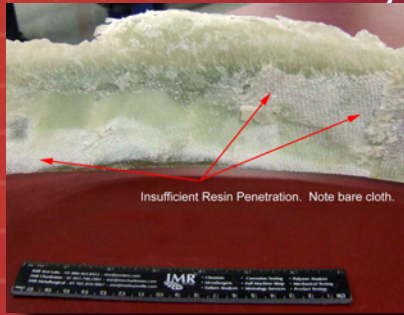


Failure Analysis



Photograph of failed composite tank. Note poor resin penetration of the glass fiber material

Our Failure Analysis capabilities include the ability to analyze metals, as well as composites and polymers. This puts us in a unique position to handle all aspects of your analysis.

Our expertise includes evaluation of field failures and returns, manufacturing process problems, evaluation of life cycle test failures, defect detection, contamination analysis, corrosion and environmental effects, and product design review.

Failure analysis reports provide a clear picture of the root cause, and include recommendations to avoid future failures - from component design, through material selection and processing. Our experts are there to get you the right answers, on time.

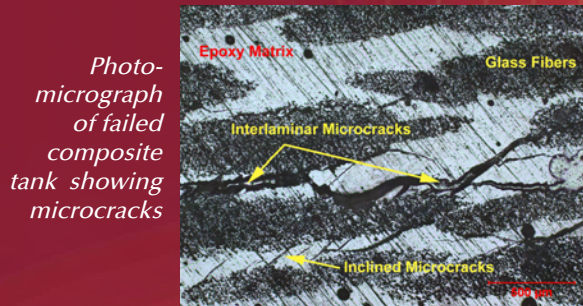


Photo-micrograph of failed composite tank showing microcracks

Not just data, *knowledge*

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Coming - Summer 2012

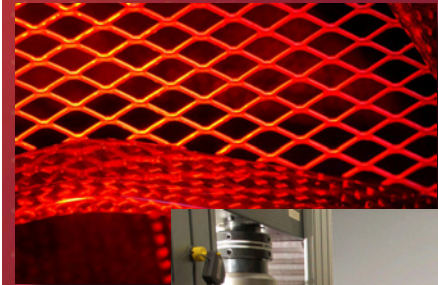
IMR Test Labs - Suzhou

Jiangpu Road 75, Shengpu Town
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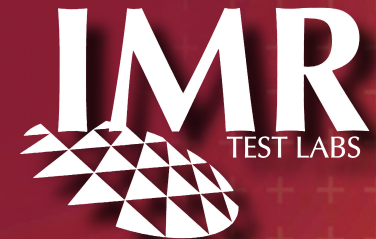
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Analytical Services for Fiber-Reinforced Composite Materials



Not just data, *knowledge*



We carry Nadcap, A2LA, Pratt & Whitney and Sikorsky Approvals for Composites Testing.

Lamina/Laminate Test Methods

ASTM C297/297M - Sandwich or Core Flatwise Tensile Strength

ASTM C393/393M - Flexural Properties of Sandwich Constructions

ASTM D695 - Compressive Properties of Plastics

ASTM D790 - Flexural Strength, Flexural Modulus, Flexural Stress-Strain Response

ASTM D953 - Static Pin Bearing Strength

ASTM D1781 - Climbing Drum Peel Strength of Adhesives

ASTM D2344/2344M - Short Beam Strength

ASTM D3039/3039M - Tensile Properties of Polymer Composites

ASTM D3410/3410M - Compressive Properties with Unsupported Gage Section by Shear Loading

ASTM D3518/3518M - In Plane Shear Response

ASTM D4255/4255M - Shear Properties of Polymer Materials

ASTM D5379/5379M - Shear Properties of Composite Materials by the V-Notched Beam Method

ASTM D5229 - Conditioning of Polymer Composites

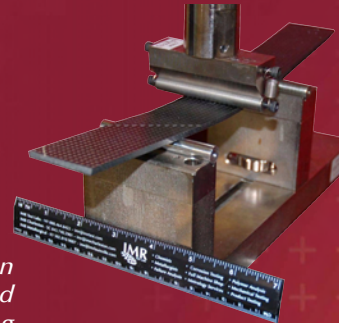
ASTM D5766/5766M - Open Hole Tensile Testing

ASTM D6484/6484M - Open Hole Compression

ASTM D6641/6641M - Compressive Properties of Polymer Composite Materials Using a Combined Loading Compression (CLC) Test Fixture

ASTM D6742 - Filled Hole Tension & Compression Testing of Polymer Matrix Composite Laminates

ASTM D7078/7078M - Shear Properties of Composite Materials by V-Notched Rail Shear



Specimen undergoing Bend Testing

Materials Engineer John DeFranks loading a composite sample into the TMA (thermo-mechanical analyzer) for glass-transition analysis by three part bending



Physical Property Methods

ASTM D792 - Test Method for Density of Plastics Using Immersion Methods.

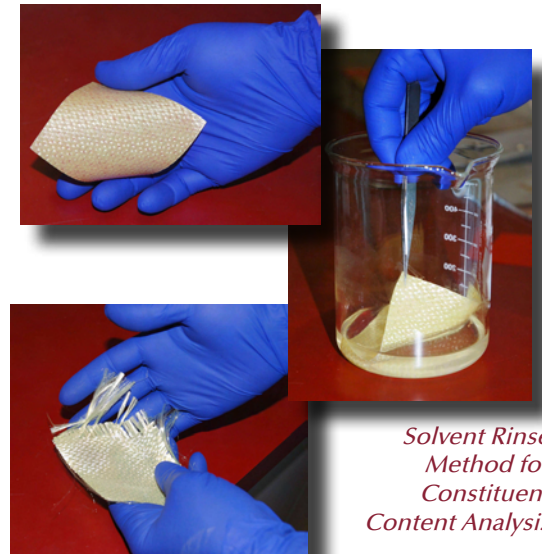
ASTM D3171/3171M - Standard Test Methods for Constituent Content of Composite Materials

ASTM D3529/3529M - Standard Test Method for Matrix Solids Content and Matrix Content of Composite Prepreg

ASTM D3530/3530M - Standard Test Method for Volatiles Content of Composite Material Prepreg

ASTM D2734 - Standard Test Methods for Void Content of Reinforced Plastics

ASTM D3418 - Standard Test Method for Transition Temperatures and Enthalpies of Fusion and Crystallization of Polymers by Differential Scanning Calorimetry



Solvent Rinse Method for Constituent Content Analysis