

**LIST OF DAC ACCREDITED TESTS (CHEMISTRY)
CONSTRUCTION MATERIALS TESTING**

WATER:

S. No.	Type of Test	Material / Product	Test Description	Test Method
01	Chemical	Water	Determination of pH Value	BS 1377 Part 3 Clause 9 AMD 9028
02	Chemical	Water	Determination of sulphate content of soil and ground water testing	BS 1377 Part 3 Clause 5.4 AMD 9028
03	Chemical	Water	Determination of water-soluble chloride content	BS 1377 Part 3 Clause 7.2 AMD 9028

AGGREGATE:

S. No.	Type of Test	Material / Product	Test Description	Test Method
01	Chemical	Aggregate	Determination of water-soluble chloride content	BS 812 Part 117 Clause 9.2
02	Chemical	Aggregate	Determination of water-soluble Sulphate content	BS 812 Part 118 Clause 6
03	Chemical	Aggregate	Determination of Organic Impurities in Fine Agg.	ASTM C 40 / C40 M

SOIL:

S. No.	Type of Test	Material / Product	Test Description	Test Method
01	Chemical	Soil	Determination of water-soluble chloride content	BS 1377 Part 3 Clause 7.2 AMD 9028
02	Chemical	Soil	Determination of water-soluble Sulphate content	BS 1377 Part 3 Clause 5 AMD 9028
03	Chemical	Soil	Determination of pH value of Soil	BS 1377 Part 3 Clause 9 AMD 9028
04	Chemical	Soil	Determination of Acid Soluble Chloride Content	BS 1377 Part 3 Clause 7.3 AMD 9028
05	Chemical	Soil	Determination of sulphate Content of soil and ground water (Preparation of soil and its acid extract)	BS 1377 Part 3 Clause 5.2 AMD 9028

ENVIRONMENTAL TESTING:

S. No.	Type of Test	Material / Product	Test Description	Test Method
01	Chemical	Water / Waste Water	pH	APHA 4500 H ⁺ B 22 nd Edition
02			Total Suspended Solids	APHA 2540 D 22 nd Edition
03			Total Dissolved Solids	APHA 2540 C 22 nd Edition
04			Biochemical Oxygen Demand	APHA 5210 B 22 nd Edition
05			Chemical Oxygen Demand	APHA 5220 B 22 nd Edition
06			Oil and Grease	APHA 5520 B 22 nd Edition
07			Copper (Cu), Lead (Pb), Cadmium (Cd), Zinc (Zn), Nickel (Ni), Chromium (Cr), Iron (Fe), Manganese (Mn), Cobalt (Co)	APHA 3120 B 22 nd Edition
08		Drinking Water	Alkalinity	APHA 2320 B 22 nd Edition
09			Hardness	APHA 2340 C 22 nd Edition
10			Chlorides (Cl)	APHA 4500 Cl B 22 nd Edition
11			Sulphates (So ₄)	APHA 4500 SO ₄ 2-C 22 nd Edition
12			Calcium (Ca)	APHA 3120 B 22 nd Edition
13			Magnesium (Mg)	
14			Sodium (Na)	
15			Potassium (K)	

CHEMICAL TESTING DETAILS

ENVIRONMENTAL TESTING DETAILS:

(Water/ Waste Water/ Treated Water/Ground Water/ Sea Water as per APHA Standards)

S. No.	Test Description	Test Method
01	Chemical Analysis of: Water/ Waste Water/ Treated Water/Ground Water/ Sea Water	APHA
02	pH	APHA 4500 H ⁺ B
03	Electrical Conductivity	APHA 2510 B
04	Total Dissolved Solids	APHA 2540 C
05	Total Suspended Solids	APHA 2540 D
06	Chemical Oxygen Demand (COD)	APHA 5220 B
07	Biochemical Oxygen Demand (BOD) 5days incubation @ 20 ° C	APHA 5210 B
08	Oil & Grease	APHA 5520 B
09	Chloride as Cl ⁻	APHA 4500 Cl ⁻ B
10	Sulphate as SO ₄ ²⁻	APHA 4500 SO ₄ ²⁻ C
11	Total Hardness	APHA 2340 C
12	Carbonate, Bicarbonate, Total Alkalinity	APHA 2320 B

COLORIMETRIC ANALYSIS:

S. No.	Test Description	Test Method
01	Free Chlorine (Cl ₂)	DPD Method
02	Total Chlorine (Cl ₂)	DPD Method
03	Fluoride (F)	SPADNS Method
04	Nitrate Species (NO ₃ ⁻ , NO ₃ -N)	Cadmium reduction method
05	Nitrite Species (NO ₂ ⁻ , NO ₂ -N, NaNO ₂)	Ferrous Sulphate Method
06	Ammonia Species (NH ₃ , NH ₄ ⁺ , NH ₃ -N)	Salicylate Method
07	Sulfide (S ²⁻)	Methylene Blue method
08	Sulfate (SO ₄ ²⁻)	Turbidity Method

METALS ANALYSIS:

S. No.	Test Description	Test Method
01	Aluminium (Al)	 <p>APHA 3120 B Inductively Coupled Plasma-Optical Emission Spectrometer Method</p>
02	Arsenic (As)	
03	Boron (B)	
04	Barium (Ba)	
05	Beryllium (Be)	
06	Bismuth (Bi)	
07	Calcium (Ca)	
08	Cadmium (Cd)	
09	Cobalt (Co)	
10	Chromium (Cr)	
11	Copper (Cu)	
12	Iron (Fe)	
13	Potassium (K)	
14	Magnesium (Mg)	
15	Manganese (Mn)	
16	Sodium (Na)	
17	Nickel (Ni)	
18	Lead (Pb)	
19	Selenium (Se)	
20	Strontium (Sr)	
21	Silver (Ag)	
22	Thallium (Tl)	
23	Zinc (Zn)	

CHEMICAL ANALYSIS ON MATERIALS

SOIL:

S. No.	Test Description	Test Method
01	Water Soluble Chloride Content in Soil	BS 1377 Part 3 : 1990 Cls. 7.3 AMD 9028 : 1996
02	Acid Soluble Chloride Content in Soil	BS 1377 Part 3 : 1990 Cls. 7.3 AMD 9028 : 1996
03	Water Soluble Sulphate Content in Soil	BS 1377 Part 5 : 1990 Cls. 5.3 /5.5 AMD 9028 : 1996
04	Acid Soluble Sulphate Content in Soil	BS 1377 Part 5 : 1990 Cls. 5.3 /5.5 AMD 9028 : 1996
05	pH of Soil	BS 1377 Part 3 : 1990 Cls. 9 AMD 9028 : 1996
06	Carbonate Content in Soil	BS 1377 Part 3 : 1990 Cls. 6 AMD 9028 : 1996
07	Organic Matter Content in Soil	BS 1377 Part 3 : 1990 Cls. 3 AMD 9028 : 1996
08	Electrical Conductivity	APHA – AWWA 2510 A
09	Mass Loss on Ignition of Soil	BS 1377 Part 3 : 1990 Cls. 4.3 AMD 9028 : 1996

AGGREGATE:

S. No.	Test Description	Test Method
01	Water Soluble Sulfate Content of Aggregates	BS 812: 1988: Part 118
02	Water Soluble Chloride Salts in Aggregate	BS 812: 1988: Part 117
03	Acid Soluble Sulphate of Aggregate	BS 812: 1988: Part 118
04	Acid Soluble Chloride Content of Aggregate	BS 812: 1988: Part 117
05	Organic Impurities in Fine Aggregate	ASTM C 40: 04
06	Light Weight Particles in Aggregates	ASTM C 123 – 98 Cls. 8
07	Potential Alkali Reactivity & Reduction in Silica Content in Aggregates	ASTM C 289:1994 CI 7-13
08	Methylene Blue Adsorption	CIRIA SP 83 – A.2 10.5

CONCRETE:

S. No.	Test Description	Test Method
01	Chloride Content in Concrete	BS 1881 Part 124 : 1988 Cls. 10.2
02	Sulphate Content in Concrete	BS 1881 Part 124 : 1988 Cls. 10.3
03	Alkali Content in Concrete	BS 1881 Part 124 : 1988 Cls. 10.4
04	Water Soluble Chloride in Concrete/Mortar	ASTM C 1218 - 99
05	Determination of Cement Content	ASTM D 806 - 00

ADMIXTURE:

S. No.	Test Description	Test Method
01	pH Value	ASTM D 1293 – 99 (2005)
02	Chloride Content	Titration Method
03	Total Solids	ASTM C 494 - 08
04	Specific Gravity	ASTM C 494/C494M
05	Viscosity	ASTM D 2196

SILICEOUS MATERIALS / MICROSILICA:

S. No.	Test Description	Test Method
01	Chemical Analysis of Microsilica	ASTM C 1240 - 05
02	Chemical Analysis of Silica Sand	ASTM C 114 - 09
03	Silicon Dioxide	ASTM C 114 - 09
04	Loss on Ignition	ASTM C 311 - 07
05	Moisture Content	ASTM C 311 - 07

CEMENT:

S. No.	Test Description	Test Method
01	Chemical Analysis of OPC	BS EN 197 Part 1 : 200 / ASTM C 150-07
02	Chemical Analysis of SRC	BS 4027 : 1997 / ASTM C 150-07
03	Chemical Analysis of MSRC	ASTM C 150-07
04	Chemical Analysis of GGBS	BS 6699 : 1992
05	Chemical Analysis of Fly Ash	ASTM C 311/C311M-13
06	Silicon Dioxide as SiO ₂	BS EN 196 Part 2 : 2005/ ASTM C114 - 09
07	Insoluble Residue (IR)	
08	Chloride as Cl ⁻	
09	Sulphate as SO ₄	
10	Loss on Ignition (LOI)	
11	Calcium Oxide as CaO	
12	Magnesium Oxide as MgO	
13	Ferric Oxide as Fe ₂ O ₃	
14	Aluminum Oxide as Al ₂ O ₃	
15	Tricalcium Oxide (C ₃ A)	
16	Sodium Oxide as Na ₂ O	
17	Potassium Oxide as K ₂ O	
18	Moisture Content @ 105°C	
19	Manganese Oxide as Mn ₂ O ₃	
20	Total alkali	

STEEL:

S. No.	Test Description	Test Method
01	Carbon (C)	ALC-SOP-033 Optical Emission Spectrometer Method (OES)
02	Manganese (Mn)	
03	Sulphur (S)	
04	Molybdenum (Mo)	
05	Copper (Cu)	
06	Vanadium (V)	
07	Silicon (Si)	
08	Phosphorous (P)	
09	Chromium (Cr)	
10	Nickel (Ni)	
11	Nitrogen (N)	
12	Value (CEV)	

Water for Concrete Use:

S. No.	Test Description	Test Method
01	Total Dissolved Solids	BS 1377 Part 3 : 1990 Cls. 8
02	pH & Electrical Conductivity	ASTM D 1293 – 99 (2005)
03	Chloride	ASTM D 512 - 04
04	Sulphate	ASTM D 516 - 07
05	Total Alkalinity, Carbonate, Bicarbonate	ASTM D 513 - 06

Ground Water:

S. No.	Test Description	Test Method
01	Chloride Content of Ground Water	BS 1377 Part 3 : 1990 Cls. 7.3 AMD 9028 : 1996
02	Sulphate Content of Ground Water	BS 1377 Part 3 : 1990 Cls. 5.4/5.5 AMD 9028 : 1996
03	pH of Ground Water	BS 1377 Part 3 : 1990 Cls. 9 AMD 9028 : 1996

FOOD CHEMISTRY

Sl. No.	SCOPE	Test Method	
01	Feeds (Cattle and poultry)	1) Moisture	AOAC 930.15
		2) Ash Content	AOAC 942.05
		3) Protein	AOAC 954.01
		4) Total Fat	AOAC 920.39
02	Agri products, Cereals & Pulses	1) Moisture	AOAC 930.15
		2) Ash Content	AOAC 923.03
		3) Protein	AOAC 920.87
		4) Total Fat	AOAC920.39
03	Milk, milk powder and dairy products	1) Moisture	AOAC 927.05
		2) Ash Content	AOAC 945.46
		3) Protein	AOAC 991.23
		4) Total Fat	AOAC 989.05
04	Fish & Meat and related products	1) Moisture	AOAC 950.46
		2) Ash Content	AOAC 920.153
		3) Protein	AOAC 928.08
		4) Total Fat	AOAC 960.39
05	Edible Oil	1) Determination of Iodine Value	AOAC 993.20
		2) Determination of Free Fatty Acid	AOAC 940.28
		3) Determination of Peroxide Value	AOAC 965.33
		4) Determination of Saponification value	AOAC 920.160
		5) Determination of Unsaponifiable Matter	AOAC 933.08
		6) Determination of moisture	AOAC 984.20
06	Sugar Analysis	Polarization	ICUMSAGS2/3-1
		Reducing Sugar	ICUMSAGS2/3/9-5
		Colour	ICUMSAGS2/3-10
		Moisture	ICUMSAGS2/1/3/9-15(LOD)

		Conductivity ash/Ash	ICUMSAGS2/3-17
		Turbidity	ICUMSAGS2/3-18
		Insoluble matter	ICUMSAGS2/3-19
		Arsenic	ICP/OES
		Lead	ICP/OES
		Copper	ICP/OES
		Iron	ICP/OES
		Sulfite as SO ₃	ICUMSAGS2/1/7-33
		Particle Size Distribution,	ICUMSAGS2/9-37
		pH	ICUMSAGS1/2/3/9-20
		Aspartame and artificial sweeteners by HPLC	ALC SOP
		Sulfurdioxide	SASO148/134
		Insolubility	GS2/3-19
		Intramarine	ICUMSA
		Arsenic	ICPOES
		Lead	ICPOES
6	Dry Fruits	Determination of Aflatoxin (Total), Afla B1, Afla B2, Afla G1 & Afla G2	AOAC 999.07 (Modified)
7	Cereals & Pulses	Determination of Aflatoxin (Total), Afla B1, Afla B2, Afla G1 & Afla G2	AOAC 991.31 (Modified)
8	Spices	Determination of Aflatoxin (Total), Afla B1, Afla B2, Afla G1 & Afla G2	AOAC 999.07 (Modified)
9	Cattle Feed	Determination of Aflatoxin (Total), Afla B1, Afla B2, Afla G1 & Afla G2	AOAC 2003.02 (Modified)
	Fruits and Vegetable Products	pH	IS2860-1964 Reaff.2001
		Acidity, mg/kg	IS2860-1964 Reaff.2001/AOAC18thEd.942.15
		Solids(soluble).mg/kg	AOAC18thEd.932.14,976.20

		Lead,mg/kg	AOAC18thEd.972.25,9 99.11
		Copper,mg/kg	AOAC18thEd.971.20,9 99.11
		Zinc,mg/kg	AOAC18thEd.986.15,9 99.11
		Cadmium,mg/kg	AOAC18thEd.973.34,9 99.11
		Mercury,mg/kg	AOAC18thEd.,971.21
		Arsenic, mg/kg	IS2088 -1983 Reaff.2003/ AOAC18thEd.952.13
		Sugaranalysis	AOAC980.13
		Foodadditives-Citricacid	HPLC-PDA
		Food additives-Benzoicacid	HPLC-PDA
		Food additives-Sorbicacid	HPLC-PDA
		Food additives-Sodium Benzoate	HPLC-PDA
		Fooda dditives-Potassium Sorbate	HPLC-PDA
		Artificial Sweetners- Saccharine	HPLC-PDA
		Artificial Sweetners- Aspartame	HPLC-PDA
		Artificial Sweetners- AcesulphameK	HPLC-PDA
		Ochratoxin	AOAC999.07
		Aflatoxins,µg/kg	AOAC2000.09
	Seafood Analysis		
		Sulphur dioxide, mg/kg	AOAC18thEd.962.16
		Indole, mcg/100gm	AOAC18thEd.948.17
		Saltcontent,%	AOAC18thEd.937.09
		pH	AOAC18thEd.995. 11
		Lead,mg/kg	AOAC18thEd.972.23,9 99.11
		Copper,mg/kg	AOAC18thEd.971.20,9 99.11
		Zinc,mg/kg	AOAC18thEd.986.15,9 99.11

		Cadmium,mg/kg	AOAC18thEd.973.34,99.11
		Mercury,mg/kg	AOAC18thEd.,974.14,977.15
		Arsenic, mg/kg	IS2088 -1983 Reaff.2003/AOAC18th Ed.952.13
		Histamine	Elisa screening method
		PAH	GCMS
		TVBN	Titration (manual of methods)
		Tri methyl amine	AOAC971.14
		Total fat content	AOAC960.39
		Moisture content	AOAC 950.46
		Ash content	AOAC 920.153
		Total Protein	AOAC 928.08
	Milk and Dairy products		
		Physical	Organoleptic
		pH	pH Meter
		Fat	AOAC989.05
		Protein	AOAC991.20
		Lactose	AOAC980.13
		Moisture	AOAC926.08AOAC926.08
		TS	AOAC926.08
		Acidity	AOAC947.05
		Titratable Acidity	AOAC947.05
		Minimum milk protein in S NF	AOAC972.16
		Ash	AOAC945.46
		Sodium	IDF Standard 156:1992
		Potassium	IDF Standard 156:1992

		Chloride	IDF Standard 156:1992
		Calcium	IDF Standard 156:1992
		Phosphate	IDF Standard 156:1992
		Magnesium	IDF Standard 156:1992
		Iron	IDF Standard 156:1992
		Zinc	IDF Standard 156:1992
		Calcium Phosphorus Ratio	Calculation
		Emulsifier	AOAC949.07
		Lecithin	AOAC949.07
		Sodium citrates	AOAC976.15
		Pesticide residue	GCMS Screening
		Total Fat	AOAC989.05
		Protein	AOAC991.23
		Protein for WMP	AOAC991.20
		Melamine	HPLC
		Moisture	AOAC926.08
		Acidity	AOAC947.05
		Titration Acidity	AOAC947.05
		Milk Solids nonfat	AOAC991.20
		Lactose/Sugar	AOAC980.13
		Saccharine	HPLC
		Starch	AOAC925.50
		BulkDensity	GEA-Niromethod
		Whey Protein Nitrogen Index	GEANiroA21a
		Solubility/Insolubility index	GEA-Niromethod
	Cosmetic Analysis		
	Developer Sample		
		pH	

		Stabilization calculated as	
		(H2O2)	
	Perfumes/ Deodorants		
		Turbidity	IQS939
		Ethanol Content	IQS8-2-1
		Methanol Content	IQS5.1
		Volatile Perfume Oil–Non Alcoholic @50°C	IQS8-2-4
	Mild Shaving Cream		
		Total Fatty Matters	AOCSDb10-48
		Moisture and Volatile Matters	AOCSDb29-48
		Unsaponified Fatty Substance	AOCS
		Total Free Alkali	Inhouse
		Free Fatty Acids	Titration
		Insoluble substance in Ethanol	Gravimetry
		Insoluble substance in water	Gravimetry
	Antiperspirant-Roll on		
		Methanol Content	GC
		Aluminum Salts	ICP
		Residual product after totally discharging the can by normal spraying	Gravimetry
	Henna Powder		
		Humidity, Volatile Substances	IQS1681:1991
		Extract of Cold Water	IQS1681:1991
		Acid Insoluble Ash	IQS1681:1991
		Additive Ash	IQS1681:1991
		Crude Fiber	IQS1681:1991
		Metallic Material, Mass Percentage	IQS1681:1991

		Other Dyes	IQS1681:1991
		Lawsone ,Mass Percentage	IQS1681:1991
	Shampoo		
		Volatile matter,%	IS7884-2004
		pH	IS7884-2004
		Active detergent content,%	IS7884-2004
		Inorganic salt,%	IS7884-2004
		Anionic Active Matter Sodium Lauryl Ether Sulfate	SASO

FOOD PACKAGING LAMINATES AND CONTAINERS - MIGRATION STUDIES

Sl. No.	SCOPE	Test Method	
1	Plastics	Determination of overall migration by article filling using aqueous simulants	BS EN1186 -1 BS EN 1186 - 9
		Determination of overall migration by total immersion using aqueous simulants	BS EN1186 -1 BS EN 1186 - 3 BS EN 1186 - 5
		Determination of overall migration by total immersion using fatty simulants	BS EN1186 -1 BS EN 1186 - 2 BS EN 1186 -
2	Utensils, Containers, Laminates made from matrices like glass, porcelain, mud, plastics melamine and metals	Determination of Specific migration of heavy metals	ALC SOP