

Biresin® CR135 Composite resin system

Product Description

Biresin® CR135 is an epoxy resin system suitable for the production by Resin Transfer Moulding of high performance fibre reinforced composites with thermal properties up to 150°C

Application Areas

Biresin® CR135 is especially suited to the resin transfer moulding processes and can be used in the production of general industrial and automotive composite components where higher thermal resistance is needed.

Features / Advantages

- Good impregnation of dry fabrics, multi-axials and non-woven fibre pre-forms
- Glass transition temperatures up to 150°C depending on curing conditions

Physical Data		Resin (A)	Hardener (B)
Individual Components		Biresin® CR135	Biresin® CH135-4
Mixing Ratio, parts by	Weight	100	24
Mixing Ratio, parts by	Volume	100	30
Colour		translucent	colourless to yellowish
Viscosity, 25°C	mPa.s	~5,750	<10
Density, 25°C	g/ml	1.17	0.92
		Mixture	
Potlife, 100 g / RT, approx. values	min	160	
Mixed viscosity, 25°C, approx. values	mPa.s	940	

Processing

- The material and processing temperatures should be in the range 18 - 35°C.
- The mixing ratio must be followed accurately to obtain best results. Deviating from the correct mix ratio will lead to lower performance.
- Before demoulding precuring of at least 2 h at 60°C is recommended.
- The final mechanical and thermal values are dependent on the applied postcuring cycles.
- It is recommended to clean brushes or tools immediately after use with Sika Reinigungsmittel 5.
- Additional information is available in "Processing Instructions for Composite Resins".

Postcuring

The suitable cure cycle and the attainable mechanical and thermal values depend on various factors, such as laminate thickness, fibre volume, reactivity of the resin system etc.

An appropriate cure cycle could look as follows:

- Heat-up rate of ca. 0.2°C/Minute until approx. 10°C below the required glass transition temperature (T_g)
- Followed by a dwell at that temperature of between 2 and 12 hours.
- Part(s) should then be cooled at ~0.5°C per minute

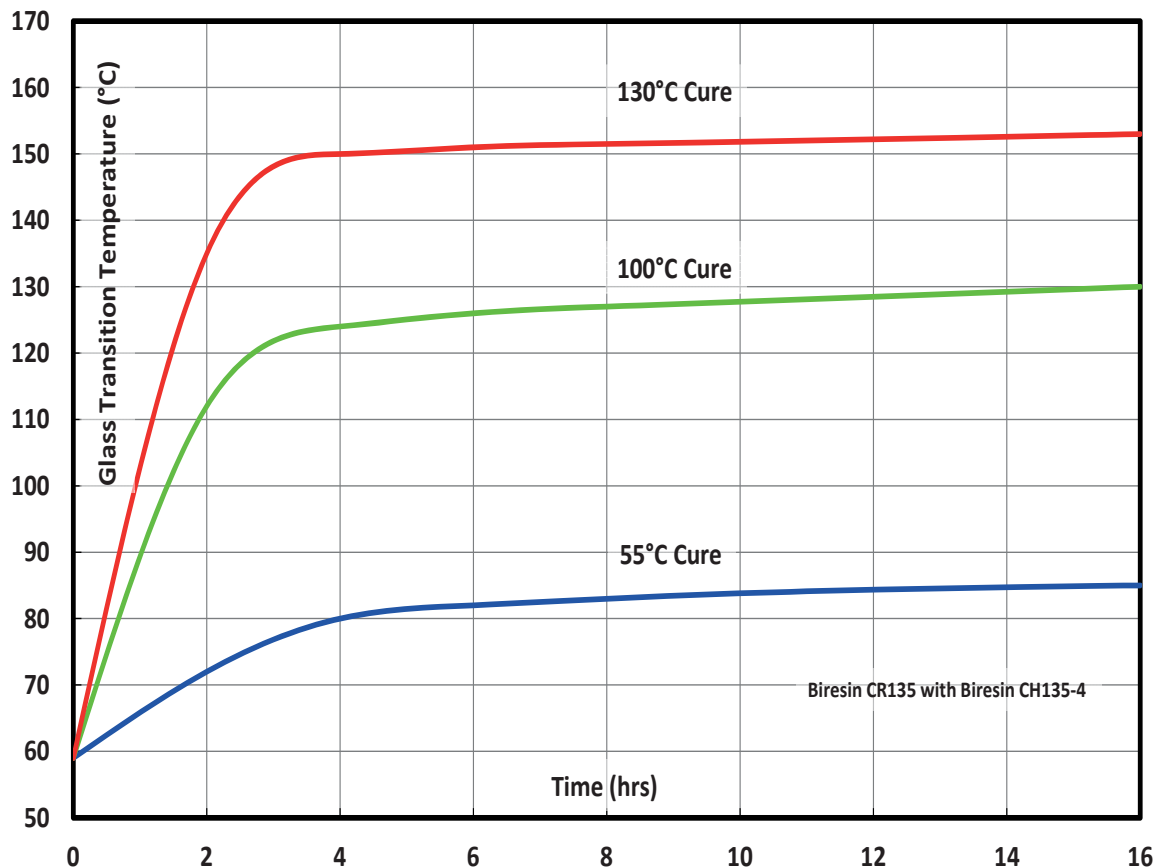
The specific postcure should be adapted to the required technical and economic requirements.

To measure the mechanical performance of the resin system a SikaAxson standard cycle is used to ensure that the full T_g potential of the system in question is reached.

Typical Mechanical Properties of Fully Cured Neat Resin			
Biresin® CR135 resin (A)	with hardener (B)		Biresin® CH135-4
Tensile strength	ISO 527	MPa	72
Tensile E-Modulus	ISO 527	MPa	2,850
Elongation at break	ISO 527	%	3.3
Flexural strength	ISO 178	MPa	134
Flexural E-Modulus	ISO 178	MPa	2,900
Compressive strength	ISO 604	MPa	129
Density	ISO 1183	g/cm ³	1.14
Shore hardness	ISO 868	-	D 87
Impact resistance	ISO 179	kJ/m ²	27

Typical Thermal Properties of Fully Cured Neat Resin			
Biresin® CR135 resin (A)	with hardener (B)		Biresin® CH135-4
Heat distortion temperature	ISO 75B	°C	150
	ISO 75C	°C	133
Glass transition temperature	ISO 11357	°C	152

Glass Transition Temperature vs. Cure Cycle



The test specimens were produced from 3 mm thick pure resin. Before the above postcuring, the samples were cured for 7 days at 23°C. When curing a composite part, the whole of the part (including the very middle of the laminate) needs to see the cure temperature.

Packaging (net weight, kg)

Biresin® CR135 resin (A)	1,000			10
Biresin® CH135-4 hardener (B)	850	180	26	3

Storage

- Minimum shelf life of Biresin® CR135 resin (A) is 24 month and of Biresin® CH135-4 hardener (B) is 12 month under room conditions (18 - 25°C), when stored in original unopened containers.
- After prolonged storage at low temperature, crystallisation of resin (A) may occur. This is easily removed by warming up for a sufficient time at a minimum of 60°C.
- Containers must be closed tightly immediately after use. The residual material needs to be used up as soon as possible.

Health and Safety Information

For information and advice on the safe handling, storage and disposal of chemical products, users shall refer to the most recent Safety Data Sheet (SDS) containing physical, ecological, toxicological and other safety related data.

Disposal considerations

Product Recommendations: Must be disposed of in a special waste disposal unit in accordance with the corresponding regulations.

Packaging Recommendations: Completely emptied packagings can be given for recycling. Packaging that cannot be cleaned should be disposed of as product waste.

Value Bases

All technical data stated in this Product Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

Legal Notice

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