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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**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

**Materials Tested**

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

**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)
- 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)

**Rare Earth Elements**

- SEM/EDS
- Surface Cleanliness
- TGA
- XRD Analysis
- XRF Analysis