

EPIKOTE™ Resin L 20

EPIKURE™ Curing Agent 111

Application

The combination of EPIKOTE™ Resin L 20 laminating epoxy resin with rapid hardener EPIKURE™ Curing Agent 111 gives a low viscosity cold curing epoxy system suited to lay up moulding. The high reactivity of the resin system gives a short mould residence time especially in case of difficult laminates and sandwich lay-ups EPIKOTE™ Resin L 20 - EPIKURE™ Curing Agent 111 has good wetting and adhesion characteristics on glass, carbon, aramid and polyester fibres.

This system finds particular application e.g. in glider and boat building.

After a room temperature precure, a postcure at 50 - 60 °C may be used to improve the deflection temperature under load.

Product Physical Properties (at time of Manufacturing)*:			
Property	Unit	EPIKOTE™ Resin L 20	EPIKURE™ Curing Agent 111
Viscosity at 25 °C	mPa·s	900 ± 150	400 ± 100
Epoxy equivalent	g/equiv.	179 ± 4	
Amine equivalent	g/equiv.		49
Density at 20 °C	g/cm ³	1.15 ± 0.01	1.04 ± 0.01
Pot life (20 - 25°C)	minutes	15-20	

*The data in the tables are the values at the time of production. This information may differ for newly manufactured batches.

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Processing Details

Mixing ratio

EPIKOTE™ Resin L 20	100 parts by weight
EPIKURE™ Curing Agent 111	27 parts by weight

Mixing tolerance

The maximum allowable mixing tolerance is ± 2 pbw, but it is particularly important to observe the recommend mixing ratio as exactly as possible. Adding more or less Hardener will not effect a faster or slower reaction - but an incomplete curing which cannot correct in any way.

Resin and Hardener must be mixed very thoroughly. Mix until no clouding is visible in the mixing container. Pay special attention to the walls and the bottom of the mixing container.

Processing Temperature

A good processing temperature is in the range between 20°C and 30°C. Higher processing temperatures are possible but will shorten the pot life. A 500g mixture has a pot life at 20 – 25 °C of 15 - 20 minutes. A rise in temperature of 10 °C reduces the pot life by approx. 50%. Different temperatures during processing have no significant effect on the strength of the hardened product.

Do not mix large quantities at elevated processing temperatures. The mixture will heat up fast because of the dissipating reaction heat (exothermic reaction). This can result in temperatures of more than 200°C in the mixing container.

Exemplify curing cycle

7 days at 20 - 25 °C

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Properties of the cured, non - reinforced Resin System		
Curing 7 days at 20 – 25°C		
Property	Unit	Value
Flexural strength	MPa	120
Compressive strength	MPa	115
Modulus in flexure	MPa	3200
Ball indentation hardness H 10	MPa	141
Ball indentation hardness H 60	MPa	136
Impact strength	mJ/mm ²	65
Temperature of deflection under load (Martens)	°C	53

Properties of the cured, reinforced Resin System		
Curing 7 days at 20 – 25°C		
Property	Unit	Value
Flexural strength	MPa	445
Compressive strength	MPa	250
Modulus in flexure	MPa	24000
Impact strength	mJ/mm ²	210

Glass fabric type 181/Interglas 91745; resin content: 37 ± 3 % o. W.

Shelf Life

In sealed containers at 20 - 25 °C - 12 months.

Precautions

For information about safe handling of EPIKOTE epoxy resins and EPIKURE Curing Agents, please note the corresponding Safety Data Sheet.