

EPLAM 160 Resin

EPLAM 160 Hardener

Epoxy tooling resin for hand lay-up

Product description :

EPLAM 160 is a medium- to high-temperature-resistant epoxy tooling resin for hand lay-up, comprising a specially formulated epoxy resin and hardener. Its moderate viscosity, long working time and good fiber wet-out support processing. Initial cure can take place at room temperature; subsequent post-cure develops good heat resistance and mechanical properties. It is suitable for fiber-reinforced composite tools or components requiring high heat resistance and mechanical strength.

Key features :

- Moderate working time and viscosity; resists sagging after hand lay-up.
- Rapid gelation and short demolding time after cure; suitable for moderate to low ambient temperatures.
- Room-temperature or low-temperature heat cure.
- Good heat resistance, mechanical properties and toughness.
- Good wet-out of glass and carbon fibers; suitable for thick laminates.

Physical properties :

Property	Test method	EPLAM 160 Resin	EPLAM 160 Hardener
Mix ratio by weight		100	28
Appearance	Visual inspection	Liquid	Liquid
Color	Visual inspection	Colorless, transparent	Brown
Brookfield viscosity at 25°C (mPa.s)	BROOKFIELD LVT	2300-2500	200-400
Mixed viscosity at 25°C (mPa.s)	BROOKFIELD LVT	800-1500	
Density before mixing at 25°C (g/cm3)	ISO 1675 : 1985	1.10-1.18	1.00-1.06
Cured density at 25°C (g/cm3)	ISO 2781 :1996	1.08 -1.16	
Working time (150 g) at 25°C (minutes)	Gel timer	140-160	

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Mechanical properties :

Test item	Test method	EPLAM 160
Hardness	ISO 868 :2003	Shore D 80
Flexural modulus	ISO 178 :2001	2.5-3.5 GPa
Flexural strength	ISO 178 :2001	120-135 MPa
Tensile modulus	ISO 527 :1993	2.5-3.5 GPa
Tensile strength	ISO 527 :1993	70-85 MPa

Test item	Test method	EPLAM 160
Elongation at break	ISO 527 :1993	> 4%
Compressive strength	ISO 604: 2002	>80 MPa
Glass transition temperature Tg	ISO 11357:2002 (DSC)	>150°C

Cure conditions: the data above are based on testing after 25°C*6H + 60°C*2H + 80°C*2H + 120°C*4H + 160°C*6H.

Processing instructions :

Weigh resin and hardener in the correct ratio, mix thoroughly and apply by hand lay-up. Use within the first 2/3 of the working time to avoid excessive viscosity or increased risk. Note: working time varies with mixed quantity, material temperature and ambient temperature; testing before use is essential. Weigh resin and hardener in the correct ratio, mix thoroughly before use, and use within the first 2/3 of the working time to avoid excessive resin viscosity or increased risk. For laminating: select a suitable hardener for the size and complexity of the part, mix thoroughly with the resin and impregnate the reinforcement using an appropriate method. For surface gelcoats: mix resin and hardener, add filler to achieve the required viscosity and brush onto the prepared intermediate mold surface, after buffing the wax release agent. For filled casting backings: mix resin and hardener thoroughly in the correct ratio, add an appropriate filler (aluminum powder, sand or another filler), mix thoroughly and compact onto the laminate. After hand lay-up, cure for 24 hours at room temperature before demolding, or cure for 16 hours at room temperature followed by 6 hours at 60°C, then cool to room temperature at 20°C per hour before demolding. To minimise shrinkage and distortion and improve heat resistance, apply a suitable post-cure after demolding, using supports for complex structures. Heat gradually at no more than 20°C per hour, follow the schedule 60°C*2H + 80°C*2H + 120°C*4H + 160°C*6H, then cool to room temperature at 20°C per hour.

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Packaging :

EPLAM 160 Resin	EPLAM 160 Hardener
1 × 1,000 kg	1 × 1000 kg
1 × 220 kg	1 × 200 kg
1 × 20 kg	1 × 4 kg

Storage :

Store resin and hardener dry at 15°C-25°C to prevent crystallisation. Prolonged low-temperature storage may cause crystallisation; heat to 50°C-60°C until the material becomes a clear, transparent liquid. This heating process does not affect performance.

After using the hardener, blanket the container with nitrogen or dry air and close the lid tightly to prevent moisture-induced discoloration;

use any remaining material as soon as possible.

Safety precautions :

Avoid skin contact during handling and work in a well-ventilated area. Wear protective clothing, a mask and protective gloves as necessary. Do not eat, drink or smoke during handling. Afterwards, wash hands and skin thoroughly with plenty of water and soap. Refer to the material safety data sheet for further information.

Notes :

All data above were measured under specified conditions. As actual processing methods and other factors may affect performance, customers should conduct the necessary tests before use to confirm suitability for their application. We guarantee that our products meet our quality specifications.

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US customary-unit equivalents

US customary-unit equivalents are provided for convenience alongside the original SI test data. The original source values and test methods remain the controlling reference. Converted values are rounded.

Source value	US equivalent
25 °C	77 °F
150 g	0.3307 lb
2.5-3.5 GPa	362.6 to 507.6 ksi
120-135 MPa	17405 to 19580 psi
70-85 MPa	10153 to 12328 psi
>80 MPa	>11603 psi
150 °C	302 °F
60 °C	140 °F
80 °C	176 °F
120 °C	248 °F
160 °C	320 °F
60 °C	140 °F
20 °C	68 °F
1 × 1,000 kg	2.205 × 2205 lb
1 × 1000 kg	2.205 × 2205 lb
1 × 220 kg	2.205 × 485 lb
1 × 200 kg	2.205 × 440.9 lb
1 × 20 kg	2.205 × 44.1 lb
1 × 4 kg	2.205 × 8.818 lb
15 °C	59 °F
-25 °C	-13 °F
50 °C	122 °F
-60 °C	-76 °F