(RA 2014)	≥1 cfu/ml ≥2MPN/100ml

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		E.Coli	IS 5887 (Part 1): 1976 (RA 2013) IS 1622:1981(RA2014)	≥1 cfu/ml ≥2MPN/100ml
		Faecal Streptococci	IS 1622:1981(RA2014)	≥2MPN/100ml
		Faecal Coliform	IS 1622:1981(RA2014)	≥2MPN/100ml
2.	**Swab (Hand, Surface, Equipment)**	Total Plate Count	IS 5402:2012	≥1 cfu/cm^2
		Coliform Bacteria	IS 5401(Part 1) 2002 (RA 2012)	Qualitative (Absent/Present)/cm^2
		E.Coli	IS 5887 (Part 1):1976 (RA2013)	Qualitative (Absent/Present)/cm^2
		Faecal streptococci	IS 5887 (Part 2):1976 (RA2013)	Qualitative (Absent/Present)/cm^2
		Yeast & Mould	IS 5403:1999 (RA 2013)	Qualitative (Absent/Present)/cm^2
		S.aureus	IS 5887 Part 2):1976 (RA 2013)	Qualitative (Absent/Present)/cm^2
		Salmonella	IS 5887(Part 3):1999 (RA 2013)	Qualitative (Absent/Present)/cm^2
		Shigella	IS 5887(Part 7):1999 (RA 2013)	Qualitative (Absent/Present)/cm^2

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.	**POLLUTION AND ENVIRONMENT**			
1.	**Wastes (Liquid/ Slurry/ Sludge/ Solid/ Semi-Solid/ Soil/ Sediments fertilizer) Agricultural soil for (SHC)**	Cation Exchange Capacity (CEC)	IS 2720(P-24) 1976 (RA 2017)	5 to 2000 meq/100g
		Electrical Conductivity	IS 14767-2000	0.5 to 10000 µs/cm
		Organic Matter/ Organic Carbon	IS 2720(P-22) 1972 (RA 2017)	1 % to 10 %
		pH	IS 2720(P-26) 1987 (RA 2011)	1 to 14
		Available Phosphorus	QA.16.5.235 DOI: 28.06.2017 based on Methods Manual, Soil Testing in India, Dept. of Agriculture & Cooperation, GOI	0.5 to 1000 mg/kg
		Sodium Absorption Ratio (SAR)	QA.16.5.235 DOI: 28.06.2017 based on Methods Manual, Soil Testing in India, Dept. of Agriculture Research institute IARI New Delhi	0.4 to 3.0
		Chloride	QA.16.5.74 DOI: 01.03.2014 based on Methods Manual, Soil Testing in India, Dept. of Agriculture Research institute IARI New Delhi	10 mg/kg to 1000 mg/kg
		Nitrate		0.5 mg/kg to 50 mg/kg
		Nitrite		0.5 mg/kg to 50 mg/kg

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Sulfate	QA.16.5.74 DOI: 01.03.2014 based on Methods Manual, Soil Testing in India, Dept. of Agriculture Research institute IARI New Delhi IS 2720 (P-27): 1977 (RA 2015)	1.0 mg/kg to 5000 mg/kg
		Water Soluble Salt	QA.16.5.74 DOI: 01.03.2014 based on Methods Manual, Soil Testing in India, Dept. of Agriculture Research institute IARI New Delhi	5 mg/kg to 10000 mg/kg
		Water holding Capacity		5% to 80%
		Boron		5 mg/kg to 100 mg/kg
		Sodium		5 mg/kg to 2000.0 mg/kg
		Potassium/Potash		5 mg/kg to 2000.0 mg/kg
		Calcium		5 mg/kg to 2000.0 mg/kg
		Chromium	QA.16.5.247 DOI: 28.06.2017 based on Methods Manual, Soil Testing in India, Dept. of Agriculture Research institute IARI New Delhi	0.5 mg/kg to 200.0 mg/kg
		Copper		0.5 mg/kg to 200.0 mg/kg
		Nickel		0.5 mg/kg to 200.0 mg/kg
		Zinc		0.5 mg/kg to 200.0 mg/kg
		Lead		0.5 mg/kg to 200.0 mg/kg
		Iron		5.0 mg/kg to 2000.0 mg/kg

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Manganese		0.5 mg/kg to 200.0 mg/kg
		Molybdenum		0.5 mg/kg to 200.0 mg/kg
		Magnesium	QA.16.5.74 DOI: 01.03.2014 based on Methods Manual, Soil Testing in India, Dept. of Agriculture Research institute IARI New Delhi	5 mg/kg to 2000.0 mg/kg
2.	**Water and Waste Water**	Oxygen absorbed in 4 hours at 27°C	IS 3025:Part-51:2003	0.5 mg/l to 500 mg/l
		Total Residue, (Total solid - dissolved and suspended)	IS 3025:Part-15:1984	1 mg/l to 10000 mg/l
		Total suspended Solids, (Non-filterable residue)	IS 3025:Part-17:1984 (RA 2012)	5.0 mg/l to 25000 mg/l
		Volatile and fixed residue, (total filterable and non-filterable)	IS 3025:Part-18:1984 (RA 2012)	5.0 mg/l to 25000 mg/l
		Acidity	IS 3025:Part 22:1986 (RA 2003)	1 mg/l to 500 mg/l
		Sulphate	IS 3025:Part 24:1986 (RA 2003)	1 mg/l to 100 mg/l
		Nitrite, Nitrogen	IS 3025:Part 34:1988 (RA 2003)	0.5 mg/l to 100 mg/l
		Total Nitrogen	IS 3025:Part 34:1988 (RA 2003)	1.0 mg/l to 500 mg/l
		Hexavalent Chromium	IS 3025:Part 52:2003	0.5 mg/l to 10 mg/l
		Boron	IS 3025:Part 57:2005	0.1 mg/l to 100 mg/l
		Phenol	IS 3025:Part 52:1992 (RA 2003)	0.05 mg/l to 100 mg/l

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		COD	IS 3025 (Part 58) 2006 (RA 2017)	5 mg/l to 1000 mg/l
		BOD	IS 3025 (Part 44) 1993 (RA 2014)	0 to 30 mg/l
		DO	IS 3025 (Part 38) 1989 (RA 2014)	0 to 30 mg/l
II.	**RESIDUES IN WATER**			
1.	**Trace Metal (Water and Waste Water)**	Barium (as Ba)	APHA 3113(B): 21st Edition APHA 3120(B): 21st Edition IS 15302: 2003	0.2 mg/l to 100 mg/l
		Aluminium (as Al)	APHA 3113(B): 21st Edition Annex.J of IS 13428:1998 APHA 3120(B): 21st Edition	3.0 µg/l to 10 mg/l
		Cadmium (as Cd)	IS 3025 (Pt. 41)-1992 APHA 3113 B: 21st Edition APHA 3111B: 21st Edition APHA 3125(B): 21st Edition	0.004 mg/l to 10 mg/l
		Lead (as Pb)	APHA 3113 B: 21st Edition APHA 3111 B: 21st Edition IS 3025 (Part 47):1994 APHA 3125(B): 21st Edition	0.01 mg/l to 100 mg/l
		Chromium (as Cr)	IS 13428 (Annex. J)- 2005 APHA 3113 B: 21st Edition APHA 3125(B): 21st Edition	0.005 mg/l to 15 mg/l
		Nickel (as Ni)	APHA 3111(B): 21st Edition IS 3025 (Part 54): 2003 APHA 3125(B): 21st Edition	0.005 mg/l to 10 mg/l
		Cobalt (as Co)	APHA 3111(B): 21st Edition APHA 3125(B): 21st Edition	0.05 mg/l to 100 mg/l

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
III.	**WATER**			
1.	**DRINKING WATER**	Colour	IS 3025 (Part 4):1983 (RA 2006) Platinum Cobalt Method (Visual Comparison)	1 to 10 Hazen Unit
		Odour	IS 3025 (Part 5):1983 (RA 2006)	Qualitative
		Taste	IS 3025 (Part 7&8):1983 RA 2006	Qualitative
		Turbidity	IS 3025 (Part 10):1984 (RA 2006) (Nephlometric method)	1 to 40 NTU
		Specific Conductance	IS 3025 (Part 14):1984 (RA 2002) (Wheat Stone Bridge)	1 µS/cm to 200 mS/cm
		pH	IS 3025 (Part 11):1983 (RA 2002) (Electrometer Method)	1 to 14
		Total Hardness	IS 3025 (Part 21):2009 (Titrimetric Method)	1 to 500 mg/l
		Calcium	IS 3025 (Part 40):1991 (RA 2003) (EDTA Titrimetric Method)	1 to 500 mg/l
		Magnesium	IS 3025 (Part 46):1994 (RA 2003) (EDTA Titrimetric Method) (By difference)	1 to 500 mg/l
		Chloride	IS 3025 (Part 32):1988 (RA 2003) (Argent metric Method)	1 to 500 mg/l

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Sulphate	IS 3025 (Part 24):1986 (RA 1992) (Turbidity Method)	1 to 500 mg/l
		Alkalinity	IS 3025 (Part 23):1986 (RA 2003) (Volumetric Method)	0.5 to 500 mg/l
		Nitrate-Nitrogen	IS 3025 (Part 34):1988 (RA 2003) (Chromo tropic Acid Method)	0.5 to 100 mg/l
		Total Dissolved Solids	IS 3025 (Part 16):1984 (RA 2006) (Gravimetric Method)	5 to 2000 mg/l
		Iron	IS 3025 (Part 53) : 2003 (Phenanthroline Method)	0.01 to 15.0 mg/l
		Chromium	IS 3025 (Part 52):2003 (RA 2009) (Diphenyl Carbazide Method)	0.005 to 15.0 mg/l
		Copper	IS 3025 (Part 42):1992 (RA 2003) (Neocuprin method)	0.001 to 5.0 mg/l
		Manganese	IS 3025 (Part 59): 2006	0.01 to 5 mg/l
		Sodium	IS 3025 (Part 45):1993 (RA 2003) (Flame photometer method)	1 to 1000 mg/l
		Potassium	IS 3025 (Part 45):1993 (RA 2003) (Flame photometer method)	1 to 1000 mg/l
		Residual Chlorine	IS 3025 (Part 26):1986 (RA 2003)	0.1 to 5.0 mg/l
		Phosphorous	IS 3025 (Part 31):1988 (RA 2003)	1 to 100 mg/l
		Fluoride	IS 3025 (Part 60) : 2008	0.1 to 10 mg/l

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Nickel	IS 3025 (Part 54):2003 (RA 2009)	0.1 to 100 mg/l
		Silica	IS 3025 (Part 35):1988 (RA 2003)	0.2 to 10 mg/l
2.	**CONSTRUCTION WATER**	Alkalinity (Neutralize 100 ml Sample of water using 0.02 N H_2SO_4)	IS 456: 2000 (RA 2005)	0.1 to 50 ml
		Acidity (Neutralize 100 ml Sample of water using 0.02 N NaOH)	IS 456: 2000 (RA 2005)	0.1 to 10 ml
		Chloride	IS 3025 (Part 32): 1988 (RA 2003)	5 to 100 mg/l
		Sulphate	IS 3025 (Part 24): 1986 (RA 2003)	10 to 500 mg/l
		Inorganic solids	IS 3025 (Part 18): 1984 (RA 2012)	10 to 2000 mg/l
		Organic solids	IS 3025 (Part 18): 1984 (RA 2012)	10 to 2000 mg/l
		Suspended solids	IS 3025 (Part 17): 1984 (RA 2012)	10 to 1000 mg/l
		pH	IS 3025 (Part 11): 1983 (RA 2002)	1 to 14
IV.	**FOOD AND AGRICULTURAL PRODUCTS**			
1.	**Milk & Dairy Products**			
a.	**Whole Milk**	Total Solids	Cl. 4 of IS 1479 (P 2)-1961 (RA 2009)	1 % to 20 %
		Fat	Cl. 5 of IS 1479 (P 2)-1961 (RA 2009)	1 % to 15 %

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
			(Mojonnier Fat-extraction tube method)	
		Ash	Cl. 16 of IS 1479 (P 2)-1961 (RA 2009)	0.1 % to 10 %
		SNF	IS 10083: 1982 (RA 2013)	1.0 % to 20 %
b.	**Milk Powder, Skimmed Milk Powder, Partly skimmed milk powder**	Moisture	IS 1305:1984 (RA 2005) IS: 11623: 2008 (RA 2013)	0.1 % to 15 %
		Ash	IS 1479 (P 2)-1961 (RA 2009)	0.1 % to 20 %
		Protein	IS: 7219-1973 (RA 2010)	0.5 % to 50 %
		Fat	IS: 11721;2013; IS: 14433; 2007	0.10 % to 30 %
		Acidity as Lactic acid	IS: 1165-2002 (RA 2009) IS: 1766-1986 (RA 2003)	0.5 % to 5 %
c.	**Liquid Milk, Milk Powder, Condensed Milk, Paneer, Cheese, Yogurt, Ice Cream, Edible Casein Products, Dairy Whitener, Butter, Whey Powder, Ghee, Curd, Butter Oil, Khoa, Milk Permeates, Milk Concentrates & Cream**	Total solids	FSSAI manual-1: 2012 IS 12333-1997 (RA 2017)	1 % to 98 %
		pH value	FSSAI manual-1:2012 IS 1000: 1989 (2010)	1 to 14
		Acid Insoluble Ash	FSSAI manual-1:2012	0.01 % to 10 %
		Cane Sugar	FSSAI manual-1:2012	Qualitative Negative/Positive
		Starch	FSSAI manual-1:2012	Qualitative Negative/Positive
		Cellulose	FSSAI manual-1:2012	Qualitative Negative/Positive
		Added Urea	FSSAI manual-1:2012	Qualitative Negative/Positive
		Ammonium Sulphate	FSSAI manual-1:2012	Qualitative Negative/Positive
		Glucose	FSSAI manual-1:2012	Qualitative Negative/Positive

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Sodium Chloride	FSSAI manual-1:2012	Qualitative Negative/Positive
		Salicylic Acid	FSSAI manual-1:2012	Qualitative Negative/Positive
		Foreign Fat	FSSAI manual-1:2012	Qualitative Negative/Positive
2.	**Infant Milk Substitutes**	Moisture	IS 11623: 2008 (RA 2013)	0.01 % to 20 %
		Total Milk Protein	IS 7219 :1973 (RA 2010)	0.1 % to 80 %
		Total Fat	IS 11721 :2013	0.1 % to 30 %
		Total ash	IS 14433 :2007 (RA 2013)	0.01 % to 50 %
		Acid insoluble ash	IS 14433 :2007 (RA 2013)	0.01 % to 1.0 %
		Total carbohydrates	IS 1656 (Annex-C) 2007 (RA 2012)	1.0 % to 95 %
		Total Sugars	IS 6287: 1985 (RA 1999), Titrimetric Method	0.5 % to 30 %
3.	**Edible Oils And Fats**			
a.	**Mustard Oil, Coconut oil, Sesame oil, Soyabean oil, peanut oil , cotton seed oil**	Acid Value	Cl. 7 of IS 548 (P-1):1964 (RA 2010)	0.05 to 5
		Moisture	Cl. 5.1 of IS 548 (P-1): 1964 (RA 2010) (Air Oven method)	0.01 to 1 g/100g
		FFA (as Oleic Acid)	Cl. 7.3.1 of IS 548 (P-1): 1964 (RA 2010)	0.03 to 3 g/100g
		Iodine Value	Cl 14 of IS 548 (P-1):1964 (RA 2010)	10 to 150
		Peroxide Value	Cl 20 of IS 548 (P-1):1964 (RA 2010)	1.0 to 20
		Saponification Value	Cl 15 of IS 548 (P-1):1964	50 to 300

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
			(RA 2010)	
		Unsaponifiable Matter	Cl 8 of IS 548 (P-1):1964 (RA 2010)	0.05 to 5 g/100g
		Specific Gravity@ 30°C/30°C	Cl 11.3 of IS 548 (P-1): 1964 (RA 2010)	0.7 to 1.2
b.	**Oil, Emulsion, Oils & Fats, Oilseeds & Related Products**	Moisture content (Oilseeds)	IS 3579 (Part 5 & Part 1): 1966 (RA 2010) Gravimetric method	0.01 % to 50 %
		Impurities (Oilseeds)	IS 3579:1966 (RA 2010) Gravimetric method	Present/Absent
		Oil content (Oilseeds)	IS 3579 (Part 5 & Part 2): 1966 (RA 2010) Gravimetric method	0.1 % to 99.9 %
		Acid value of extracted fat (Oilseeds)	IS 548 (Part 1):1964 (RA 2010) Titrimetric method	0.01 % to 30 %
		Damaged & weevilled kernels (Oilseeds)	IS 2323: 2011 Gravimetric method	0.02 % to 20 %
		Shrivelled & immature kernels (Oilseeds)	IS 2323: 2011 Gravimetric method	0.02 % to 20 %
		Appearance (Oilseeds)	IS 2323: 2011 Physical	Agreeable/ Not Agreeable
		Taste & Flavour (Oilseeds)	IS 2323: 2011	Agreeable/ Not Agreeable
		Detection of vegetable fat in Ghee	FSSAI manual 2:2012	Present/Absent
		Detection of mineral Oil	FSSAI manual 2:2012	Present/Absent
		Test for the presence of Castor oil	IS 548 (Par II & Part 15): 1976 (RA 2010) FSSAI manual 2:2012 (29.0)	Present/Absent Qualitative

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Baudouin Test	IS: 548 (Part II):1976 (RA 2010) IS: 10633: 2017 FSSAI Lab Manual for Oil and Fat (15.0)	Qualitative (Positive /Negative)
4.	**Spices & Condiments**			
a.	**Caraway (Siahjira) Black/ Yellow (Whole/ Powder) Cardamon (Chhoti Elaichi, Chotti Elaichi Seeds, Chhoti Elaichi Powder, Badi Elaichi, Badi Elaichi Seeds, Badi Elachi Powder) Chillies**	Total Ash	FSSAI manual 10:2012 IS 1797:1985 (RA 2009)	0.1 % to 15 %
		Ash insoluble in dil. HCl	FSSAI manual 10:2012 IS 1797:1985 (RA 2009)	0.1 % to 4.0 %
		Volatile oil content	FSSAI manual 10:2012 IS 1797:1985 (RA 2009)	0.1 % to 20 %
		Extraneous matter	FSSAI manual 10:2012	0.1 % to 15 %
		Detection of Galbnum	FSSAI manual 10:2012 IS 1797:1985 (RA 2009)	Qualitative (Present/Absent)
		Detection of Ammoniacum	FSSAI manual 10:2012 IS 1797:1985 (RA 2009)	Qualitative (Present/Absent)
		Detection of Foreign Resins	FSSAI manual 10:2012 IS 1797:1985 (RA 2009)	Qualitative (Present/Absent)
		Salt as NaCl	FSSAI Lab Manual for Spices and Condiments (14.0)	(0.02 to10) g/100g
		Protein	IS: 7219: 2005 Kjeldahl Method	0.05 % to 50 %
b.	**Edible Common Salt/ Iodized Salt/ Iron Fortified Common Salt/ Potassium Iodate/ Iron Fortified Iodized Salt (Double Fortified**	Percentage of Sodium Chloride as NaCl (on dry basis)	IS 7224:2006 (RA 2010)	0.1 % to 100 %
		Percentage of matter soluble in water other than Sodium Chloride (on dry basis)	IS 7224:2006 (RA 2010)	0.1 % to 50 %

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Salt) (table salt)	Iodine Content (manufacturer level / Distribution channel including retail level)	IS 7224:2006 (RA 2010)	0.1 mg/kg to 100 mg/kg 0.1 % to 99 %
		Solubility	FSSAI Manual 10:2012	Qualitative
5.	**Honey and Honey Products**			
a.	**Extracted Honey**	Specific Gravity @27°C	Annex A of IS 4941:1994 (RA 2002)	1.1 to 2.0
		Moisture	Annex B of IS 4941:1994 (RA 2002)	0.5 % to 30 %
		Total Reducing Sugar	Annex C of IS 4941:1994 (RA 2002)	70 % to 90 %
		Ash Content	Annex D of IS 4941:1994 (RA 2002)	0.05 % to 2 %
		Acidity (as Formic Acid)	Annex E of IS 4941:1994 (RA 2002)	0.05 % to 1.5 %
b.	**Honey**	F/G Ratio (Fructose to Glucose Ratio)	IS 4941:1994 (RA 2008)	0.1 to 1.5
		Fiehe's test	IS 4941:1994 (RA 2008)	Qualitative
6.	**Fruits and Vegetable Products**			
a.	**Tomato Ketchup , Sauce, Culinary paste**	Ash	IS 13846:1993 FSSAI Fruit and Vegetable Products 14.4	0.05 % to 5 %
		Acid Insoluble Ash	IS 13846:1993	0.01 % to 2 %
		Total Soluble Solids (salt free basis)	IS 3882:1966, RA 2001 FSSAI Fruit and Vegetable Products 1.6 and 1.7	15 % to 50 %
		Acidity expressed as acetic acid	IS 3882:1966, RA 2001 FSSAI Fruit and Vegetable Products 2.4	0.1 % to 10 %
b.	**Jam and**	Total Soluble Solids	Annex B of IS 5861:1993,	10 % to 90 %

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Jellies and Marmalades		RA 2003 FSSAI Fruit and Vegetable Products 1.6	
		Acidity	FSSAI Fruit and Vegetable Products 2.4	0.01 % to 5 %
		Moisture	FSSAI Fruit and Vegetable Products 4.1	0.1 % to 100 %
c.	**Fruit and Vegetable & their Products (Fruits & Vegetable, Fruit Juices & Concentrates & Related Products, ketcup**	Physical examination	FSSAI manual 5:2012	Qualitative
		Salt	FSSAI manual 1:2012 IS: 2860-1964, RA 2008	0.1 % to 20 %
		Ash insoluble in dil. HCl	FSSAI manual 5:2012	0.1 % to 10 %
		Total sugar	FSSAI manual 5:2012	0.1 % to 75 %
		Peroxidase test	FSSAI manual 5:2012	Positive/Negative
		pH	FSSAI manual 5:2012	1 to 14
		Insect Fragments	FSSAI manual 5:2012	Qualitative
7.	**Cereal & Cereal Products**			
a.	**Wheat Flour (Atta)**	Moisture	Appendix A of IS 1155-1968 (RA 2010) FSSAI CEREALS AND CEREAL PRODUCTS 8.1	1% to 20%
		Total Ash	Appendix B of IS 1155-1968 (RA 2010) FSSAI CEREALS AND CEREAL PRODUCTS 8.2	0.1% to 5%
		Acid Insoluble Ash	Appendix C of IS 1155-1968 (RA 2010) FSSAI CEREALS AND CEREAL PRODUCTS 8.3	0.01% to 1%
		Gluten	Appendix D of IS 1155-1968 (RA 2010) FSSAI CEREALS AND CEREAL PRODUCTS 8.4	0.11% to 20%

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Crude Fibre	Appendix E of IS 1155-1968 (RA 2010) FSSAI CEREALS AND CEREAL PRODUCTS 8.8 IS 10226 (Part 1): 1982 (RA 2005)	0.5% to 5%
		Total Protein	IS 7219-1973, RA 2009 FSSAI CEREALS AND CEREAL PRODUCTS 8.7	1% to 15%
		Alcoholic Acidity (as H_2SO_4)	Appendix F of IS 1155-1968 (RA 2010) FSSAI CEREALS AND CEREAL PRODUCTS 8.5	0.01% to 1.0%
b.	**Maida**	Moisture	Appendix A of IS 1009-1979 (RA 2010) FSSAI CEREALS AND CEREAL PRODUCTS 8.1	1% to 20%
		Total Ash	Appendix B of IS 1009-1979 (RA 2010) FSSAI CEREALS AND CEREAL PRODUCTS 8.2	0.1% to 5.0%
		Acid Insoluble Ash	Appendix C of IS 1009-1979 (RA 2010) FSSAI CEREALS AND CEREAL PRODUCTS 8.3	0.01% to 0.2%
		Gluten	Appendix D of IS 1009-1979 (RA 2010) FSSAI CEREALS AND CEREAL PRODUCTS 8.4	6.0% to 20%
		Alcoholic acidity (as H_2SO_4)	Appendix E of IS 1009-1979 (RA 2010)	0.01% to 0.15%
		Crude Fibre	IS 10226 (Part 1)-1982, RA 2005	0.1% to 10%

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
			FSSAI Cereals And Cereal Products 8.8	
		Total Protein (On DB)	IS 7219-1973, RA 2009 FSSAI Cereals And Cereal Products 8.7	1% to 15%
c.	**Rava (Semolina)**	Moisture	Appendix B of IS 1010-1968 (RA 2005) FSSAI Cereals And Cereal Products 8.1	1% to 20%
		Total Ash	Appendix C of IS 1010-1968 (RA 2005) FSSAI Cereals And Cereal Products 8.2	0.1% to 3.0%
		Acid Insoluble Ash	Appendix D of IS 1010-1968 (RA 2005) FSSAI Cereals And Cereal Products 8.3	0.01% to 1%
		Gluten	Appendix E of IS 1010-1968 (RA 2005) FSSAI Cereals And Cereal Products 10.1	1.0% to 15%
		Alcoholic acidity (as H_2SO_4)	Appendix F of IS 1010-1968 (RA 2005) FSSAI Cereals And Cereal Products 8.5	0.01% to 1.0%
d.	**Besan**	Moisture	Appendix A of IS 1009-1979 (RA 2010) FSSAI Cereals And Cereal Products 8.1	2% to 20%
		Total Ash	Appendix B of IS 1009-1979 (RA 2010) FSSAI Cereals And Cereal Products 8.2	1.0% to 10%

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Total Protein	IS 7219-1973, RA 2009 FSSAI Cereals And Cereal Products 8.7	1% to 15%
		Acid Insoluble Ash	Appendix C of IS 1009-1979 (RA 2010) FSSAI Cereals And Cereal Products 8.3	0.01% to 1%
e.	**Whole & Powdered, Raw & Processed, & Finished Products of Food Grains, Rice, Wheat, Maize, Chana Wheat Flour, Infant & Weaning Food, Soya Flour, Corn Flour, Besan, Macroni Products, Cornflakes, Sattu, Suji, Dalia, Whole & Powdered, Raw & Processed & Finished / Bakery Products & Namkeen & Related Products (Rice)**	Physical examination	FSSAI manual 3:2012	Qualitative
		Other Food grains	FSSAI manual 3:2012 IS 8184:1976 (RA 2010)	0.1 % to 10 %
		Foreign matter	FSSAI manual 3:2012	0.1 % to 10 %
		Other edible grains	FSSAI manual 3:2012	0.1 % to 10 %
		Damaged grains	FSSAI manual 3:2012	0.1 % to 10 %
		Weevilled grains	FSSAI manual 3:2012	0.1 % to 10 %
		Total fat	FSSAI manual 3:2012	0.1 % to 30 %
		Test for starch	FSSAI manual 3:2012	Negative/Positive
		Gel Length	KDMTL/SOP/FOOD/5.4/01 Issue 1 dated 25.11.2017	0.1 mm to 100 mm
		Alkali Spreading Value of white rice kernal	KDMTL/SOP/FOOD/5.4/02 Issue 1 dated 25.11.2017	1 to 7 (Scale)
		Length Breadth Ratio	KDMTL/SOP/FOOD/5.4/03 Issue 1 dated 25.11.2017	>3.5
		Elongation Ratio	KDMTL/SOP/FOOD/5.4/04 Issue 1 dated 25.11.2017	(0 to 1.7) %
		Aroma Test	KDMTL/SOP/FOOD/5.4/05 Issue 1 dated 25.11.2017	Positive /Negative
		Protein	FSSAI Manual 3:2012 (Kjeldahl method)	0.1 % to 50 %
		Acid value/ Free Fatty Acid of extracted fat (as oleic acid)	FSSAI Manual 2: 2012	0.1 % to 10 %

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
8.	**Bakery and Confectionery Products**			
a.	**Biscuits and cookies**	Moisture	Annex B of IS 1011-2002 (RA 2009) FSSAI Cereals And Cereal Products 14.3	0.5% to 10%
		Acid Insoluble Ash	Annex C of IS 1011-2002 (RA 2009) FSSAI Cereals And Cereal Products 14.4	0.01% to 1%
		Total Solid content	IS 12711-1989 (RA 2015)	1.0% to 99%
		Fat	IS 12711-1989, RA 2015	5% to 25%
		Acidity of Extracted Fat	Annex D of IS 1011-2002 (RA 2009) FSSAI Cereals And Cereal Products 14.5	0.1% to 3%
		Crude Fibre	IS 12711-1989, RA 2015	1% to 30%
b.	**Bread**	Moisture	IS 12711-1989 FSSAI Cereals And Cereal Products 15.2	1% to 50%
		pH of aqueous extract	Appendix C of IS 1483: 1988 (RA 2005) IS 12711-1989	5.0 to 9.0
		Acid insoluble ash	Appendix D of IS 1483: 1988 (RA 2005) FSSAI Cereals And Cereal Products 15.4	0.1% to 3%
		Crude Fiber	Appendix E of IS 1483: 1988 (RA 2005)	0.2% to 2%
c.	**Chewing gum, Bubble gum, Mangobite**	Moisture	Cl 5 of IS 6287-1985, (RA 2010)	0.1 % to 15 %
		Sulphated Ash	Cl 6 of IS 6287-1985,	0.1 % to 2.0 %

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
			(RA 2010)	
		Acid Insoluble ash	Cl 7 of IS 6287-1985, (RA 2010)	0.02 % to 2 %
		Reducing Sugar	Cl 8 of IS 6287-1985, (RA 2010)	1.0 % to 50 %
		Protein	IS 6287-1985, (RA 2010)	0.5 % to 25 %
		Fat Content	IS 6287-1985, (RA 2010)	0.5 % to 25 %
d.	**Biscuit**	Protein	IS 6287: 1985 (RA 2010)	0.1 % to 25 %
		Sucrose content	IS 6287: 1985 (RA 2010)	0.1 % to 90 %
		Physical examination	FSSAI manual 1:2012	Qualitative
		Ash	FSSAI manual 1:2012	0.1 % to 5 %
		Alcoholic acidity	IS 12711: 1989 (RA 2010)	0.1 % to 1 %
		Reducing sugar	IS 6287: 1985 (RA 2010)	0.1 % to 30 %
9.	**Non Alcoholic Beverages (Other than Dairy and Fruit & Vegetable)**			
a.	**Tea, coffee, chicory & related products (fruit)**	Physical examination	FSSAI manual 4:2012	Qualitative
		Total ash	FSSAI manual 4:2012	0.1 % to 10 %
		Water soluble ash	IS 13855:1993 (RA 2009)	0.1 % to 10 %
		Alkalinity of water soluble ash as KOH	IS 3633: 2003 (RA 2008)	0.1 % to 5 %
		Acid insoluble ash (in dil. HCl)	FSSAI Manual 4:2012	0.01 % to 5 %
		Moisture	IS 11623:1996	0.1 % to 20 %
		Total acid as tartaric acid	FSSAI manual 5:2012	10 g to 500 g 0.1 % to 50 %
		Test for chicory	FSSAI manual 4:2012	Present/Absent
		Protein	IS 7219: 2005 Kjeldahl Method	0.04 % to 10 %

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		pH Value	IS 2860: 2001	3 to 10
		Specific gravity	IS 323: 2001 IS 3506: 2005	0.5 to 1.5
		Reducing Sugar	IS 7585: 2000	0.1 % to10 %
		Total Dissolved Solids	FSSAI Lab Manual For Food Additive (6.3)	1 to 15 g /100g
10.	**Sugar & By-Products**			
a.	**Invertsyrups, Caramelized Sugar, Refined Sugar, Cube Sugar, Raw Sugar, Jaggery, Mishri, Bura, Gur or Jaggery**	Ash	IS 12923-1990 (RA 2013) IS 15279-2003 (RA 2013) FSSAI Manual 4-2005 (7.3), Gravimetric Method	0.02% to 10%
		Acid insoluble ash	IS 12923-1990 (RA 2013) IS 15279-2003 (RA 2013) FSSAI Manual 4-2005 (8.1), Gravimetric Method	0.02% to 10%
		Sucrose content	IS 15279-2003 (RA 2013) FSSAI Manual 4-2005 (8.2), Titrimetric Method	1% to 100%
		Sulphated Ash	IS 15279-2003 (RA 2013) FSSAI Manual 4-2005 (10.0), Gravimetric Method	0.02% to 10%
		Dirt	FSSAI Lab Manual for Cereal and Cereals Product (1.5)	Qualitative (Present/Absent)
		Filth	FSSAI Lab Manual for Cereal and Cereals Product (1.5)	Qualitative (Present/Absent)
		Added colouring matter	FSSAI Lab Manual for Cereal and Cereals Product (1.5)	Qualitative (Present/Absent)

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Lumps	FSSAI Lab Manual for Cereal and Cereals Product (1.5)	Qualitative (Present/Absent)
		Solubility	FSSAI Lab Manual for Cereal and Cereals Product (1.5)	Qualitative (Present/Absent)
11.	**Other (Ready To Eat Products)**			
a.	**Papad**	Moisture	Annex B of IS 2639: 1999 (RA 2010) IS 12569: 2005	0.5 % to 20 %
		Total Ash	Annex C of IS 2639: 1999 (RA 2010)	0.5 % to 20 %
		Salt Content	IS 14515: 1998 (RA 2009)	0.1 % to 5.0 %
		Acid insoluble Ash	Annex D of IS 2639: 1999 (RA 2010)	0.05 % to 10 %
		Fat Content	Annex G of IS 2639: 1999 (RA 2010)	1.0 % to 35 %
		Protein	IS 7219: 1973 (RA 2010)	0.5 % to 30 %
b.	**Potato French fries**	Moisture content	Annex B of IS 12569: 1989 (RA 2005)	1 % to 35 %
		Acid Insoluble Ash	Annex C of IS 12569: 1989 (RA 2005)	0.02 % to 1 %
		Fat content	Annex D of IS 12569: 1989 (RA 2005)	1 % to 10 %
		Alkalinity of ash (as Na_2CO_3)	Annex E of IS 12569: 1989 (RA 2005)	0.1 % to 3 %
12.	**Dietary supplements**	Moisture	IS 7874 (Part 1): 2014 Gravimetric Method	0 to 20 %
		Ash	IS 7874 (Part 1): 2014 Gravimetric Method	2 % to 30 %
		Fat	IS 11721: 2013	0 to 50 %

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
			IS 1479 (Part I): 2009 IS 3507: 2003 Gravimetric Method	
		Calories	IS 9487: 2005 (by calculation)	4 to 900 Kcal/100g
		Carbohydrates	IS 1656: 2007 (by calculation)	0.5 % to 95 %
		Protein	IS 7219: 2005 IS 4684: 1975 (RA 1993) Kjeldahl Method	0.1 % to 70 %
V.	**ANIMAL FOOD & FEEDS**			
1.	**Animal feeds**	Moisture	Cl 4 of IS 7874 (Part 1): 1975, (RA 2004)	2 % to 15 %
		Crude Protein	Cl 5 of IS 7874 (Part 1): 1975, (RA 2004)	5 % to 70 %
		Crude Fat	Cl 7 of IS 7874 (Part 1): 1975, (RA 2004)	1 % to 15 %
		Total Ash	Cl 9 of IS 7874 (Part 1): 1975, (RA 2004)	0.1 % to 10 %
		Crude Fiber	Cl 8 of IS 7874 (Part 1): 1975, (RA 2004)	0.5 % to 10 %
		Acid insoluble ash	Cl 10 of IS 7874 (Part 1): 1975, (RA 2004)	0.1 % to 2 %
VI.	**NUTRACEUTICALS & FUNCTIONAL FOODS**			
1.	**Neutraceuticals and functional**	Moisture	FSSAI Lab Manual for Cereals (2.3)	0.02 to 20 g/100 g

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	products (Dietary fibre, Soy protein, Fortified foods)	Ash	FSSAI Lab Manual for Cereals (3.0)	0.02 to 95.0 g/100g
		Acid insoluble Ash	FSSAI Lab Manual for Cereals (3.0)	0.1 to 1.0 g/100 g
		Fat	FSSAI Lab Manual for Cereals (5.0)	0.1 to 50.0 g/100 g
		Protein	IS 7219: 2005 Kjeldahl Method	0.04 % to 50%
		Carbohydrate	IS 1656: 2007 By Calculation	0.1 to 99 g/100g
		Calorie	IS 9487: 2005 By calculation	0.4 to 900 Kcal/100g
		Total Sugar	IS 4079: 2000 IS 6287: 2005 IS 2650: 2010 Titrimetric	1 to 50 Kcal/100g
VII.	**RESIDUES IN FOOD PRODUCTS**			
1.	**Trace Metal in Food product**			
a.	**Beverages (other than Dairy and Fruit & Vegetable) Tea, Coffee, Chicory & Non Alcoholic Beverages & Related Products**	Lead	AOAC Ch. 9,19th edition, 2012	1.17 to 5000 mg/kg
		Copper		7.115 to 5000 mg/kg
		Zinc		5.08 to 5000 mg/kg
		Cadmium		0.68 to 5000 mg/kg
b.	**Health Supplement/ Supplementary Food**	Lead	AOAC Ch. 9,19th edition, 2012	1342 to 5000 mg/kg
		Copper		4.41 to 5000 mg/kg
		Zinc		4.68 to 5000 mg/kg
		Cadmium		0.94 to 5000 mg/kg

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
c.	**Sugar & Sugar Product**	Lead	AOAC Ch. 9,19th edition, 2012	2.5 to 5000 mg/kg
		Chromium		0.01 to 5000 mg/kg
d.	**Cereal and Cereal Products**	Lead	AOAC Ch. 9,19th edition, 2012	1.18 to 5000 mg/kg
		Copper		4.6 to 5000 mg/kg
		Zinc		4.83 to 5000 mg/kg
		Cadmium		0.70 to 5000 mg/kg
e.	**Fruit and vegetable & their products**	Lead	AOAC Ch. 9,19th edition, 2012	0.43 to 5000 mg/kg
		Copper		2.04 to 5000 mg/kg
		Zinc		2.76 to 5000 mg/kg
		Cadmium		0.72 to 5000 mg/kg
f.	**Spices & Condiments (whole, ground mixed) (Black Pepper, Saffron, Turmeric, Asafoetida, Mustard, Chilli, Coriander)**	Lead	AOAC Ch. 9,19th edition, 2012	2.3 to 5000 mg/kg
		Copper		2.5 to 5000 mg/kg
		Zinc		4.71 to 5000 mg/kg
		Cadmium		0.071 to 5000 mg/kg
g.	**Emulsion, Oils & Fats & related Products**	Cadmium	AOAC Ch. 9,19th edition, 2012	0.66 to 1000 mg/kg
		Copper		3.65 to 500 mg/kg
		Lead		0.38 to 1000 mg/kg
		Zinc		8.88 to 5000 mg/kg
		Nickel		0.75 to 5000 mg/kg
h.	**Honey**	Lead	AOAC Ch. 9,19th edition, 2012	0.113 to 100 mg/kg
		Copper		4.90 to 100 mg/kg
		Cadmium		0.73 to 100 mg/kg
		Zinc		5.456 to 5000 mg/kg
i.	**Milk & Dairy Products**	Lead (as Pb)	AOAC Ch. 9,19th edition, 2012	1.025 to 100 mg/kg
		Cadmium		1.13 to 100 mg/kg
		Copper		3.21 to 500 mg/kg
		Zinc		8.28 to 5000 mg/kg

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
VIII.	**METALS & ALLOYS**			
1.	**Ferrous Base (Tool Steel)**	C	KDMTL/SOP/03 Issue No.1 dated 22.01.18	0.59 % to 2.1 %
		Si		0.25 % to 1.99 %
		P		0.016 % to 0.045 %
		Mn		0.28 % to 0.79 %
		Cr		0.23 % to 12.00 %
		Mo		0.1 % to 0.68 %
		Co		0.006 % to 5.0 %
		V		0.055 % to 1.03 %
2.	**Nickel and Nickel Alloy**	C	ASTM E 3047-16	0.014 % to 0.075 %
		Si		0.06 % to 2.55 %
		S		0.005 % to 0.025 %
		P		0.005 % to 0.019 %
		Mn		0.240 % to 1.06 %
		Cu		0.05 % to 29.6 %
		Fe		0.113 % to 31.90 %
3.	**Lead and Lead Alloy**	Cu	KDMTL/SOP/01 Issue No.1 dated 02.02.18	0.0055 % to 0.50 %
		Sn		0.046 % to 30.68 %
		Sb		0.007 % to 14.2 %
		Bi		0.026 % to 0.17 %
		Zn		0.003 % to 0.03 %
		Ag		0.002 % to 0.05 %
		Cd		0.006 % to 0.017 %
		Te		0.005 % to 0.021 %
4.	**Ferrous Base (Low Alloy Steel)**	C	IS 8811: 1998 ASTM E 415-17	0.04 % to 0.94 %
		Cr		0.135 % to 0.44 %
		Ni		0.017 % to 2.93 %
		Mo		0.024 % to 0.5 %
		Mn		0.6 % to 2.18 %
		Si		0.10 % to 1.96 %

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		S		0.007 % to 0.06 %
		P		0.0093 % to 0.054 %
		V		0.030 % to 0.5 %
		Co		0.004 % to 0.012 %
		Cu		0.020 % to 0.17 %
		Al		0.020 % to 0.3 %
		Nb		0.06 % to 0.07 %
5.	**Ferrous Base (Stainless Steel)**	C	IS 9879-1998 ASTM E 1086 -14	0.003 % to 0.108 %
		Cr		10.0 % to 25.0 %
		Ni		7.00 % to 21.00 %
		Mo		0.009 % to 2.2 %
		Mn		0.020 % to 1.75 %
		Si		0.03 % to 1.5 %
		S		0.004 % to 0.06 %
		P		0.005 % to 0.026 %
		Cu		0.1 % to 2.2 %
6.	**Copper & Copper Alloy**	Sn	BS EN 15079: 2015	0.08 % to 10.0 %
		Pb		0.06 % to 9.2 %
		Zn		0.18 % to 39.0 %
		Mn		0.002 % to 0.4 %
		Fe		0.15 % to 4.8 %
		Ni		0.05 % to 4.5 %
		Al		0.02 % to 11.0 %
		P		0.01 % to 0.3 %
7.	**Aluminum & Aluminum Alloy**	Fe	ASTM E 1251-17	0.20 % to 0.31 %
		Si		0.50 % to 0.80 %
		Ni		0.01 % to 0.05 %
		Cr		0.02 % to 0.1 %
		Mg		0.50 % to 0.85 %
		Cu		0.35 % to 4.8 %
		Pb		0.018 % to 0.55 %
		Zn		0.02 % to 0.06 %

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Mn		0.3 % to 0.9 %
		Ti		0.03 % to 0.05 %
8.	**Ferrous Materials Low Alloy Steel**	Carbon	IS 228 (Part 1): 1987 (RA 2007)	0.02 % to 1.00 %
		Sulphur	IS 228 (Part 9): 1989 (RA 2004)	0.01 % to 0.05 %
		Silicon	IS 228 (Part 8): 1989 (RA 2004)	0.05 % to 2.0 %
		Manganese	IS 228 (Part 2): 1987 (RA 2002)	0.1 % to 2.0 %
		Phosphorous	IS 228 (Part 3): 1987 (RA 2002)	0.01 % to 0.05 %
		Nickel	IS 228 (Part 5): 1987 (RA 2002)	0.05 % to 1.5 %
		Chromium	IS 228 (Part 6): 1987 (RA 2005)	0.1 % to 3.0 %
IX.	**METALLIC COATINGS & TREATMENT SOLUTIONS**			
1.	**Metals Coating**	Thickness of Anodic Coating	IS 5523: 1983	1 µm to 200 µm
		Mass of Zinc Coating	IS 6745: 1975 (RA 2006)	0.1 g/m^2 to 2000 g/m^2
		Uniformity of Coating	IS 2633: 1986 (RA 2006)	Qualitative
X.	**BUILDING MATERIAL**			
1.	**Cement (OPC/PPC)**	SiO_2	IS 4032: 1985 (RA 2009)	15.0 % to 30.0 %
		Loss on Ignition		0.1 % to 10.0 %
		Al_2O_3		1.0 % to 15.0 %
		Fe_2O_3		0.5 % to 10.0 %
		CaO		20 % to 70.0 %
		MgO		0.3 % to 10.0 %

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		SO_3		0.1 % to 5.0 %
		Insoluble Residue		0.5 % to 40.0 %
		Total Chloride	IS 4032: 1985 (RA 2009), Amendment 01	0.001 % to 0.5 %
		Sodium Oxide (Na_2O)	IS 4032: 1985 (RA 2009)	0.05 % to 5.0 %
		Potassium Oxide (K_2O)	IS 4032: 1985 (RA 2009)	0.05 % to 5.0 %
2.	**Pozollana Material (Fly Ash)**	SiO_2	IS 1727: 1967 (RA 2004)	10.0 % to 70.0 %
		Loss on Ignition		0.5 % to 12.0 %
		Al_2O_3		5.0 % to 30.0 %
		Fe_2O_3		3 % to 10.0 %
		CaO		0.5 % to 10.0 %
		MgO		0.5 % to 7.5 %
		SO_3		0.1 % to 6.0 %
		Total Chloride	IS 4032: 1985 (RA 2009), Amendment 01	0.01 % to 0.1 %
3.	**Concrete admixture**	pH	IS 9103: 1999 (RA 2004)	1 to 12
		Dry Material content		5.0 % to 50.0 %
		Ash Content		0.1 % to 30.0 %
		Relative Density		0.8 % to 1.5 %
		Chloride	IS 6925: 1973 (RA 2008), Clause 4	0.005 % to 0.5 %
XI.	**SOIL & ROCK**			
1.	**Clays & Soils**	pH	IS 2720 (Part 26): 1987 (RA 2007)	1.0 to 12
		Calcium Carbonate	IS 2720 (Part 23): 1976	2.0 % to 20 %
		Sulphate	IS 2720 (Part 27): 1997 (RA 2005)	0.01 % to 1.0 %
		Silica	IS 2720 (Part 25): 1982 (RA 2005)	1.0 % to 25.0 %

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Organic matter	IS 2720 (Part 22): 1972 (RA 2005)	0.1 % to 2.0 %
		Electrical Conductivity (1:2) at 25^0C	IS 14767: 2000	1 to 1000 µS/cm

MECHANICAL TESTING

I.	**BUILDINGS MATERIALS**			
1.	**Cement (OPC 53/43 & PPC)**	Standard Consistency	IS 4031 (Part 4): 1988 (RA 2013)	25% to 40%
		Initial Setting Time	IS 4031 (Part 5): 1988 (RA 2013)	30 to 200 minutes
		Final Setting Time	IS 4031 (Part 5): 1988 (RA 2013)	100 to 600 minutes
		Fineness Test By		
		a) Dry Sieving	IS 4031 (Part 1): 1996 (RA 2013)	1% to 10%
		b) Blain's Air Permeability	IS 4031 (Part 2): 1999 (RA 2013)	50 to 70) m^2/kg
		Soundness Test By		
		a) Le Chatelier Method	IS 4031 (Part 3): 1988 (RA 2013)	0.5 mm to 10 mm
		b) Autoclave Method	IS 4031 (Part 3): 1988 (RA 2013)	0.1% to 5%
		Density	IS 4031 (Part II): 1999 (RA 2013)	2.7 g/cc to 3.3 g/cc
		Compressive Strength	IS 4031 (Part 6): 1988 (RA 2013)	10 MPa to 80 MPa
2.	**Concrete Paving Block**	Water Absorption	IS 15658-2006 (RA 2017)	1% to 25 %
		Compressive Strength		15 to 75 N/mm^2
		Abrasion Resistance		50 mm^3 to 50000 mm^3
3.	**Concrete**	Compressive Strength	IS 516-1959 (RA 2013)	10 MPa to 80 Mpa
		Flexural Strength	IS 516-1959 (RA 2013)	1.5 to 7 N/mm^2

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Split Tensile Strength	IS 5816-2006 (RA 2008)	1.5 to 7 N/mm^2
		Water Permeability test	DIN 1048 P-5: 1991	Nil to 25 mm
4.	**Coarse Aggregate**	Sieve Analysis	IS 2386 (Part 1): 1963 (RA 2016)	4.75 mm to 40.0 mm
		Specific Gravity	IS 2386 (Part 3): 1963 (RA 2016)	2.4 to 2.9
		Water Absorption	IS 2386 (Part 3): 1963 (RA 2016)	0.5% to 2.5%
		Aggregate Impact Value	IS 2386 (Part 4): 1963 (RA 2016)	10% to 25%
		Aggregate abrasion Value by los angles	IS 2386 (Part 4): 1963 (RA 2016)	5% to 60%
		Crushing Value	IS 2386 (Part 4): 1963 (RA 2016)	5% to 50%
		Flakiness Index	IS 2386 (Part 1): 1963 (RA 2016)	1% to 40%
		Elongation Index	IS 2386 (Part 1): 1963 (RA 2016)	1% to 40%
		10 % Fines Value	IS 2386 (Part 4): 1963 (RA 2016)	10 to 60 KN
		Bulk Density	IS 2386 (Part 3): 1963 (RA 2016)	1.20 g/cc to 1.8 g/cc
		Deleterious Materials:		
		i) Clay Lump	IS 2386 (Part 2): 1963 (RA 2016)	0 to 5 %
		ii) Coal & Lignite		0 to 5 %
		iii) % Finer than 75 µ		1% to 10%
		Soundness by Sodium sulphate	IS 2386 (Part 5): 1963 (RA 2016)	0.1% to 20%
		Organic Impurities	IS 2386 (Part 2): 1963 (RA 2016)	Qualitative
5.	**Fine Aggregate**	Sieve Analysis	IS 2386 (Part 1): 1963 (RA 2016)	75 µ to 4.75 mm
		Specific Gravity	IS 2386 (Part 3): 1963 (RA 2016)	2.4 to 2.9

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Water Absorption	IS 2386 (Part 3): 1963 (RA 2016)	0.5% to 2.5%
		Bulk Density	IS 2386 (Part 3): 1963 (RA 2016)	1.20 g/cc to 1.8 g/cc
		Deleterious Materials:		
		i) Clay Lump	IS 2386 (Part 2): 1963 (RA 2016)	0 to 5 %
		ii) Coal & Lignite		0 to 5 %
		iii) % Finer than 75 µ		1% to 10%
		Bulking of Fine Aggregate	IS 2386 (Part 3): 1963 (RA 2016)	2% to 35%
		Soundness by Sodium sulphate	IS 2386 (Part 5): 1963 (RA 2016)	0.1% to 20%
		Organic Impurities	IS 2386 (Part 2): 1963 (RA 2016)	Qualitative
6.	**Bitumen**	Penetration	IS 1203-1978 (RA 1990)	25 to 120
		Softening Point	IS 1205-1978 (RA 1998)	35°C to 70°C
		Specific Gravity	IS 1202-1978 (RA 1990)	0.95 to 1.05
		Ductility	IS 1208-1978 (RA 1998)	35 cm to 100 cm
		Flash point & Fire Point	IS 1209-1978	140°C to 250°C
		Absolute Viscosity	IS 1206 (Part 12): 1978	1200 to 2400 poise
		Kinematic Viscosity	IS 1208 (Part II)-1978	120 cSt to 500 cSt
7.	**Bitumen Mix**	Bitumen Content Test	ASTM D 2172: 2002	1% to 10%
		Marshal Stability	ASTM D 1559-1989	2 to 20 KN
		Flow	ASTM D 1559-1989	1.0 mm to 6.2 mm
		Stripping Value	IS 6241-1971 (RA 2013)	50% to 100%
8.	**Burnt clay bricks/ Fly ash bricks**	Compressive strength	IS 3495 (Part I)-1992 (RA 2016)	3 to 40 N/mm^2
		Water Absorption	IS 3495 (Part II)-1992 (RA 2016)	1% to 25%
		Efflorescence	IS 3495 (Part III)-1992 (RA 2016)	Visual Observation (Nil to Severe)

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Dimension	IS 1077-1992 (RA 2011)	L= 3000 to 5800 mm W= 1500 to 2200 mm H= 1000 to 1600 mm
9.	**Fly Ash**	Fineness by Blaine Method	IS 1727: 1967 (RA 2008)	100 to 600 m^2/kg
		Specific Gravity	IS 1727: 1967 (RA 2008)	1 to 3
10.	**Concrete Flooring Tiles**	Water Absorption	IS 1237-2012 (RA 2016)	1% to 25%
		Wet Transverse Strength		1 MPa to 5 MPa
		Resistance to wear		1 mm to 5 mm
		Dimension & Surface Regularity:		
		i) Flatness		0 to 25 mm
		ii) Perpendicularity		0 to 100 %
		iii) Straightness		1% to 25%
11.	**Glazed/ Ceramic Tiles**	Water Absorption	IS 13630 (Part 2): 2006 (RA 2012)	0 to 25 %
		Modulus of rupture	IS 13630 (Part 6): 2006 (RA 2012)	1 MPa to 15 MPa
		MOHS Hardness	IS 13630 (Part 13): 2012	1 to 9 on Mohs scale
		Chemical Resistance	IS 13630 (Part 8): 2006 (RA 2012)	Visual Observation
12.	**Marble/ Stone**	Moisture Content	IS 1124: 1974 (RA 2013)	0.05% to 5%
		Specific Gravity	IS 1124: 1974 (RA 2013)	1.5 to 3.5
		Hardness MOHS Scale	IS 1130: 1969 (RA 2013)	1 to 9
		Water Absorption	IS 1124: 1974 (RA 2013)	0.1% to 10%
13.	**Wooden Flush Door Shutters**	Glue adhesion	IS 4020 (Part 15): 1998 (RA 2008), Amendment 2	Visual
		Knife Test	IS 4020 (Part 14): 1998 (RA 2008), Amendment 2	Visual
		End immersion test	IS 4020 (Part 13): 1998 (RA 2008), Amendment 2	Visual
14.	**Plywood**	Water resistance test	IS 1734 (Part 6): 1983 (RA 2003)	Qualitative

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Tensile Strength	IS 1734 (Part 7): 1983 (RA 2003)	5 to 100 N/mm^2
		Moisture Content	IS 1734 (Part 1): 1983 (RA 2003)	0.5 % to 30 %
		Density	IS 1734 (Part 1): 1983 (RA 2003)	300 to 1000 kg/m^3
II.	**MECHANICAL PROPERTIES OF METALS**			
1.	**Reinforcement/ Structural steel/ Copper/ Aluminum material/ Welds & Welded tests specimens**	Ultimate Tensile Strength	IS 1608: 2005, RA 2017 ASTM A 370-17 ASME Section IX-2017	100 to 700 N/mm^2
		0.2% Proof stress		100 to 700 N/mm^2
		% of Elongation		5% to 50%
		Weight per Meter	IS 1786: 2008 (RA 2013)	0.01 to 20 Kg/m
		Bend Test	IS 1599: 2012 ASME Section IX-2017	Qualitative (Mandrel Size: 30, 32, 40, 48, 50, 60, 72, 84, 100, 112, 120, 140) mm
		Re-bend Test	IS 1786: 2008 (RA 2013)	Qualitative (Mandrel Size: 30, 32, 40, 48, 50, 60, 72, 84, 100, 112, 120, 140) mm
		Charpy Impact Test (-40°C to ambient temperature)	IS 1757: 1988 (RA 2009)	2 J to 300 J
		IZOD Impact Test	IS 1598: 1977 (RA 2015)	2 J to 168 J
		Rockwell hardness	IS 1586 (Part 1): 2012	20 to 70 HRC 30 to 100 HRB
		Vicker Hardness	IS 1501: 2002 (RA 2007)	20 to 1500 HV 5,10,30
		Brinell Hardness (HBW)	IS 1500: 2005 (RA 2010)	20 to 800 HBW
III.	**SOIL & ROCK**			
1.	**Soil**	Specific Gravity	IS 2720 (Part 3): 1980 (RA 2018)	1.40 to 2.60
		Grain Size Analysis	IS 2720 (Part 4): 1985	0.075 to 4.75 mm

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
			(RA 2015)	
		Moisture Content	IS 2720 (Part 2): 1973 (RA 2015)	1% to 35%
		Light Compaction Test	IS 2720 (Part 7): 1980 (RA 2015)	MDD: 1.40 to 2.20 g/cc OMC: 2% to 30%
		Heavy Compaction Test	IS 2720 (Part 8): 1983 (RA 2015)	MDD: 1.40 to 2.20 g/cc OMC: 2% to 20%
		C.B.R.	IS 2720 (Part 16): 1987 (RA 2016)	1% to 50%
		Liquid Limit	IS 2720 (Part 1): 1985 (RA 2015)	10% to 70%
		Plastic Limit	IS 2720 (Part 1): 1985 (RA 2015)	10% to 70%
		Free Swelling Index	IS 2720 (Part 40): 1971 (RA 2016)	10% to 60%
		Shrinkage limit	IS 2720 (Part 6): 1972 (RA 2011)	1% to 30%
		Triaxial Shear Test (UU)	IS 2720 (Part 11): 1993 (RA 2016)	C= 0 to 4 kg/cm^2 Ø= 25^0 to 36^0
		Direct Shear Test	IS 2720 (Part 13): 1986 (RA 2010)	C= 0 to 4 kg/cm^2 Ø= 25^0 to 36^0
		Permeability test	IS 2720 (Part 17): 1977 (RA 2011)	10^{-3} to 10^{-8} cm/s
		Swelling Pressure	IS 2720 (Part 41): 1977 (RA 2011)	0.1 to 2 kg/cm^2
		Field Density Test by Core cutter	IS 2720 (Part 29): 1975 (RA 2015)	1.5 to 2.24 g/cc
		Field Density Test by Sand Replacement	IS 2720 (Part 28): 1974 (RA 2015)	1.4 to 2.21 g/cc
		SPT (Standard Penetration Test)	IS 2131: 1981 (RA 2011)	1 to 80
IV.	**RUBBER AND RUBBER PRODUCTS**			

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
1.	**Rubber Hose / Rubber Product**	Tensile Strength	IS 3400 (Part 1): 2012	2 to 100 N/mm^2
		Elongation %	IS 3400 (Part 1): 2012	5% to 800%
		Hardness Shore A	IS 3400 (Part 23): 2002	5 to 100 Shore A
V.	**PLASTICS AND POLYMERS**			
1.	**Plastic Films / Sheets**	Tensile Strength	IS 13360 (P-5/Sec1) & (P-5/Sec3): 1984 IS 2508:1984,Appendix A4 IS 12235 (P-13): 2004	1 to 50 N/mm^2
		Elongation %	IS 13360 (P-5/Sec1) & (P-5/Sec3): 1984 IS 2508:1984,Appendix A4	5% to 800%
2.	**UPVC/HDPE Pipes & fittings and sheets**	Density	IS 7328 Annex A: 1992 IS 12235 (P-14): 2004 ASTM D 792: 2008	0.5 to 2.5 g/cc
		Hardness Shore D	IS 13360 (P-5/Section 11): 1992 (RA 2013)	5 to 100 Shore D
3.	**Polyethylene Moulding Materials and Compounds**	Melt Flow Rate	IS 2530-1963 (RA 2003)	0.01 to 20 g/10 minute
4.	**UPVC/HDPE Pipes & fittings**	Dimensions: a) Outside Diameter b) Inside Diameter c) Wall Thickness d) Socket length	IS 12235 (P-1): 2004 IS14333 (Section 6.3): 1996	 28 to 600 mm 28 to 600 mm 0.1 to 25 mm 25 to 50 mm
		Visual Appearances	IS 4984: 1995, Section 7 (RA 2008) IS 4985 Section 10: 2000 IS 14151 (P-1), Section 6: 1999, RA 2004 IS 14151 (P-2), Section	Qualitative

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
			4.1.3 & 7.2: 1999, RA 2008 IS 12818 Section 9.1: 2011 IS 14333, Section 7: 1996	
		Longitudinal Reversion (Air Oven method)	IS 12235 (P-5), Section 1: 2004 IS 4984, Annex C: 1995 IS 14333, Annex C: 1996	0.2% to 20%
		Stress Relief Test	IS 12235 (P-6): 2004	Qualitative

Laboratory	**Krishna Digital Material Testing Laboratory, 2, Bhawani Nagar, J. K. Road, Bhopal, Madhya Pradesh**		
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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

NON-DESTRUCTIVE TESTING

I.	**BUILDING MATERIALS- REINFORCED CONCRETE STRUCTURES**			
1.	**Reinforced Concrete Structural Members**	Rebound Hammer Test	IS 13311 Part II: 1991, (RA 1999)	10 to 65
		Ultrasonic Pulse Velocity Test	IS 13311 Part I: 1991, (RA 1999)	1.5 to 5 km/sec
		Cover Meter Test	BS 1881-204: 1988, Amendment No. 1	5 mm to 80 mm
		Half-Cell Potential Difference Test	ASTM C 876-87, Reapproved 1999	[(+)200 to (-)700] mV
		Carbonation Test	BS 1881 (Part 201): 1986	Nil to 80 mm

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