

LAPOX[®] ARL-138 | AH-339



Technical Data Sheet | Polymers Business

Ambient cure epoxy tooling system

Lapox ARL-138	100	pbw
Lapox AH-339	30	pbw

Description

Lapox ARL-138 is specially modified, low viscosity epoxy resin for high performance applications. Lapox AH-339 is a modified polyamine hardener suitable to cure epoxy resin at ambient temperature. The low initial viscosity of this system ensures fast and complete impregnation of reinforcing fibers such as glass, carbon and polyamide and allows composite components to be produced by contact pressure, vacuum or pressure bag techniques, filament windings, and resin infusion (RI). The components cured at room temperature provides an excellent handling strength. The optimum properties, however, will only be obtained after post curing at temperature of more than 120°C. Fully cured components (140°C / 4 hours to 8 hours) prepared by this system can be used for high performance requirements up to 135°C temperature.

Applications

All types of tools
Recreational and structural composite components used in static and dynamic conditions
This resin can be suitably used at high temperature wind turbine moulds

Processing

Contact pressure mouldings
Filament winding
Resin infusion (RI)
Resin transfer moulding (RTM)
Vacuum and pressure bag techniques
Wet lay-up lamination

Typical specifications

Lapox ARL-138

Properties	Unit	Test method	Values
Appearance	-	Visual	Clear liquid
Colour	GS	ASTM D1544	Max 2
Viscosity at 25°C	m Pas	ASTM D2196	1,200 - 1,800
Epoxy content	Eq/kg	ASTM D1652	5.98 - 6.45
Specific gravity at 25°C	-	ASTM D792	1.10 - 1.15

Lapox AH-339

Properties	Unit	Test method	Values
Appearance	-	Visual	Clear liquid
Colour	GS	ASTM D1544	Max 4
Viscosity at 25°C	m Pas	ASTM D2196	25 - 45
Specific gravity at 25°C	-	ASTM D792	0.90 - 0.95

Processing properties

Properties	Unit	Test method	Values
Mixing ratio (by weight)	-	Visual	Resin: 100 Hardener: 30
Initial mix viscosity	m Pas	ASTM D2196	400 - 600 / 25°C
Pot life at 25°C	Minutes	ASTM D2471	120 - 180
Curing shrinkage	%	-	1.6
Curing schedule	°C / hours	-	80°C / 2 hours + 120°C / 4 hours + 140°C / 4 hours

Typical properties of neat cured system

Curing schedule: 80°C / 2 hours + 120°C / 4 hours + 140°C / 4 hours
Determined on standard test specimen at 25°C

Properties	Unit	Test method	Values
Tensile strength	m Pa	ISO 527	60 - 70
Elongation at break	%	ISO 527	3 - 5
Elastic modulus in tension	g Pa	ISO 527	2.8 - 3.3
Flexural strength	m Pa	ISO 178	100 - 120
Flexural elongation at break	%	ISO 178	4 - 8
Elastic modulus in flexural	g Pa	ISO 178	2.8 - 3.3
Glass transition temperature (DSC)	°C	ISO 11357 - 2	130 - 140
Water absorption 25°C / 24 hours	% w/w	ISO 62	Max 0.5

Packaging

Lapox ARL-138 is available in 30 kg, 110 kg and 240 kg carboys. Lapox AH-339 is available in 1 kg HDPE bottles. Other packing may be considered on request.

Storage and handling

Lapox ARL-138 and hardener Lapox AH-339 have shelf-life of 2 years if stored in their original sealed containers. Hardener may crystallise if stored below 15°C. Crystallisation may be reversed completely by heating the material between 60°C and 70°C. 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.

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Note

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

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