PREMIER™ ESR

Encapsulated Sample Rheometer

The Premier™ ESR is designed for the composite, thermoset, and thermoplastic industries. The ESR can characterize resins and composite materials in a single test, measuring dynamic mechanical properties before, during, and after cure.

- The ESR is an instrument for Quality Control and Research & Development. Data provided includes: viscosity, gel time, cure time, reaction rate, final modulus and glass transition temperature. The ESR's advanced temperature control system allows measurements under isothermal and nonisothermal conditions.

ALPHATECHNOLOGIES

Premier™ ESR

Encapsulated Sample Rheometer

Features

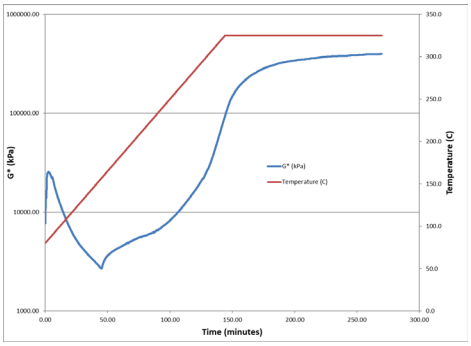
- Meets ASTM D7750
- Measure prepreg viscosity, gel point, cure, and final modulus in a single test without removing resin from fiber
- Optimize curing conditions for consistent product quality
- Improve incoming raw material quality
- Check quality of shelf-aged materials
- Test under isothermal conditions, temperature ramp & hold, or mimic the cure in an oven or autoclave
- Rapidly evaluate materials from new sources
- Reduce waste, improve efficiency, and reduce cost
- Includes pressure transducer for pressure measurement
- Operates using Enterprise software, a flexible LIMS system based on an open SQL database platform

Performance

Measure the complex shear modulus during cure using:

- True isothermal conditions
- Ramp and hold temperature program (shown here)
- Replicate the temperature during an autoclave cure

Determine the glass transition temperature (Tg) immediately after cure by measuring the viscoelastic properties during a temperature ramp.



Options

- CSS 400™ from AvPro Inc.
- Wide Assortment of films for different applications

Specifications

HEATING RATE:	0.36 °F/min. (0.20 °C/min.) to 90 °F/min. (50 °C/min.)
MAX COOLING RATE:	54 °F/min. (30 °C/min.)
MEASUREMENTS:	Torque (S′, S″, S*), Tan(Delta), Dynamic Viscosity (η′, η″, η*), Shear Modulus (G′, G″, G*), Temperature (°C or °F), Strain (degrees, %, fractional strain), Frequency (cpm, Hz, radians/sec), Pressure (kPa, psi)
ELECTRICAL:	100/110/120/130 VAC ±10%, 60 ±3 Hz, 20 amp single phase 200/220/240/260 VAC ±10%, 50 ±3 Hz, 10 amp single phase
AIR PRESSURE:	80 psi (5.6 kg/cm 2551 kPa) minimum
DIMENSIONS:	W: 22 in (56 cm), H: 48 in (122 cm), D: 25 in (64 cm)
WEIGHT:	Net 346 lb (157 kg), gross 616 lb (280 kg)
SAMPLE CAVITY:	3.5 ccm
SAMPLE DIMENSIONS:	41 mm in Diameter, 2.6 mm Nominal Thickness
TEMPERATURE RANGE:	Ambient to 662°F (350°C)

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