

Biresin® CR131 Composite resin system

Product Description

Biresin® CR131 is an epoxy resin system suitable for the production of high performance fibre reinforced composites parts and moulds with thermal properties up to 130°C.

Application Areas

Biresin® CR131 is especially suited to the infusion or injection processes and can be used in general industrial composites and in tooling where higher thermal resistance is needed.

Features / Advantages

- Fast wetting of dry fabrics and nonwovens is possible due to optimized mixed viscosity
- Glass transition temperatures up to and above 130°C
- 3 hardeners (B) give a wide range of processing times

Processing		Resin (A)		Hardener (B)	
Individual Components		Biresin® CR131	Biresin® CH135-4	Biresin® CH132-5	Biresin® CH132-7
Mixing Ratio, parts by	Weight	100	26	28	32
Mixing Ratio, parts by	Volume	100	33	35	39
Colour		translucent	colourless to yellow	blue	blue
Viscosity, 25°C	mPa.s	~2,000	~20	~50	~40
Density, 25°C	g/ml	1.16	0.92	0.93	0.95
		Mixture			
Potlife 100 g / RT, approx values	min		160	140	260
Mixed viscosity, 25°C, approx. values	mPa.s		540	410	540

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".

Thermal Properties approx. values after 8 hr / 125°C

Biresin® CR131 resin (A)	with hardener (B) Biresin®	CH135-4	CH132-5	CH132-7
Heat distortion temperature	ISO 75B °C	137	135	124
Glass transition temperature	ISO 11357 °C	138	136	127

Typical Mechanical Properties of Fully Cured Neat Resin					
Biresin® CR131 resin (A)	with hardener (B) Biresin®		CH135-4	CH132-5	CH132-7
Tensile strength	ISO 527	MPa	89	86	84
Tensile E-Modulus	ISO 527	MPa	2.750	2.700	2.700
Elongation at break	ISO 527	%	5.7	5.9	6.7
Flexural strength	ISO 178	MPa	133	124	120
Flexural E-Modulus	ISO 178	MPa	2,900	2,750	2,800
Druckfestigkeit	ISO 604	N/mm ²	120	116	110
Density	ISO 1183	g/cm ³	1.15	1.15	1.16
Shore hardness	ISO 868		D86	D86	D86
Impact resistance	ISO 179	kJ/m ²	27	46	37

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.

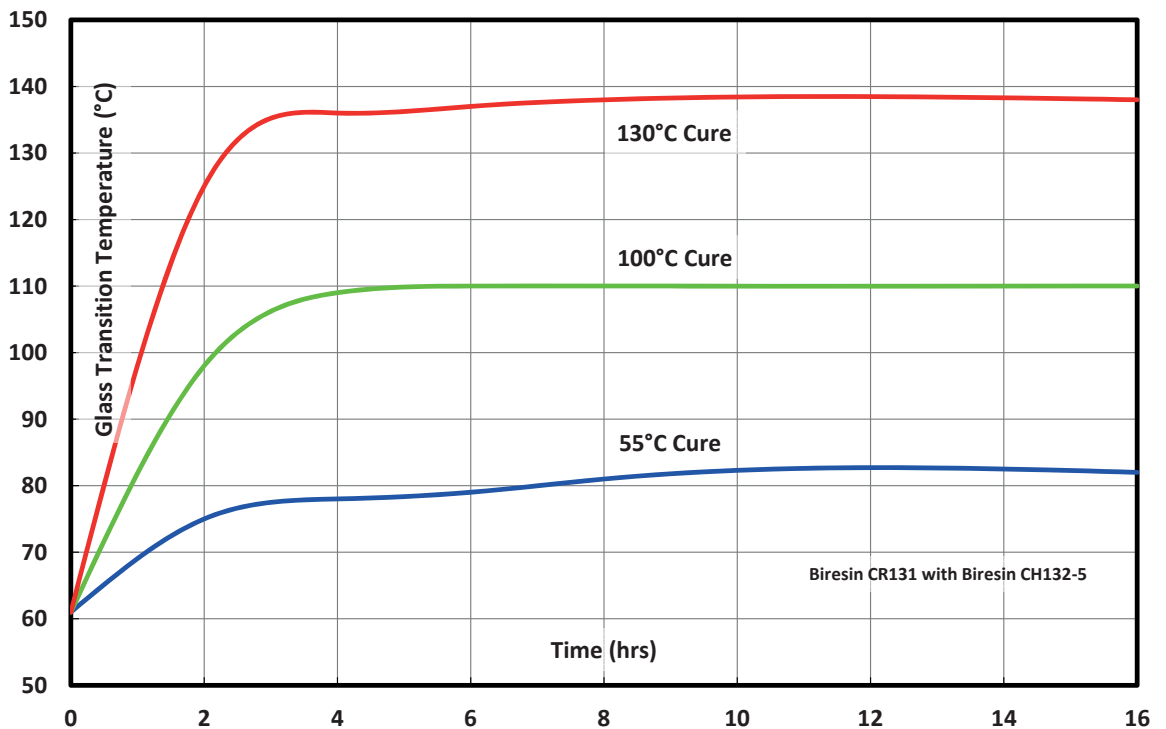
An appropriate cure cycle could look as follows:

- 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.

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® CR131 resin (A)	1,000	200		10
Biresin® CH135-4 hardener (B)	850	180	26	3
Biresin® CH132-5 hardener (B), (blue)	900	180		2.8
Biresin® CH132-7 hardener (B), (blue)		180		3.2

Storage

- Minimum shelf life of Biresin® CR131 resin (A) is 24 month and of hardeners (B), Biresin® CH135-4, CH132-5 and CH132-7 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 to 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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