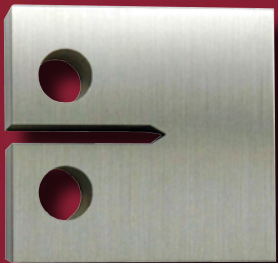




Metal Fatigue Test Bar in Grips (top), & High Cycle Fatigue of PEEK Specimens (bottom)

Services Available

- Axial Displacement Controlled
- Axial Strain Controlled
- Axial Load Controlled
- High Cycle
- Low Cycle
- Fracture Mechanics Testing
- Fracture Toughness Testing (K_{1c} , J_{1c})
- Rotating Beam (up to 1800°F)
- Coating Shear
- Specimen Conditioning
- In-House Machine Shop & Specimen Preparation



Compact Tension Specimen for Fracture Mechanics Testing

Not just data, *knowledge*

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Coming - Summer 2012

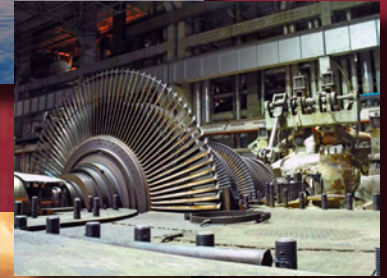
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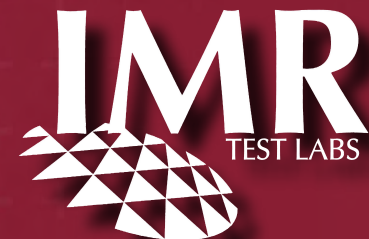
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Fatigue Testing & Fracture Mechanics



Not just data, *knowledge*



Fatigue Testing

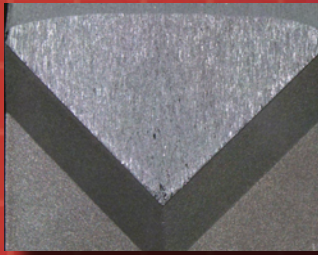
Fatigue testing offers you much better predictability for how your materials and products will perform over a lifetime. Fatigue is the cause of failure more often than any other failure mechanism. IMR Test Labs has the ability to provide you clear, accurate and reliable data when you need it.

Let our accessible and knowledgeable staff help you develop a fatigue test program to meet the needs of your client and your product.

If further analysis is necessary, our metallurgical lab, chemical analysis department and failure analysis experts can offer the insights and explanations you need.



Director of Materials & Product Testing, Bill DeLaurier, setting up a fatigue sample.



Fracture Mechanics Specimens after Fatigue Pre-cracking and K1c Testing



Some of the ASTM Methods Offered

- E466 - Axial Load Controlled Fatigue Testing
- E606 - Strain Controlled Fatigue Testing
- E399 - Fracture Toughness
- F1160 - Coating Shear
- F1440 - Cyclic Fatigue of Hip Joints without Torsion
- F1612 - Cyclic Fatigue of Hip Joints with Torsion
- F1800 - Cyclic Fatigue of Knee Joints



Rotating Beam Fatigue with High Temp Capability to 1800F

Coating Shear Fatigue

Aircraft Accident Reconstruction



Broken Gusset Plate from Bridge Failure

Fracture Mechanics & Fracture Toughness Testing

(K_{1c}, J_{1c})

Fracture mechanics testing is used to predict crack formation, propagation and ultimately, it provides quantitative results regarding the structural integrity of the components.

Criteria such as material behavior, stresses and loading conditions, flaws and operational requirements are all considered in relation to each other to determine performance of components in service and to prevent devastating failures and accidents.

IMR's Fracture Mechanics experts utilize state-of-the-art equipment, along with years of experience and many successful investigations to help analyze crack initiation, crack growth and crack instability. We can do this as part of a failure analysis, or as fracture mechanics testing to support our clients design and development efforts.