



MATERIALS CHARACTERIZATION CAPABILITIES

Testing Capabilities

Rheology Testing

Determines minimum viscosity, pot life, and viscosity change during resin curing.

Differential Scanning Calorimetry (DSC)

Determines glass transition of cured composites, optimizes time-temperature cure cycles, and determines the kinetics of reaction.

Thermogravimetric Analysis (TGA)

Determines volatile, resin, and fiber content of composites and preregs.

Light Flash Thermal Diffusivity

Measures the consolidation of fiber and resin of composites. Higher consolidation yields higher thermal diffusivity.

Dynamic Mechanical Analysis (DMA)

Determines the glass transition temperature for polymers and composites as well as changes in modulus as a function of time and temperature.

Fourier Transform Infrared Spectroscopy (FTIR)

Analyzes the chemical functional groups present in preregs or composites. CCM's system can measure in the near and mid IR wavelength regions. Samples can be transmission and reflection modes.

Hot Stage - Video Microscopy

Allows observation of transient changes in samples such as: bubble formation, color change (from decomposition), and motion due to stress relaxation as a function of time and temperature.

DiaStron Single Fiber Tension Tester

Automates the testing of single filaments of high-performance fibers for determination of tensile strength using modulus and strain at failure.

Contact Angle Testing

Measures the angle at which liquid droplets touch surfaces and how the droplets spread out on these surfaces.

Density Measurements

Measures the compactness of samples' matter.

Dynamic Vapor Sorption (DVS)

Measures the mass of samples as they change in response to changes in temperature or humidity.



Equipment

- Data Physics Dynamic Contact Angle (DCA)
- DiaStron Single Fiber Tension Tester
- Linkam Hotstage-Video Microscopy
- METTLER Dynamic Mechanical Analyzer (DMA)
- METTLER Flash DSC
- METTLER TGA/DSC
- METTLER XP2U Balance Sensitivity 0.1 µg
- Micromeritics Gas Pycnometer
- NETZSCH Advanced Kinetics Software
- NETZSCH Differential Scanning Calorimeter (DSC)
- NETZSCH Eplexor (DMA)
- NETZSCH High Pressure DSC (HPDSC)
- NETZSCH Kinexus Rheometer
- NETZSCH Light Flash Thermal Diffusivity
- NETZSCH Thermogravimetric Analyzer (TGA)
- NETZSCH Thermomechanical Analyzer (TMA)
- NETZSCH UV-DSC
- Perkin Elmer – FTIR Spectrometer with Microscope
- SMS Dynamic Vapor Sorption (DVS)
- TA Instruments DHR Rheometer
- X-rite Spectrometer

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