element

POLYMER TESTING

A LEADING MATERIALS TESTING PARTNER YOU CAN TRUST

OVERVIEW

SUPPORT FOR YOUR MATERIALS AND PRODUCTS

Unmatched in their diversity, polymers such as plastics, rubber, composites, adhesives, paints and coatings, are used in virtually every industry, including transportation, medical, aerospace, and consumer products. Element's laboratories are equipped with state-of-the-art instruments and staffed by experts working to provide timely, practical solutions to even your most challenging polymer engineering needs.

ACCREDITED QUALITY SUPPORT

Element Materials Technology's quality program meets the ISO/ IEC Guide 17025 standards (equivalent to the relevant laboratory requirements of the ISO 9002 series of standards).

METHODS AND TECHNIQUES

- 3A Dairy testing
- Abrasion & Wear Testing
- Accelerated Weathering Testing
- Chemical Analysis & Testing
- Climatics & Environmental
- Compliance Testing
- Composites Testing
- Container & Package Testing
- Contaminant Testing & Analysis
- Corrosion Testing
- CPSIA & RoHS Testing
- Deformulation Analysis
- Durable Goods & Appliance Testing
- Dynamic Mechanical Analysis
- Engineering & Consulting
- Experimental Mechanics
- Expert Witness Services
- Failure Analysis & Consulting
- Fatigue Testing
- Finite Element Analysis (FEA)
- Flammability Testing
- Fourier Transform Infrared (FTIR)
- Fractography
- Hose Testing
- Humidity Testing
- Hydraulics/Pneumatics Testing
- Impact Testing
- Investigative Chemistry
- Manufacturing Process Evaluation
- Material Properties Testing
- Material Selection
- Materials Characterization
- Mechanical Testing
- Nondurable Goods Testing
- Paints/Coatings Defect Analysis
- Plastic Weld Evaluation
- Polymer Testing & Analysis
- Product Design Evaluation
- Product Qualification Testing
- Residue Analysis
- Reverse Engineering
- Rubber & Elastomers Testing
- Salt Fog / Salt Spray Testing
- Stress Rupture & Creep Testing
- Stress-Strain Analysis
- UV Weathering Testing

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TESTING CAPABILITIES AND EQUIPMENT

PLASTICS

- Static mechanical properties
- Creep and fatigue
- Low and elevated temperature properties
- Accelerated weathering of polymers
- Aging due to chemical or thermal stressors
- Color and appearance
- Permeability
- Electrical properties
- Characterization of surface profiles
- Chemical and thermal analyses

COATINGS

Wet Film Properties

- Non-volatile content & VOC determination
- Viscosity (Brookfield, cone & plate)
- Hiding power & fineness of grind

Dry Film Properties

- Adhesion, impact, flexibility, hardness, scratch resistance
- Abrasion (Taber & falling sand)
- Appearance (color & gloss)
- Chemical resistance properties
- Accelerated weathering (xenon arc, carbon arc, UVCon)
- Humidity & corrosion resistance (salt spray)

Adhesives and Sealants

- Static mechanical properties
- Fatigue and creep of adhesive joints
- Resistance to chemical and thermal environments

SELECT POLYMER TESTING AND EQUIPMENT

- Chemical: FTIR, GPC (molecular weight), GC/MSD, UV/VIS, XRD, ICP, AA, IC
- Thermal: DSC, TGA, TMA, DMA, Softening
- Mechanical: Tensile, Compression, Flex, Friction, Peel, Tear, Fatigue, Hardness, Stiffness, Brittleness, Abrasion, Creep, Stress Rupture, Dynamic
- Impact: Charpy, Izod, Gardner, Dynatup, Falling Dart
- Rheology: TMA, Melt Flow, Heat Deflection, Viscosity, Capillary Rheometer
- Environmental: Solar (Xenon, QUV, etc), Thermal, Ozone, Humidity, Salt Spray, Liquid Exposure, Stress Cracking
- Electrical: Volume Resistivity, Dielectric Breakdown, Static Dissipation, Conductivity
- Permeability: Oxygen, Water Vapor, Solvent
- Pressure/Pipe: Hydrostatic Burst, High Pressure Chamber
- Paint: Color, Reflectance, Gloss, Hiding, Haze, Spread, Spatter, Sag, Leveling Drying, Volatiles, Film Thickness, Hardness, Adhesion, Flexibility, Impact, Weathering Liquid: Cone & Plate and Brookfield Viscosity, Surface Tension, Contact Angle
- Dimensional: Thickness, Roughness, Expansion/Shrinkage, Density, Particle Size
- Flammability: Flame Spread , Cone Calorimeter, Vertical/Horizontal Burn, Smoke Generation, Flash Point, Oxygen Index
- Microscopy: Optical, SEM/EDX
- Plastics Processing: Twin Screw Extruder, Single Screw Extruder, Vacuum Thermoformer, Two Roll Mill, Hot Press, Resin Dryer

For a comprehensive list of our services, accreditations & approvals, please visit element.com

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