

Failure Analysis

IMR Test Labs has completed thousands of failure investigations at our network of labs around the world. We are experts at finding the root cause of your failure on metals, polymers, composites, thermal spray coatings and more!

- Are parts/components not performing as expected?
- Are parts/components wearing out more quickly than normal?
- Are similar parts performing differently and you need a comparison analysis?
- Are your customers reporting field failures?
- Are you getting unexpected staining or corrosion?
- Do you have unexplained debris causing failures of equipment?
- Do you have a litigation case pending and need examinations or expert witness testimony?

Our experts are versed in all types of failure, including corrosion induced, fatigue, overloading and more. Contact us today to learn more!



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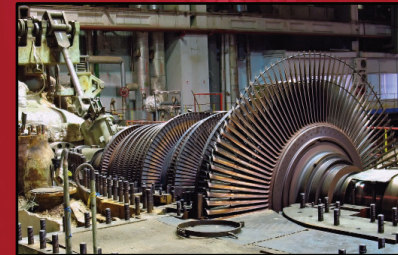
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**CURTISS -
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IMR TEST LABS

Analytical Services for the Energy Industry



www.imrtest.com

Metallurgical Analysis

Case Depth
Certified Weld Inspections
Coatings Evaluations
Decarburization
Failure Analysis (Metals, Polymers, Coatings, Composites, Contaminants)
Fractography
Fracture Mechanics
Grain Size
Heat Treat Analysis
Inclusion Rating
Intergranular Attack
Intergranular Oxidation
Microhardness (Knoop, Vickers, MacroVickers)
Microstructure
Particle Analysis (Distribution, ID, Size)
Plating & Coating Analysis
Plating Thickness
Porosity of Metals, Ceramics & Composites
Prior Austenitic Grain Boundary Determination
Quantitative Image Analysis
SEM Analysis
Surface Topography
Thermal Spray Coating Analysis
Titanium Beta Transus Determination
Weld, Braze & Joining Evaluations



Chemical Analysis

Alloy Chemistry
Contaminant Identification
Corrosion Product Analysis
DSC
FTIR
GC/MS
Hazardous Substances
Heavy Metal Impurities
ICP-AES Analysis
ICP-MS Trace Element Analysis
Ionic Contamination
Internal Cleanliness
Metallic Material Verification
OES Analysis
On-Site Positive Material Identification (PMI)
Polymeric Material Identification
Polymer Failure Analysis



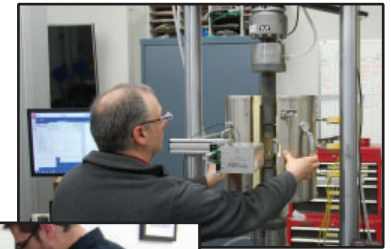
Rare Earth Elements
SEM/EDS
Surface Cleanliness
TGA
XRD Analysis
XRF Analysis

Materials Tested

Aluminum Alloys	Polymers
Carbon Steel	Process Solutions
Ceramics	Stainless Steel
Copper Alloys	Specialty/Custom Alloys
Fiber-Reinforced Composites	Thermal Spray Coatings
Glass	Titanium Alloys
Low Alloy Steel	Welds
Magnesium Alloys	Zinc Alloys
Nickel Alloys	Zirconium Alloys
Plastics	

Mechanical Testing

3 & 4 Point Bend Testing
Adhesion Testing
Bond Strength
Charpy Impact Testing
Coating Adhesion
Coating Shear Fatigue
Creep Testing
Fatigue Testing (Axial, Rotating Beam)
- High Temperature up to 1800°F
Fracture Mechanics
Hardness (Rockwell, Brinell)



Heat Treatment
High Temperature Tensile
Hydrogen Embrittlement (Static Load)
Machining & Specimen Preparation
Slow Strain Rate
Stress Rupture Testing
Tensile Testing
Torsional and Axial Fatigue
Tube Testing (Tensile, Flare, Hydrostatic)
Weld Qualification
Wire/Spring Testing (Wrap, Coil, Bend)

