LAPOX® C-51 | K-6 | Filler

Technical Data Sheet | Polymers Business

Ambient cure epoxy tooling system

Lapox C-51	100	pbw
Lapox K-6	10	pbw
Lapox Filler	170	pbw

Description

This system is based on a modified low viscosity epoxy resin, room temperature curing amine hardener and specially formulated filler which can be recommended for casting and backing patterns as well as moulds. Although the resin and hardener can be used without filler, the exothermic reaction is rather strong which could result in the cracking of the casting. The use of filler reduces the temperature rise during the curing reaction and the shrinkage. It also improves the thermal conductivity of the casting and reduces the coefficient of expansion of the resin.

Applications

Casting and backing patterns
Moulds

Processing

Casting
Hand lay-up

Typical specifications

Lapox C-51

Properties	Unit	Test method	Values
Appearance	-	Visual	Clear, pale-yellow liquid
Colour	GS	ASTM D1544	-
Viscosity at 25°C	m Pas	ASTM D2196	1,300 - 1,700
Epoxy content	Eq/kg	ASTM D1652	4.15 - 4.4
Specific gravity at 25°C	-	ASTM D792	1.10 - 1.15

Lapox K-315

Properties	Unit	Test method	Values
Appearance	-	Visual	Pale-yellow liquid
Viscosity at 25°C	m Pas	ASTM D2196	5 - 20
Specific gravity at 25°C	-	ASTM D792	0.95 - 1.10
Shelf-life	Years	2	-

Processing properties

Properties	Unit	Test method	Values
Mixing ratio (by weight)	-	Visual	Resin: 100 Hardener: 10 Filler: 170 - 180
Initial mix viscosity	m Pas	ASTM D2196	600 - 800 / 25°C
Pot life at 25°C	Minutes	ASTM D2471	30 - 60
Curing schedule	°C / hours	-	25°C / 12 hours - 14 hours 40°C / 5 hours - 7 hours 60°C / 2 hours - 3 hours

Casting and Curing

The mould for casting a pattern or the master pattern from which a mould is to be made are treated with a good release agent like Lapox K-28. The casting mix is then poured into the mould enclosing the pattern. It is usually suggested to employ a gel coat first, especially if fine impressions have to be made. Suitable gel coats (Lapox T-73, Lapox T-94 and Lapox T-96) are available up on request. When a gel coat is used, the casting mix is poured only when gel coat surface is still slightly tacky. The resin is allowed to cure for 24 hours at room temperature. Curing may be accelerated by heating to 60°C preferably after the resin has gelled.

Typical properties of neat cured system

Composition:
Curing schedule: 80°C / 6 hours to 8 hours
Determined on standard test specimen at 25°C

Properties	Unit	Test method	Values
Tensile strength	m Pa	ISO 527	55 - 65
Elongation at break	%	ISO 527	4 - 8
Elastic modulus in tension	g Pa	ISO 527	2.9 - 3.2
Flexural strength	m Pa	ISO 178	100 - 110
Flexural elongation at break	%	ISO 178	6 - 10
Elastic modulus in flexural	g Pa	ISO 178	2. 9 - 3.2
Compressive strength	m Pa	ISO 604	120 - 130
Hardness	Shore D		> 70
Glass transition temperature (DSC)	°C	ISO 11357 - 2	70 - 80
Co-efficient of linear thermal expansion (Mean value for temperature range 20°C to 60°C)	K^{-1}	DIN 53752	35 - 40 X 10^{-6}
Linear shrinkage	%		0.4 - 1.1
Water absorption 25°C / 24 hours	% w/w	ISO 62	Max 0.12

Packaging

Lapox C-51 is available in 30 kg, 110 kg and 240 kg carboys. Lapox K-6 is available in 1 kg HDPE bottles. Other packing may be considered on request.

Storage and handling

Lapox C-51 and Lapox K-6 have a shelf-life of at least 2 year if stored in its original container away from humidity and excessive heat. Care must be taken to avoid direct contact with skin as far as possible. If contact does occur, then wash off immediately with soap and warm water. 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.

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Note

Lapox® is a registered trademark of Atul Ltd.

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