Mechanical Testing

- Adhesion (Peel) Testing
- Bend Testing (3 Point, 4 Point)
- Bond Strength Testing
- Charpy Impact Testing (-320°F to 450°F)
- Coefficient of Thermal Expansion by TMA
- Composite Testing (FRC, CMC)
- Compressive Properties of Nonmetallics
- Creep & Stress Rupture
- Fatigue Testing (Axial, Low Cycle, High Cycle, Rotating Beam, Coating Shear)
- High Temperature Fatigue Testing up to 1800°F
- Filled Hole Tension/Compression
- Flexural Properties (Modulus, Strength, Stress-Strain Response)
- Fracture Mechanics
- Hardness (Rockwell, Brinell)
- Heat Aging
- Heat Deflection by TMA
- Hydrogen Embrittlement (Static Load)
- In-Plane Shear Response
- Indentation Toughness
- Interlaminar Shear
- Impact Testing (Charpy, Izod)
- Lap Shear Testing
- Open Hole Tension/Compression
- Peel Properties (Climbing Drum, Floating Roller)
- Residual Strength of Composites After Impact
- Resin Penetration
- Sealant & Adhesive Testing
- Shear Properties
- Slow Strain Rate
- Static Pin Bearing Strength
- Taber Abrasion/Wear Resistance
- Tensile Testing - Metals (to 2000°F)
- Tensile Testing - Nonmetallics (-240°F to 660°F)
  - Flatwise, Cruciform, Hoop, Standard
- Torsional/AXial Fatigue (200 lb)
- Welder/Weld Procedure Qualification

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Metallurgical Analysis

Aggressive Machining Evaluations  
Braze Analysis  
Case Depth  
Certified Weld  
Inspections  
Coatings Analysis  
Decarburization  
Failure Analysis  
Fluorescent  
Impregnation of Porous Coatings  
Fractography/Fracture Mechanics  
Grain Size  
Image Analysis  
Inclusion Rating  
Intergranular Attack  
Intergranular Oxidation  
Macroetch/Microetch  
Metallography/Materialography  
Microhardness (Knoop, Vickers, MacroVickers)  
Microstructure  
Orientation in Microstructure  
Particle Analysis (Distribution, ID, Size)  
Phase Volume Determination  
Plating & Coating Analysis  
Plating Thickness  
Porosity of Metals, Ceramics & Composites  
Prior Austenitic Grain Boundary Determination  
Replication (E1351)  
Quantitative Image Analysis  
Root Cause Evaluation  
SEM Analysis  
Thermal Spray Coating Evaluations  
Titanium Beta Transus Determination  
Welder Qualification

Chemical Analysis

Alloy Chemistry  
Ash Content  
C, H, O, N, S  
Chemical Resistance  
Cleanliness Testing  
Coating Weight  
Conductivity/Resistivity  
(D1125)  
Contaminant/Corrodent Analysis  
Contaminant/Corrodent Identification  
Density  
DSC Analysis (Melting Point, Glass Transition, % Crystallinity, Degree of Cure, Purity)  
Dynamic Mechanical Analyzer (DMA) Testing  
Filler Content Analysis  
FTIR Analysis  
GC/MS Analysis  
Halogen Analysis (IC)  
Heavy Metal Impurities  
Hexavalent Chromium  
ICP-AES Analysis  
ICP-MS Trace Element Analysis  
Ion Chromatography (IC)  
Material Certification  
Mercury Analysis  
Metallic Material Verification/ID  
OES Analysis  
Particle Size Analysis  
Percent Crystallinity  
Phase Identification  
Positive Material ID (On-site PMI available)  
Powder Diffraction  
Precious Metal Assay  
RoHS Testing  
SEM/EDXSie  
Sieve Analysis  
Trace Element Analysis  
Unknown Material ID  
X-Ray Diffraction (XRD)

Why IMR?

You know your products better than anyone. The good name and reputation of your company goes out with every piece you ship. Your needs, your priorities and your deadlines drive everything we do at IMR.

We are your one-stop laboratory for high quality materials testing services on metals, polymers and composites. Whether you are verifying raw materials, checking finished parts from your suppliers or require a failure analysis, we have the experience, tools and training to help you get the answers you need.

We carry all of the requisite accreditations and approvals, including ISO 17025, Nadcap, A2LA, SAC, GE S-400, Pratt & Whitney MCL, and many other major manufacturers. We serve clients in a variety of industries including medical, power generation, aerospace, automotive and more.

Contact us today for more information on how we can help you with your materials testing and failure analysis needs.

Corrosion Testing

Corrosion Cracking Testing of Metals (SCC) and Plastics (ESC)  
Corrosion Failure Analysis  
Determining Corrosion Rates of Metals and Corrosiveness of Fluids Using Electrochemical and Immersion Test Techniques  
Dezincification Testing of Brasses  
Electrochemical Corrosion Simulation  
Evaluation of Duplex Stainless Steels  
Formicary (Ant’s Nest) Corrosion of Copper Tubing  
General and Pitting Corrosion Testing  
Heat & Fluid Aging  
Passivation Testing of Medical Components  
Residual and Assembly Stress Testing of Copper Alloys  
Sensitization Testing of Austenitic and Ferritic Stainless Steels

Accelerated Weathering

Cyclic Corrosion  
Electrical Resistivity Testing  
Passivation  
QUV Exposure  
Salt Spray Testing  
SO₂ and SO₃/CO₂ Exposure  
Taber Abrasion / Wear Resistance  
Temperature & Humidity Testing