THE M&P LAB

Thermal Analysis Capabilities

- Metals
- Metal alloys
- Solids
- Coatings
- Films
- Fibers
- Composites
- Plastics
- Adhesives
- Epoxies

Method	Sample Size	Temperature Range (°C)	Common Applications
DSC Differential Scanning Calorimetry	5 – 50 mg	(-150) to 700	• Melting/freezing/crystallization • Glass transition temperature • Percent crystallinity • Heat of fusion • Specific Heat Capacity • Modulated DSC
TMA Thermomechanical Analysis Measures dimensional changes under controlled conditions of temperature, atmosphere, time, force	Maximum dimensions: Cylinder 10 mm (d) x 26 mm (l) Film/Fiber 26 mm (l) x 4.7 mm (w) X 1.0 mm (t)	(-150) to 1000	• Melting/freezing point • Softening/melting behavior • Glass transition temperature • Coefficient of Thermal Expansion • Deflection/distortion temperatures • Stress/strain/relaxation/creep • Penetration • Compression/tension • 3 point bend/flexure • Shrinkage • Multi-layer film analysis • Time to delamination

HEATING & COOLING CURVES

Simultaneous DSC-TGA & TGA-DTA

DTA Differential Thermal Analysis	Maximum: 200 mg Sample pans: 40 µl Or 110 µl	200 to 1500	• Glass transition temperature • Polymorphic phase transitions • Solidus/liquidus temperatures • Braze/solder melting/ crystallization properties • Degradation/decomposition profiles • Oxidation behavior • Characterizing cure reactions • Enthalpy & instantaneous weight loss measurements • Melting/freezing/ crystallization • Filler/residual content • Moisture content • Hydrate characterization • Volatiles analysis • Quantitative compositional analysis • Effect of additives • Kinetics/activation energy
TGA Thermogravimetric Analysis		RT to 1500	
DSC Differential Scanning Calorimetry		RT to 1500	

QUALITY SYSTEMS

Accredited Nadcap Materials Testing Laboratory
(Aerospace & Defense)

ISO 17025

10 CFR 50 APPENDIX B
(Nuclear)

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