

AEGI

Applications Engineering Group, Inc.

Quarterly Newsletter
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Unbiased Scientific Investigations

FORENSICS: AN INDUSTRY EVOLVING...

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Answering the Call for Scientific Testing

By Ben Messinese

As a Staff Materials Scientist for Applications Engineering Group, Inc. (AEGL), every day I come to work tasked with the responsibility of solving a wide range of forensic inquiries. To do so, I can rely solely on my experience and education – right? Wrong.

Over the past decade, the validity and admissibility of an expert's testimony is being increasingly challenged, requiring the expert to defend the methodology used in formulating his or her conclusions (1993 U.S. Supreme Court case, Daubert v. Merrell Dow Pharmaceuticals, Inc.).

As a result, testing is increasingly necessary, not only for experts aiming to guarantee the quality, correctness, and reproducibility of their opinions, but for all industry professionals who may become involved in a forensic investigation.

There is no doubt that the industry is calling for scientific testing. In response, AEGL is now offering "Scientific Testing and The Insurance Industry", a

AEGL'S Materials Lab & Remote Testing Capabilities

Technologies once reserved for investigations with large damages /exposures have become much more affordable and available to smaller civil suits which in turn are also pushing the industry towards the use of more testing. This trend, coupled with more advanced computer technologies, has allowed AEGL to now offer unprecedented and unrivaled remote access to our entire inventory of computer operated analytical equipment and services. Clients and colleagues can now participate remotely, in live, as well as interactive, materials tests, investigations, and analyses via any of the following computer driven services that our materials lab has to offer.

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comprehensive accredited course which covers the subject of testing from conception to completion. Specific topics include:

- The Daubert Standard
- The scientific method/methodology of testing
- Important legal considerations in testing
- Detailed case studies and testing examples

Subrogation professionals, attorneys, and experts alike all share a common interest in the answers provided by a particular investigation. Since testing has emerged as a necessity within many inquiries, it behooves all those involved to be thoroughly knowledgeable on the subject of testing.

Scanning Electron Microscopy (SEM): SEM is capable of achieving a magnification power of 300,000X while providing a greater depth of field and giving experts an almost 3-Dimensional view of the various surface features present within a sample. SEM can now be broadcast online and the following analyses can be performed remotely:

- Alloy Identification
- Chemical / Mapping Analysis (EDS)
- Fractography
- Microstructural Analysis

AEGI'S Materials Lab & Remote Testing Capabilities (continued)

Chemical/ Elemental Composition Analysis: This type of analysis is most often used for determining the chemical composition of various plastics, polymers, organics, inorganics, gases, and liquids. These techniques provide the investigator with insight into the chemicals and compounds present in a particular material and subsequently elucidate how those materials may have contributed to a particular failure mode. The following equipment is used to this end:

- Energy Dispersive X-Ray Spectroscopy (EDS)
- Fourier Transform Infrared Spectroscopy (FTIR)



Materials Lab

Nondestructive Testing Services (NDTS): Our materials laboratory is also equipped with a variety of tools and equipment utilized for nondestructive analysis and testing. The following capabilities are available in house, remotely, or in the field:

- Radiography
- Stereo Microscopy
- FLIR Imaging/Thermography

The Big Picture: Why It Matters

At AEGI we have truly made it our mission to stay in stride with the evolution of the industry. Our facilities as well as our technical course offerings are designed and continuously upgraded to provide the best possible service for our clients.

We believe that an up to date knowledge of new technologies, achieved through continuing education on all the changes within the industry, is a critical component for the successful preparation and implementation of our investigations.

FAQ's

Q. When should testing be done?

A. All analyses should be based on sound engineering/scientific principles and, where appropriate, scientific data. For unique cases where specific data may not be available, testing should be considered.

Q. Who should be performing the tests?

A. Only those with the proper experience and education should perform the tests. The testing should be well planned with input from the various technical specialists, as necessary, to develop the test protocol.

DID YOU KNOW...

*The word engineer comes from
a Latin word meaning
'cleverness'*

In Closing: A Brief Background of AEGI

AEGI was established in 1994 in Jacksonville, Florida. Since then, we have analyzed and reported scientific conclusions on thousands of cases. Our experts have provided expert testimony at over one hundred depositions and court trials. We have investigated accidents and failures for national insurance companies, independent adjusters, state and federal agencies, attorneys, and private clients.

In every one of our technical services, we hold to ideals of excellence, professionalism, and engineering as well as scientific integrity. We are dedicated to providing our clients with the best and most up to date services available to the industry today.

Please contact us to be added to our mailing list and with any feedback. Download any of our newsletters from our library at: www.aegiforensics.com



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Meet the Man Behind the Science... Benjamin Messinese

Education:

B.S. Biological Sciences - Chemistry, Florida State University, 2011

Core Focus:

Forensic Engineering: Causation and contributing factor determination in accident and failure issues. Specific projects have included material evaluation for composition, corrosion and failure mode. Knowledgeable in chemistry, mechanical properties, corrosion, and material failures.

Job Description:

Laboratory Manager: Specialized in the operation and implementation of analytical equipment and techniques using Scanning Electron Microscopy (SEM), Energy Dispersive X-Ray spectroscopy (EDS), Fourier Transform Infrared Spectroscopy (FTIR), Gas Chromatography (GC), Radiography (X-Ray), metallurgical materials sample preparation and custom experimental testing.

Specialized Research:

2009 – 2011, Dr. Albert E. Stiegman, Research Group. Synthesis of monomers and polymers for the creation of low index refractive lenses.

We're on the Web!

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