

## Materials Characterization Equipment

(in alphabetical order – See last page for Applications Categories)



### Cycling Heat and Humidity Environmental Chamber:

Determine product reliability through exposure to a wide range of cold and hot conditions with controllable humidity to simulate a range of environmental stress factors.



### Differential Scanning Calorimeter (DSC) and Thermogravimetric Analysis (TGA):

A sensitive measurement system that provides information about the melting temperature, glass transition temperature, heat capacity, and other intrinsic thermodynamic properties.



### **Fourier Transform Infrared (FT-IR) Spectrometer:**

Solids, liquids, and gases can be examined at high speed to determine the interaction with infrared light.



### **Furnaces for High-Temperature Processing:**

Furnaces are available for material processing under controllable atmospheric conditions.



### **Gas Chromatography/Mass Spectrometry (GC/MS):**

This instrument provides detailed chemical analyses of a variety of samples.

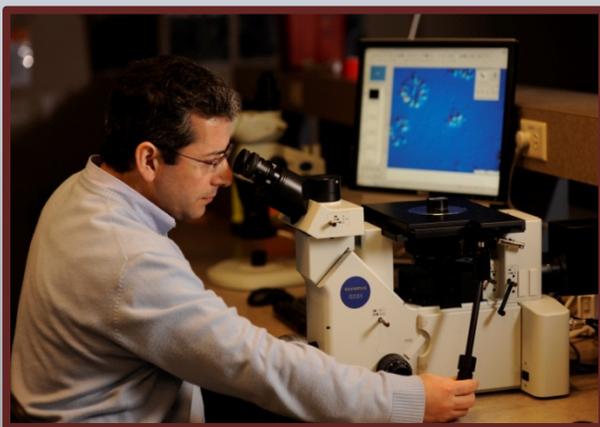


### **Hardness Testing System:**

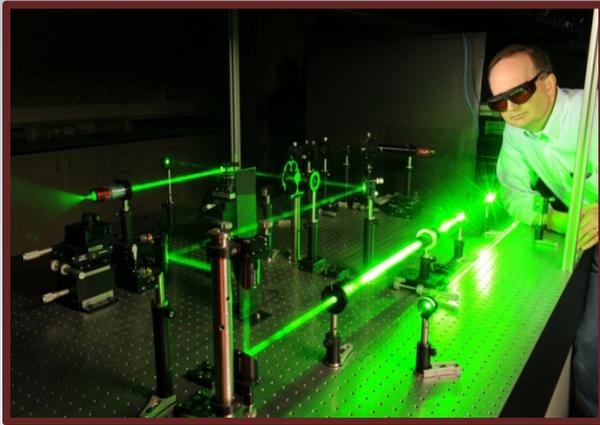
Fully automatic system to provide surface hardness measurements on a variety of samples.



**Instron Universal Testing Machine:** This instrument measures mechanical properties such as strength and yield stress.



**Metallurgical Optical Microscope:** High resolution, camera-equipped optical microscope system that includes additional interference contrast-generating optics for hard-to-resolve polished surfaces.



### **Raman Spectrometer:**

Using laser light, this instrument is used to identify the composition of a variety of materials.



### **Salt Fog Corrosion Chamber:**

Provides valuable product lifetime data by simulating severe environmental conditions that accelerate the aging process.



## Scanning Electron Microscope (SEM) and Energy Dispersive Spectroscopy (EDS):

The SEM provides detailed images beyond the possibilities of optical resolution. The EDS couples these images with information about the elemental composition of samples.



## UV-Vis Spectrophotometer:

Provides information about the ability of a solid, liquid, or gas to absorb or transmit a wide range of electromagnetic wavelengths.



**X-Ray Diffraction (XRD):**  
The x-ray diffraction machine provides information about the alignment and spacing of atoms in various materials.

Customized Service Packages available to suit your company needs. Packages include sample preparation, testing, and technical support.

For further information, please contact  
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## Materials Characterization Equipment Applications Categories

- **Chemical bonding and composition**
  - Fourier Transform Infrared Spectrometer (FT-IR)
  - Gas Chromatography/Mass Spectrometry (GC-MS)
  - Raman Spectrometer
  - UV-VIS Spectrophotometer
  - X-ray Diffraction (XRD)
- **Elemental information**
  - Scanning Electron Microscope (SEM) and Energy Dispersive Spectroscopy (EDS)
- **Imaging**
  - Metallurgical Optical microscopes
  - Scanning Electron Microscope (SEM)
- **Physical properties**
  - Differential Scanning Calorimeter (DSC) and Thermogravimetric Analysis (TGA)
  - UV-VIS Spectrophotometer
  - Hardness Testing System
  - Instron Universal Testing Machine
- **Reliability**
  - Cycling Heat and Humidity Environmental Chamber
  - Salt Fog Corrosion Chamber
- **Processing**
  - Furnaces for High-temperature Processing