

EPLAM 210 Resin

EPLAM 210 Hardener

Epoxy tooling resin for hand lay-up

Product description :

EPLAM 210 is a room-temperature-curing epoxy tooling resin for hand lay-up, comprising a specially formulated epoxy resin and hardener. Following an initial room-temperature cure and subsequent post-cure, it provides excellent heat resistance and mechanical properties. It is suitable for fiber-reinforced laminated structures, surface layers and filled casting backings in tooling manufacture, and for bonding boards where high heat resistance is required.

Key features :

- Suitable application viscosity; resists sagging after hand lay-up.
- Long working time, easy processing and suitable for higher ambient temperatures.
- Room-temperature or low-temperature heat cure.
- Excellent mechanical properties and toughness.
- High heat resistance; Tg can reach 210°C after post-cure.

Physical properties :

Property	Test method	EPLAM 210 Resin	EPLAM 210 Hardener
Mix ratio by weight		100	30
Appearance	Visual inspection	Liquid	Liquid
Color	Visual inspection	Transparent amber	Transparent pale yellow
Brookfield viscosity at 25°C (mPa.s)	ASTM D 445	22,000-28,000	5-30
Mixed viscosity at 25°C (mPa.s)	ASTM D 445	1600-2300	
Density before mixing at 25°C (g/cm3)	ASTM D 4052	1.17-1.22	0.93-0.98
Cured density at 25°C (g/cm3)	ASTM D 4052	1.19	
Working time (130g) at 25°C	Gel timer	200 minutes	
500g mixed in an 800ml paper bowl at room temperature, 25°C Peak exotherm temperature (°C) Time to peak exotherm (minutes)	Temperature data logger	327°C	
	Temperature data logger	176 minutes	
Shelf life		24 months	

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Mechanical properties :

Test item	Test method	EPLAM 210
Hardness	ISO 868 : 2003	Shore D 88
Flexural modulus	ASTM D 790	2.5-3.5 GPa
Flexural strength	ASTM D 790	120-130 MPa
Tensile modulus	ASTM D 638	2.5-3.5 GPa
Tensile strength	ASTM D 638	55-70 MPa
Elongation at break	ASTM D 638	3.5% - 6%
Compressive strength	ASTM D 695	>100 MPa
Lap shear strength on aluminum	ISO 4587:1995	18-26MPa
Tg (after 36 hours post-cure at 120°C)	ASTM D 3418 (DSC)	208°C

Cure conditions: the data above are based on testing after 24 hours at room temperature and 60°C
4h+80°C2H+120°C 12h.

Processing instructions :

Weigh resin and hardener in the correct ratio, mix thoroughly and apply by hand lay-up. Use the mixture within the first 2/3 of its working time to avoid excessive viscosity or increased processing 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 it thoroughly with the resin, and impregnate the reinforcement using an appropriate method.

For surface gelcoat application :

Mix resin and hardener, add filler to achieve the required viscosity, and brush onto the prepared intermediate mold surface (first

buff the wax release agent).

For filled casting backings :

Mix resin and hardener thoroughly in the correct ratio, add the appropriate filler (aluminum powder, sand or another filler) for the application, 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

cure for 6 hours at 60°C, then cool to room temperature at 20°C per hour before demolding.

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To minimise mold 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; hold for 2 hours at 60°C, then hold for 2 hours after each further 20°C increase until reaching 200°C. Hold for 12 hours, then cool to room temperature at 20°C per hour.

Packaging :

EPLAM 210 Resin	EPLAM 210 Hardener
1 × 1000 kg	1 × 180 kg
1 × 220 kg	1 × 180 kg
1 × 20 kg	1 × 6.0 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 opening and using the hardener, blanket the container with dry air or nitrogen and close the lid tightly to prevent yellowing and moisture absorption;

use any remaining material as soon as possible.

Safety precautions :

Work in a well-ventilated area. Avoid skin contact and wear protective clothing, a mask

and protective gloves as necessary. Do not eat, drink or smoke during handling. After handling, 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. In view of the effects of actual processing methods and other factors,

customers should conduct the necessary performance 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
210 °C	410 °F
25 °C	77 °F
130 g	0.2866 lb
500 g	1.102 lb
25 °C	77 °F
327 °C	620.6 °F
2.5-3.5 GPa	362.6 to 507.6 ksi
120-130 MPa	17405 to 18855 psi
55-70 MPa	7977 to 10153 psi
>100 MPa	>14504 psi
18-26 MPa	2611 to 3771 psi
120 °C	248 °F
208 °C	406.4 °F
60 °C	140 °F
20 °C	68 °F
200 °C	392 °F
1 × 1000 kg	2.205 × 2205 lb
1 × 180 kg	2.205 × 396.8 lb
1 × 220 kg	2.205 × 485 lb
1 × 20 kg	2.205 × 44.1 lb
1 × 6.0 kg	2.205 × 13.2 lb
15 °C	59 °F
-25 °C	-13 °F
50 °C	122 °F
-60 °C	-76 °F