

TESTING FACILITIES

SPORTS GOODS & SPORTS WEAR

Thermal Resistance, Tensile/Breaking strength, Abrasion Resistance, Tear Strength, Colour Fastness Tests, Material Composition, Dimension Football, Basketball,

FOOTWEAR, SPORTS SHOE, LEATHER & ITS PRODUCTS

Leather and its products, Footwear(Oxford Shoe, Derby Shoe, Ankle Boot, Jungle Boot, Sports Shoe, PT Shoes), Leather Footwear, Safety footwear and accessories as per IS, ISO, DIN, BS, EN, DGQA, NAVY and MHA Standard.

TEXTILE & ITS PRODUCTS

Fabrics, Coated Fabrics, Garments & Made Ups, Fibre, Filaments, Yarn, Cords, Jute, Zippers, Sports Textiles, School Bag, Tent, Angola Fabric, Sleeping Bag, Synthetic Web, Fleece Fabric, Tarpaulin, Socks as per IS, ISO, AATCC, DIN, BS, EN, DGQA, NAVY and MHA Standard.

SLIDE FASTNERS (ZIPPER)

Dimensions, Breaking Strength, Security Of Interlocking Of Textile Chain To Lateral Load, Security Of Attachment To Top Stop, Security Of Attachment To Bottom Stop, Security Of Attachment Of Puller To Slider, Security Of Slider Lock Holding, Fold Over Security Of Textile Chain, Reciprocating Movement Of Slider Under Load, Remeshability Of Fastener as per IS, ISO Standard.

GLOVES

Comfort & Efficiency, Glove Size Fit To Hand, Finger Dexterity Level Performance, Water Vapor Transmission & Absorption, Tear Test, Cut Resistance, TDM Cut, Abrasion Resistant, Puncture Resistant, Flame Retardant, Contact Heat Resistant as per IS, ISO, EN Standard.

METAL AND METAL PRODUCTS

Mild Steel, Carbon Steel, Stainless Steel, Cast Iron, Free Cutting Steel, Brass, Bronze, Gun Metal, Aluminium & Its Alloys, Zinc & Its Alloys, Nickel & Its Alloys, Lead & Its Alloys and Tin & Its Alloys as per IS, ISO, DIN, BS, EN, DGQA, NAVY and MHA Standard.

PAPER & ALLIEDS PRODUCTS

Copier Paper, Card Board, Coated Paper, Maplitho, Art Paper, Offset, Cover, Printing Paper, Box corrugated etc.

Type of testing

TEXTILE & ITS PRODUCTS



FOOTWEAR PRODUCTS



LEATHER & ITS PRODUCTS



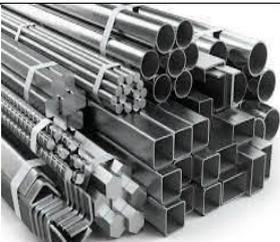
GLOVES



PAPER & ALLIEDS PRODUCTS



METAL AND METAL PRODUCTS



RUBBER, PLASTIC AND POLYMERS



Sports Products & SPORTS WEAR



CHEMICAL TESTING

a) Textile and its products Fibre Composition: Mixtures of acetate and certain other fibres (method using acetone), certain protein and certain other fibres (method using hypochlorite), viscose or certain types of cupro or modal or lyocell and cotton fibres (method using Formic acid and Zinc chloride), Polyamide and certain other fibres (method using formic acid), Polyester fibres with cotton or regenerated cellulose-sulphuric acid method, Acrylic, certain modacrylics, certain Chlorofibres, certain elastanes and certain other fibres (method dimethyl formamide). Identification of textile fibres, Color fastness to Crocking/Rubbing, Color fastness to Perspiration, Color fastness to Water, Dimensional changes on soaking in water, Dimensional due to Relaxation shrinkage woollen products, Felting Shrinkage of woollen products on Washcator when shrinkage is determined, Dimensional due to Relaxation shrinkage-Wool cotton vest, Area shrinkage of Woollen Products, Wool fiber diameter, Fineness or Grade of wool, Scouring Loss of textile materials, Water soluble matter, Alkali Solubility, pH of aqueous extract, Water Resistance (Wet ability), Water absorption (Bundesmann apparatus), Water Penetration, (Bundesmann apparatus), Free and Hydrolysed Formaldehyde (Water Extraction Method), Released Formaldehyde (Vapour absorption Method by sealed Jar method), Colour Fastness to washing, Ash content, Moisture content.

b) Leather and its products Colour fastness to Perspiration, Colour fastness to Water, Total Ash Content, Chromium VI Content, Formaldehyde Content, pH Value, Differential figure, Water Soluble matter, Solvent Extractable substances, Hide Substance, Degree of tannage, Sulphated Ash, Bound Organics, Water insoluble ash.

c) Paper & Paper Products Moisture Content, Ash content, pH value.

MECHANICAL TESTING

a) Textile and its products Linear density of Yarn removed from Fabric, Construction: Threads per unit Length- Ends/picks, Thickness of Textile and textile Products, Mass Per Unit Area /Mass per unit Length, Tensile Properties of Fabric - Strip Test, Bursting Strength-Diphargam Method, Pilling Resistance - ICI Pill Box Method, Width of Fabric, Length of Fabric, Colour fastness to dry heat, Colorfastness to artificial Light (Xenon Arc lamp), Abrasion Resistance (Plain Abrasion-martindale), Tear strength (Constant Rate of Tear- Method A), Spray Test, Blocking Test, Flex Abrasion Resistance, Dimensional stability of textile fabrics to dry heat, Ageing test, Single Yarn Strength Breaking Strength, Dimensions of Zipper elements, Breaking Strength, Security of interlocking of textile chain to lateral Load, Security of attachment to top stop, Security of attachment to bottom stop, Security of attachment of puller to slider, Security of slider lock holding, Fold over security of textile chain, Reciprocating, Movement of slider under Load, Remeshability of fastener, Crease Recovery Angle by Measuring Angle of Recovery, Thermal Conductivity etc.,

b) Leather and its products

Gloves Comfort & Efficiency: Glove Size Fit to Hand, Finger Dexterity Level Performance, Water Vapour Transmission & Absorption, Tear Test, Abrasion resistance Martindale.

Leather, Footwear, Sports footwear and accessories Construction, Toe protection (General), Specific ergonomic features, Upper /Outsole and sole inter layer bond strength, Internal Toe Cap Length, Toe Protection (General Clause): Damage to Footwear on Removal of Toecap, Finishing of Toe Caps, Surface Marks, Burrs, Sharp Edges, Delamination, Water Absorption % (Kubelka), Corrosion resistance of metallic toe caps or penetration resistance metallic inserts, Impact Resistance, Compression Resistance, Leak Proofness, Resistance to Flexing (full shoe), Electrical Properties (Conductive Footwear, Antistatic Footwear), Insulation against heat, Insulation against cold/Antifreeze test/ Low Temperature Resistance at -30°C to -5°C, Energy Absorption of seat region, Thickness, Height of Upper, Tear Strength: Upper and Lining of Leather and Coated fabric, Tensile Strength, Resistance to damage by flexing (Demattia Method), Flex Resistance by Flexometer Method, Resistance to Cut Growth on Flexing: Ross Flex Test, Water Vapour Permeability, absorption and Coefficient - Uppers and Lining, Hydrolysis inside Oven at 70°C with Desiccator, Abrasion resistance of lining (martindale), Water penetration & water absorption, Thickness of the Insole, Construction of Insole:-Damage to Footwear on Removal of Insole, Water absorption & de-absorption, Abrasion Resistance of Insole / Insock: 400 Cycles of Veslic, Design:-1. Cleated & Non-Cleated Area of total Length of Sole, 2. Height of Cleat, Thickness of Non Cleated / cleated Outsole, Sole Tear Strength, Abrasion Resistance of sole (Drum), Sole Flexing (Benn Wart), Resistance to Fuel Oil, Resistance to hot Contact, Density, Hardness (Shore Hardness), Adhesion of finish: Films or Coating, Strap to Sole Attachment, Strap/Buckle & Related Attachment strength, Toe Post Attachment, Heel Attachment, Toe Piece Attachment, Seat Region of Heel, Lace to Eyelet Attachment, Velcro Peel (Initial), Shear Strength (Initial), Taber Abrasion, Resistance to dry Heat, Colourfastness to accelerated ageing, Cold Crack temperature of leather, Penetration Resistance, Internal Length, Width of Flange, Leather Identification by Microscope, Colourfastness to crocking. Slip Resistance, Multipurpose Flammability Test, Bata Belt Flexing, Vamp Flexing, Heel Fatigue, Heal Impact, Hydrostatic Test etc.

c) Paper & Paper Products Gloss/ Opacity/ Brightness, One Minute Cobb test for water penetration, Tensile Index, Surface Strength, Dennison (Wax Pick), Substance (G.S.M), Thickness, Stiffness (Taber stiffness), Tear Index, Bursting Strength, Double Fold(Folding endurance test), Smoothness & Porosity (Bendtsen type).

METAL AND METAL PRODUCTS

SNo	Material	Products	Test Parameter	Test Method
1	Ferrous and Non Ferrous Alloy	Angle, Channel, Plate, Sheet, Pipe, Rod, Bar, Tube, Structural Steel, Reinforced Bar (TMT Bar) and Other products.	Yield stress /0.2% Proof Stress Ultimate Tensile Strength % Elongation % Reduction Area Rockwell Hardness(HRB & HRC) Bend Test Re-bend Test Flattening Test Load Test	National/ International Method (IS, BS, ASTM, ISO, DIN, etc.)
2.	Ferrous Alloy	Low Carbon Steel (Mild Steel), Medium Carbon Steel, High Carbon Steel, Free Cutting Steel, Alloy Steel, Stainless Steel, Cast Iron, Galvanized Steel, High Speed Steel, Manganese Steel, Nickel Alloys (Monel Alloy) etc.	Carbon, Manganese, Silicon, Sulphur, Phosphorus, Chromium, Nickel, Molybdenum, Cobalt, Vanadium, Lead, Tungsten, Boron, Antimony, etc.	Optical Emission Spectrometer (OES)
3.	Non Ferrous Alloy	Pure Copper, Brass, Bronze, Gun Metal, Copper & Its Alloys etc.	Zinc, Lead, Phosphorus, Manganese, Iron, Nickel, Silicon, Chromium, Antimony, Arsenic, Bismuth, Cobalt, Aluminum etc.	Optical Emission Spectrometer (OES)
		Aluminum & Its Alloys (LM Series)	Copper, Magnesium, Silicon, Iron, Manganese, Nickel, Zinc, Lead etc.	Optical Emission Spectrometer (OES)
		Zinc & Its Alloys (Zamak Alloys)	Aluminum , Copper Lead, Tin, Cadmium, Iron, Indium, Magnesium, Manganese, Nickel, Antimony, Titanium, Bismuth, Zinc etc.	Optical Emission Spectrometer (OES)
		Tin & Its Alloys (White Metal, Solder, etc.)	Silicon, Iron, Copper, Manganese, Magnesium, Chromium, Nickel, Zinc, Lead, Tin, Antimony etc.	Optical Emission Spectrometer (OES)
		Lead & Its Alloys	Silicon, Iron, Copper, Manganese, Magnesium, Chromium, Nickel, Zinc, Lead, Tin, Antimony etc.	Optical Emission Spectrometer (OES)



Optical Emission Spectrometer Tester

Universal testing Machine (100 TON)

Rockwell Hardness Tester

Surface Roughness

ENVIRONMENT PRODUCTS (INCLUDING REACH COMPLIANCE/ EUROPEAN REGULATION)

LC MS/MS



GCMS



- Di methyl Fumerate (DMFU)—Finished Footwear and Furniture.
- AZO dyes—Leather And Textiles.
- Pentachlorophenols (PCP) –Leather, Textile, PU and Wood.
- Polycyclic Aromatic Hydrocarbons (PAH) - Rubber, Polymeric Print On Fabric, Polymer.
- Phthalates – PVC, Polymer, Plastics, Rubber Print, Coated Leather.
- Organotin Compounds (OTC) –Rubber, Rubber Print, Coated Leather.
- Flame Retardants (FR) – Plastic, Rubber, PVC.
- Bisphenol A , Dispersed Dyes and Carcinogenic Dyes, , Alkylphenol ethoxylates (APEO, NPEO, OPEO)
- PFOA and PFOS, Short & Medium Chain Chlorinated paraffin's (SCCP & MCCP),

UV Visible Spectrophotometer

- Formaldehyde- Leather and textiles
- Chromium VI - Leather
- Transmittance -Goggles



Fourier Transform Infrared Spectroscopy (FTIR)

- Material Identification—Polymer, PVC, Plastic, Foam, Natural Rubber, etc.



Thermal gravimetric Analyzer (TGA)



Inductively coupled plasma-optical emission spectroscopy (ICP OES)

- Heavy Metals/ Trace Metals in Minerals, Water, Waste Water, Drinking Water, Soils, Geology, Mining, Rare Earth Elements, Petroleum Products/ Lubricants/Grease



TESTING EQUIPMENT

➤ Zwick Universal Testing Machine 20 KN	➤ ATLAS Weather-O-Meter
➤ Fourier Transform Infrared Spectroscopy (FTIR)	➤ UV-Spectrophotometer
➤ Climate Chamber	➤ Zipper Endurance Tester
➤ Gas Chromatography Mass Spectroscopy	➤ Instron Universal Testing Machine 5 KN
➤ ICI Pilling Tester	➤ Multipurpose Flammability Apparatus
➤ DIN Abrasion Tester	➤ Color Matching Cabinet
➤ Bennewart Flex Tester	➤ Vaslic Rub Fastness Tester
➤ Bursting Strength	➤ Ross Flex Tester
➤ De Mattia Flex Tester	➤ Water Vapour Permeability Apparatus
➤ Ross Flex Tester	➤ Bundesman Apparatus
➤ Compression Tester	➤ Martindale Abrasion Tester
➤ Water Absorption Tester	➤ Sole Adhesion Tester
➤ Electrical Resistance Tester	➤ Microscope
➤ Humidity Chamber	➤ Impact Tester
➤ Hardness Tester Shore A	➤ Optical Emission Spectrometer (OES)
➤ Full Shoe Flex Tester	➤ Flexometer
➤ Cold Insulation Tester	➤ Heat Insulation Tester
➤ Flex Abrasion Tester	➤ Crock Meter
➤ Lastometer	➤ Multi Cell Ageing Chamber
➤ Crease Recovery Tester	➤ Heat Resistance Tester
➤ Water Permeability-Spray Test	➤ Circular Rubbing Fastness Tester
➤ Launderometer	➤ Grain Crack Tester
➤ Shrinkage Tester	➤ Water Absorption – Desorption Tester
➤ Benchtop Spectrophotometer	➤ Tumble Dryer
➤ Bendtsen Smoothness Tester	➤ Folding Endurance tester
➤ Electric Stiffness Tester	➤ Cobb Sizing Tester
➤ Thermal Resistance Tester	➤ Antistatic Resistance – Surface Resistivity

