



Litigation Support and Expert Witness Services

Overview

H&M Analytical Services, Inc. can provide a comprehensive range of engineering and forensic support services in a number of areas. We specialize in materials identification and failure analysis that can assist in patent filings, patent and intellectual property disputes, failure analysis, and product liability cases. With over 25 years of professional experience, our Ph.D. level staff can provide full analytical support and expert witness services.

Services Provided

Claims and litigation support	Product liability
Patent filing support	Chemical identification
Patent infringement	Failure analysis
Intellectual property	Materials analysis
Trade secret disputes	Metallurgical consulting
Testing laboratory	Trial testimony
Forensics	Trial preparation

Our Facilities

With our analytical facilities, we are able to perform a complete in-house materials structural analysis. Among the equipment available to H&M are:

- X-ray diffraction equipment for identifying unknown materials;
- Scanning Electron Microscopes (SEM) for examining fracture surfaces and identifying failure initiation sites and location of internal defects;
- High Resolution Transmission Electron Microscope (TEM) for examining the fine structure of materials for possible defects;

- Mechanical property testing equipment such as Instron and MTS Tensile Testers, fatigue testers, creep machines, and hardness indenters;
- Optical microscopy to examine fracture surfaces and defects at low magnification to identify fracture initiation sites and characterize defects; and
- Variety of chemical analysis tools such as EDAX, AES, RBS, AA, etc. These tools can be used to analyze the chemistry of suspect materials and localized regions within the materials.
- Identification of unknown materials such as corrosion products or metallic inclusions;
- Quantification of mixtures of two or more phases to see if a product infringes a patent;
- Locating internal defects in materials such as inclusions, cracks, or porosity, which lead to premature fracture;
- Analysis of residual stress levels that cause fatigue failures;
- Analysis of a failed component to see if fracture was due to a mechanical overload or to a material defect; and
- Examination of manufacturing processes to locate sources of material defects.

Some of the more common tests that we perform for litigation support are:

The table below lists examples of the types of cases that H&M personnel have worked on. This

list is not intended to be exhaustive, but rather represents a cross-section of the experiences of our

company. Please contact us if you wish details of the litigation support that we can provide.

Examples of Litigation Support and Failure Analysis by H&M Personnel

Patent Support, Patent Infringement, and Intellectual Property Ownership

- Patent filing (granted) for high efficiency aluminum conductors
- Ownership dispute on X-ray method for explosives detection
- Patent infringement by pharmaceutical manufacturer
- International trade dispute based upon NAFTA treaty

Product Liability and Failure Analysis

- Failure analysis of fatigue fracture in skyscraper scaffold resulting in two fatalities
- Analysis of dockside mooring/barge failure resulting in multiple limb loss
- Determination of origin of explosion in powder production facility that led to two fatalities
- Analysis of transmission failure in a school bus crash in a criminal investigation
- Examination of manufacturing process in night vision devices to ascertain source of product defects
- Developed improved inventory marking method for reduced wastage in steel production facility

Our Pledge

H & M Analytical Services has over 30 years experience in X-ray diffraction. With our state-of-the-art equipment, we will strive to apply our experience and knowledge to solve your most challenging problems. In most cases, we will provide turnaround of 24 hours on phase identification analyses at no additional cost. Sample preparation services are also available. Most samples can be run on a flat fee basis. For details, please contact us.

Other Services We Provide

We provide a wide range of X-ray diffraction services, including:

- residual stress analysis
- precision lattice parameter
- texture analysis
- phase identification
- Rietveld analysis
- particle size determination
- high temperature XRD
- analysis of modulated films
- misfit strains
- fiber analysis
- crystal orientation
- grazing incidence angle
- retained austenite analysis



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