

Hot cure epoxy FR system

Lapox L-247	100	pbw
Lapox K-918	65	pbw
Lapox K-13	1 - 3	pbw

Description

Lapox L-247 is a brominated semi-solid epoxy resin which can be processed with various hardeners for making glass fiber or carbon fiber reinforced composites conforming to NEMA FR-4 grade. This resin has a high viscosity at an ambient temperature but falls rapidly as the temperature increases. Lapox K-918 is a liquid modified anhydride hardener, suitable to use with epoxy resin at elevated temperature. Lapox K-13 is a liquid accelerator to increase reactivity at elevated temperature. The components manufactured by this system are able to provide excellent combination of mechanical properties with high thermal shock resistance.

Applications

It is especially suitable for making laminates with reinforcement and castings where the fire retardant is required with moderate temperature resistance, mechanical and electrical properties.

Processing

Filament winding
Pultrusion
Resin transfer moulding (RTM)

Typical specifications

Lapox L-247

Properties	Unit	Test method	Values
Appearance	-	Visual	Slightly hazy, semi-solid
Colour	GS	ASTM D1544	Max 1
Viscosity at 70°C	m Pas	ASTM D2196	700 - 1,100
Epoxy content	Eq/kg	ASTM D1652	3.57 - 4.00
Bromine content	%	ASTM D1159	21 - 25

Lapox K-918

Properties	Unit	Test method	Values
Appearance	-	Visual	Clear liquid
Colour	GS	ASTM D1544	Max 2
Viscosity at 25°C	m Pas	ASTM D2196	50 - 80
Specific gravity at 25°C	-	ASTM D792	1.20 - 1.25
Shelf-life	Years	-	2

Lapox K-13

Properties	Unit	Test method	Values
Appearance	-	Visual	Clear liquid
Colour	GS	ASTM D1544	Max 2
Viscosity at 25°C	m Pas	ASTM D2196	< 10
Specific gravity at 25°C	-	ASTM D792	0.88 - 0.92
Shelf-life	Years	-	2

LAPOX® L-247 | K-918 | K-13

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Processing properties

Properties	Unit	Test method	Values
Mixing ratio (by weight)	-	Visual	Resin: 100 Hardener: 65 Accelerator: 1 - 3
Initial mix viscosity	m Pas	ASTM D2196	600 - 900 / 25°C
Pot life at 25°C	Hours	ASTM D2471	> 8 hours
Gel time at 120°C	Minutes	DIN 16945 / 6.3.1	8 - 10
Curing schedule	°C / hours	-	3 hours / 80°C + 3 hours / 120°C + 4 hours / 160°C

Typical properties of neat cured system

Composition:
Curing schedule: 3 hours / 80°C + 3 hours / 120°C + 4 hours / 160°C
Determined on standard test specimen at 25°C

Properties	Unit	Test method	Values
Tensile strength	m Pa	ISO 527	60 - 80
Elongation at break	%	ISO 527	3 - 6
Elastic modulus in tension	g Pa	ISO 527	3.0 - 3.3
Flexural strength	m Pa	ISO 178	120 - 140
Flexural elongation at break	%	ISO 178	5 - 10
Elastic modulus in flexural	g Pa	ISO 178	3.0 - 3.3
Glass transition temperature (DSC)	°C	ISO 11357 - 2	110 - 120
Water absorption 25°C / 24 hours	% w/w	ISO 62	Max 0.15

Packaging

Lapox L-247 is available in 30 kg, 110 kg and 240 kg carboys. Lapox K-918 and Lapox K-13 are available in 1 kg HDPE bottles. Other packing may be considered on request.

Storage and handling

Resin Lapox L-247 and hardener Lapox K-918 have shelf-life of 2 years if stored in their original sealed containers. It is recommended to use resin and hardener only when they are clear and free from cloudiness. Hardener is sensitive to moisture. Container must be closed properly immediately after use. Both resin and hardener may cause irritation to sensitive skins. If contact does occur then it should be washed off immediately with soap and warm water, consult doctor immediately Please refer to the Safety Data Sheet (SDS) for detailed instructions on storage and handling.

Safety

Wear personal protective equipment (PPE). Avoid contact with the eyes and skin. In case of direct contact and irritation, the resin should be washed off immediately with soap and warm water. Avoid breathing vapours, mist or gas. Please refer to the SDS for detailed safety instructions.

Spills and disposal

In case of spills, sweep up and shovel the spilled material. Keep spilled material in suitable, closed containers for disposal. Soak up with an absorbent such as clay, sand or other suitable material. Flush area with water to remove trace residue. Do not allow the product to reach the sewage system. Waste must be disposed of in accordance with federal, state or local regulations, as applicable.

LAPOX[®] L-247 | K-918 | K-13

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Note

Lapox[®] is a registered trademark of Atul Ltd.

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