Coatings Evaluations at IMR Singapore - GE Aeronautics CENTRAL COATING LAB

IMR Test Labs - Singapore is a GE S-400, CCL approved coatings laboratory. We have GE CCL certified coatings technicians who can provide approved coatings evaluations and reports that satisfy GE requirements.

IMR Singapore carries GE S-400 Code AJ approval on our cert T9325, which includes the following coatings: F50TF13 CL-A/B50TF72 CL-A, F50TF15 CLA, F50TF18 CLB, F50TF22 CLA, F50TF25 CLA, F50TF45 CLB, F50TF50 CLB, F50TF69 CLB, F50TF71 CLA & CLC, F50TF75 CLB, F50TF102 CLA

Specialty Services

- Aggressive Machining Evaluations
- Analysis to support Additive Manufacturing
- Coatings Evaluations
- Metallography/Materialography
- Preparation of speciality materials including: Inconel 625, Haynes 25, Haynes 188, L605, stellites, ceramics, fiber-reinforced composites and more.
  - 2 and 3 part Chemical Etching
  - AC Electrolytic Etching
  - Non-routine DC Electrolytic Etching
  - Vibratory Polishing
- Thermal Spray Evaluation Training
**Metallurgical & Failure Analysis**

- Aggressive Machining Evaluations
- Alpha Case
- Case Depth
- Decarburization
- Effective Case Depth
- Grain Size
- Image Analysis
- Inclusion Content
- Intergranular Attack
- Macro-etching/Micro-etching Metallography
- Microhardness (Knoop, Vickers)
- Microstructure
- Particle Analysis
- Plating & Coating Analysis
- Porosity
- Root Cause Analysis
- Specialty Material Preparation
- Thermal Spray Coating Analysis
- Weld, Braze & Joining Evaluations

**Polymers, Composites & Contaminants**

- Additive Analysis to Trace Level
- Bond Strength
- Chemical Exposure Testing
- Chemical Resistance
- Coefficient of Friction
- Compression Set
- Compressive Properties
- Contaminant Identification
- Density & Specific Gravity
- DSC Analysis: Melting Point, Glass Transition, % Crystallinity
- Dynamic Mechanical Analyzer (DMA) Testing
- Extractables
- Failure Analysis
- Fatigue Testing
- High Temp to 1800°F
- Flammability
- Flexural Properties
- Fluid Exposure
- FTIR Analysis
- GC/MS: Additives
- Hardness: Rockwell, Durometer, Barcol
- Heat Aging
- Impact Strength
- Lap Shear Testing
- Material Identification
- Melt Flow Rate/Index
- Oil Content
- SEFA Testing
- SEM/EDS Analysis: Fillers
- Tensile Testing: Flatwise, Cruciform, Hoop, Standard, -240°F to 660°F
- TGA: Polymer, Glass and Ash Content
- TMA: Glass Transition, Coefficient of Thermal Expansion, Heat Deflection
- Viscosity
- XRD: Phase Identification

**Accelerated Weathering & Corrosion**

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

**Chemical Analysis**

- Alloy Identification/Verification
- Cleanliness
- Contaminant Analysis
- ICP-AES Analysis
- ICP-MS Analysis for Trace Elements
- OES Analysis
- Particle Size Analysis
- PMI (Positive Material Identification)
- SEM/EDS
- XRF Analysis
- XRD Analysis

**Mechanical Testing**

- Coating Adhesion/Bond Strength
- Creep/Stress Rupture
- Erosion Testing of Coatings
- Fatigue Testing
- High Temperature Fatigue (up to 1800°F)
- Cryogenic Fatigue Testing (down to -320°F)
- High Cycle Fatigue
- Low Cycle Fatigue
- Flexural
- Fracture Mechanics
- Hardness (Brinell, Rockwell)
- Hydrogen Embrittlement
- Impact Testing
- Rotating Beam Fatigue
- Tensile, Yield, Elongation
- Weld Qualification