

CMI

A Subsidiary of the MMR Group, Inc.

Materials Testing · Failure Analysis · Materials Engineering

CONNECTICUT
METALLURGICAL

Problem Solving for the Materials Industry

Connecticut Metallurgical, Inc. is an employee owned (ESOP) Materials Testing, Materials Engineering and Consulting firm. We have been providing professional services since 1981, and are part of the MMR Group, Inc. established in 1961.

The Group includes three divisions, each with its own staff and laboratory to collectively serve diverse markets and locations. We have extensive experience with metals and non-metals, such as plastics, ceramics, and composites.

We provide services to diverse industries including aerospace, transportation, commercial manufacturing, chemical, military, nuclear, and power generation. .

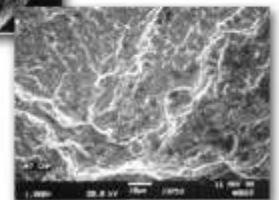
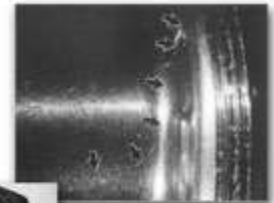
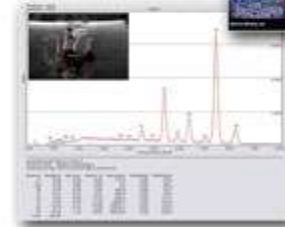
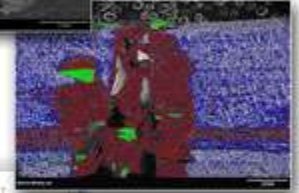
We also provide forensic engineering, materials engineering, consulting, and expert witness services to the legal and insurance professions as well.

Our Experts versed in many aspects of materials science and commercial manufacturing processes. They are equally versed in the processes and procedures of providing legal depositions and professional courtroom testimony.

Failure Analysis, Materials Engineering & Expert Witness Services

We combine our materials testing and materials engineering knowledge to determine how and why a product, device, component or structure has failed. Whether related to field service failures or in-house production problems, we use our understanding of materials testing along with our engineering expertise to identify failure modes and mechanisms, to perform root cause failure analysis, and to provide corrective action recommendations.

Our experts and engineers utilize their knowledge of metallurgy, materials science, and mechanical engineering to perform finite element analysis when applicable. Finite Element Analysis (FEA) can be used to develop computer modeling that will help us to determine failure related phenomenon such as stress and strain, deflection, thermal expansion, reaction to temperature, elastic and plastic deformation and other related mechanical forces.



Corrosion Testing



CMI performs salt spray/ salt fog testing per ASTM B117. Salt spray testing provides a controlled corrosive environment that is used to produce relative corrosion resistance information for metallic specimens, both coated and uncoated, when exposed to a given set of conditions within a controlled test chamber.



Samples are placed in a sealed salt fog chamber or cabinet, which mixes hot air and a salt solution to create a corrosive environment that is intended to simulate weathering and potential corrosion that metals and other components would experience in nature over long periods of time.

Mechanical Properties



CMI has built its reputation for Creep & Stress rupture testing in the aerospace, power generation, and other critical industries by providing both conformity assessment testing and research & development support.



With over 75 test frames and state-of-the-art data acquisition and control apparatus, we offer unparalleled temperature accuracy, flexibility, and in-process data access.

Metallography



- Specimen Sectioning, Mounting & Preparation
- Grain Size Evaluation
- Micro-cleanliness/Inclusion Ratings
- Non-Conventional Machining Evaluations (EDM, LBMR, ECM)
- Abusive Machining Evaluations
- Alloy Depletion
- Alpha Case
- Case Depth and Decarburization Evaluations
- Dimensional Assessment
- Plating Evaluations
- Weld & Braze Evaluation & Qualifications
- Fastener Testing
- Microstructural Replication
- Rockwell Hardness & Microhardness- Vickers & Knoop
- Portable Surface Profilometer
- Scanning Electron Microscopy

Composition Analysis

- Semi-Quantitative and Full Quantitative Analysis
- ICP (Inductively Coupled Plasma/Atomic Emission Spectrometer)
- Carbon & Sulfur Analysis (by combustion)
- Gas Analysis (Oxygen & Nitrogen)
- Wet Chemistry (Special methods, Deposit loading)
- FTIR (Fourier Transform Infrared Spectrometer)



Materials Analyzed



- Analyzed
- Carbon & Alloy Steels
- Nickel Base Super Alloys
- Cobalt Alloys
- Stainless Steels
- Tool Steels
- Aluminum
- Titanium
- Copper
- Polymers

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