Analytical Answers

The information you need … when you need it.®

OUR SERVICES

The core strength of AAI is our expert scientists who bring their knowledge and experience together to solve problems in a broad range of industries and scientific disciplines. We have a long history of working closely with our clients to give them ***the Information they need…when they need it***. Challenging problems are our specialty, and we want to help you solve them.

In addition to our experienced staff, we have some of the best instrumentation available to provide high quality results. This allows our scientists to make the most out of the available information and get to the root of the problem.

Here are some of the services we provide and instrumentation we use in our work:

Imaging and Inspection – High magnification and high resolution optical and electron and X-Ray imaging to examine defects, topography, microstructure and nanostructure.

- Optical Microscopy (OM)
- Polarized Light Microscopy (PLM)
- Scanning Electron Microscopy (SEM)
- Ultra Field Emission Scanning Electron Microscopy (UFESEM)
- Real Time X-Ray Microscopy (XM)

Sample Preparation – Mechanical and ion beam cross-sectioning and polishing to produce high quality samples for subsequent imaging and analysis.

- Cross Sectioning
- Metallurgical polishing
- Focused Ion Beam (FIB)
- Large Area Ion Beam Milling (LAM)
- Ultramicrotomy
- Cryomilling

Material Identification – Elemental and molecular identification of inorganic and organic materials. Identify unknowns, contamination, and verify materials of construction.

- Energy Dispersive X-Ray Spectroscopy)/3.*
- Wavelength Dispersive X-Ray Spectroscopy (WDS)
- EDS/WDS mapping
- Micro-Fourier Transform Infrared Spectroscopy (FTIR)
- Imaging FTIR (IFTIR)
- Gas Chromatography (GC)
- Gas Chromatography/ Fourier Transform Infrared (GC/FTIR)

Material Characterization – Identification and characterization of materials, their components and behavior.

- Thermo Gravimetric Analysis (TGA)
- Thermo Gravimetric Analysis/ Fourier Transform Infrared (TGA/FTIR)
- Differential Scanning Calorimetry (DSC)
- Rockwell and Vickers Hardness
- Durometer Hardness (ASTM D2240)
- Radiopacity (ASTM F640)
- Grain Size (ASTM E112/E1382)
- Surface Roughness Measurement
- Cross-Sectional Inspection
- Particle Size Distribution and Compositional Analysis

Surface Analysis – Examine thin films, surface composition, and surface chemistry to understand delamination failures, passivation, corrosion issues, and contamination.

- Field Emission Scanning Auger Microanalysis (FESAM)
- Electron Spectroscopy for Chemical Analysis (ESCA or XPS)
- Depth Profiling
- Elemental/Chemical State Mapping

Additional Services: Process Evaluation and Development Consulting ● Competitive Product Analysis ● PCB Cross Section Inspection ● IC and Device Decapsulation and Failure Analysis ● Integrated Circuit/ Device Modification (DMOD)● MIL-STD Compliance Testing ● Patent and Legal Case Analytical Consulting and Testimony Support

These are some of our most utilized instruments and techniques, but this is only part of the picture! Visit our Web site www.analyticalanswersinc.com to view more detailed information about Analytical Answers, analytical techniques, applications and capabilities. Also visit our Webinars page, where you'll find an archive of practical applications webinars.

Of course, if you still have questions about how we can help with a specific problem or analytical need, give us a call at **781-938-0300** to speak with one of our scientists.