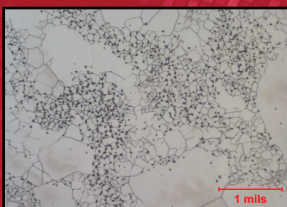
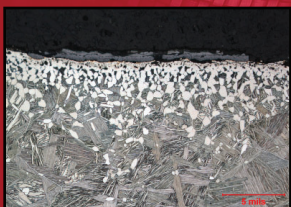


Coatings Evaluations at IMR Singapore - GE Aircraft Engines CCL- CENTRAL COATING LAB

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
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 - Vibratory Polishing
- Thermal Spray Evaluation Training



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Nadcap Accreditation: Ithaca (MTL, NMTL), Louisville (MTL), Portland (MTL), Singapore (MTL), Suzhou (MTL)

A2LA Accreditation: Ithaca (1140.01 / 1140.02), Louisville (1140.03/1140.04), Portland (1140.07), Singapore (1140.10), Suzhou (1140.09)

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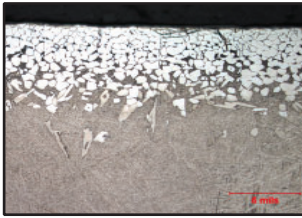
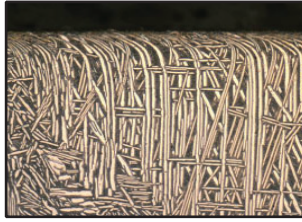
Aerospace Materials Testing and Analysis Services



www.imrtest.com

Metallurgical & Failure Analysis

Aggressive Machining Evaluations
Alpha Case
Case Depth
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
Failure Cause Analysis
Specialty Material
Preparation
Thermal Spray Coating Analysis
Weld, Braze & Joining Evaluations



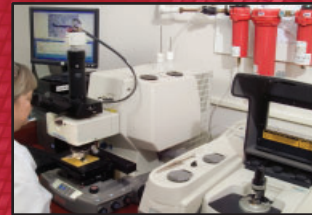
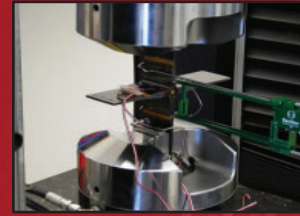
Salt Spray & Corrosion Testing

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



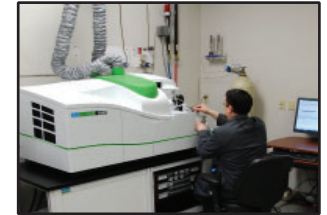
Polymers, Composites & Plastics

Additive Analysis to Trace Level
Bond Strength
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 Analysis (DMA)
Extractables
Failure Analysis
Fatigue Testing
-Temp from -340°F to 1800°F
Flammability
Flexural Properties
Fluid Exposure
FTIR Analysis
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, -240F to 660F
TGA: Polymer, Glass and Ash Content
TMA: Glass Transition, Coefficient of Thermal
Expansion, Heat Deflection
Viscosity
XRD: Phase Identification
% Crystallinity
Crystal Structure
Material Confirmation



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

