



## Epoxy System LR690

### Laminating/Prepreg

#### DESCRIPTION

Anhydride-cured, low-viscosity standard matrix system with extremely long pot life. The reactivity of the system is adjustable by variation of the accelerater content. The system is easy to process, has good fibre impregnation properties and exhibits excellent mechanical, dynamic and thermal properties. It has an excellent chemical resistance especially to acids at temperatures up to  $100^{\circ}\text{C}$ .

#### Processing

- \* Filament Winding
- \* Pultrusion
- \* Pressure Moulding
- \* PrePreg

#### PROPERTIES

- \* Good mechanical and Thermal properties.
- \* Suitable viscosity for impregnation
- \* Long Working time
- \* Fast Cure on high Tempreture

#### Application Areas/Suggested Uses

- \* Industrial composites
- \* Structural composites
- \* Electrical Part
- \* Aircraft repairs



### Physical Properties:

Resin		R100	H100	AV0
Hardeners				
Appearance		Transparent Liquid	yellow	slightly yellow
Viscosity (mPa.s)	at 25°C	1000-1200	50-100	50
Density (g/cm <sup>3</sup> )	at 25°C	1,2	1,05	1,05
Mix ration(phr)	by weight	100	88	0,5-2

### Mixed Properties:

Pot life (hr)	at 25°C	>24
Pot life (hr)	at 50°C on 50g	4-5
Viscosity (mPa.s)	at 25°C	700-1000
	at 40°C	300-400
	at 60°C	<100
Specific gravity	at 25°C	1,15
Gelation (hr)	at 80°C	2-4
	at 90°C	1-3
	at 100°C	<1
Post Cure (hr)		4-8 hr at 100 °C or 2-6 hr at 120 °C or 2-8 hr at 150 °C

### PROCESSING CONDITIONS

To simplify the mixing process the resin can be preheated to about 30 °C to 50 °C before adding the cold hardener. Hardener and accelerator can be premixed, thus allowing the use of two component mixing/metering equipment. The mix of hardener and accelerator has a shelf life of several days. The processing of the system at elevated temperatures of 30 °C to 40 °C shows the best results. The gelation temperature should not be higher than absolutely necessary. A high gelation temperature induces high shrinkage and generates internal stresses.



## MECHANICAL AND THERMAL PROPERTIES at 25°C

Flexural strength	ISO ۱۷۸	MPa	۱۲۵
Flexural modulus	ISO ۱۷۸	MPa	۳۰۰۰
Tensile strength	ISO ۵۲۷	MPa	۷۵
Tensile modulus	ISO ۵۲۷	MPa	۳۵۰۰
Elongation at break	ISO ۵۲۷	%	۳
Hardness	ISO ۸۶۸	Shore D <sup>۱۰</sup>	۸۸
Glass transition temperature	ISO ۱۱۳۵۹	°C	۱۳۰
Deflection temperature	ISO ۷۵	°C	۱۱۰

(1): schedule for the samples tested was gelation for ۸ hours at ۸۰ °C and post-cure for ۸ hours at ۱۴۰ °C

## HANDLING PRECAUTIONS

Normal health and safety precautions should be observed when handling these products:

\*ensure good ventilation

\*wear gloves, safety glasses and waterproof clothes.

## STORAGE CONDITIONS

\*Epoxy System LR1۹۰ is slightly hygroscopic and should be stored at room temperature in conditions such that moisture is excluded, in the original containers kept tightly closed. Under these conditions the shelf life should be a minimum of one years from date of certification.

Keep in @22-30°C & humidity<50%