Biresin® CR134 FR
Composite resin system

Product Description

Biresin® CR134 FR is a filled epoxy resin system suitable for the production of fire resistant high performance fibre reinforced composites with thermal properties up to 130°C. When used with carbon fibre reinforcement Biresin® CR134 FR allows the fabric structure to be seen.

Application Areas

Biresin® CR134 FR is especially suited to the hand lay-up process and can be used in the general industrial composite and tooling where higher thermal resistance and fire retardance are needed. Biresin® CR134 FR has particularly good wetting properties compared to other filled flame retardant systems.

Features / Advantages

- Flame retardant: UL94 V-0 Classification with Biresin® CH132-5 hardener (B)
- 3 hardeners (B) give a wide range of processing times
- Good impregnation and good non-draining properties due to optimized mixed viscosity for wet lay-up
- Glass transition temperatures up to 135°C dependent on curing conditions
- Hardeners (B) are pigmented blue to assist in mixing and to help see what and where has been laminated

Physical Data		Resin (A)	Hardener (B)		
Individual Components		**Biresin® CR134 FR**	**Biresin® CH132-2**	**Biresin® CH132-5**	**Biresin® CH132-7**
Mixing Ratio, parts by	**Weight**	100	23	24	27
Mixing Ratio, parts by	**Volume**	100	30	32	36
Colour		white	blue		
Viscosity, 25°C	mPa.s	~3,000	<10	<10	~20
Density, 25°C	g/ml	1.23	0.95	0.93	0.93
			Mixture		
Potlife, 100 g / RT, approx. values	min		60	115	150
Mixed viscosity, 25°C, approx. values	mPa.s		900	1,000	1,000

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:

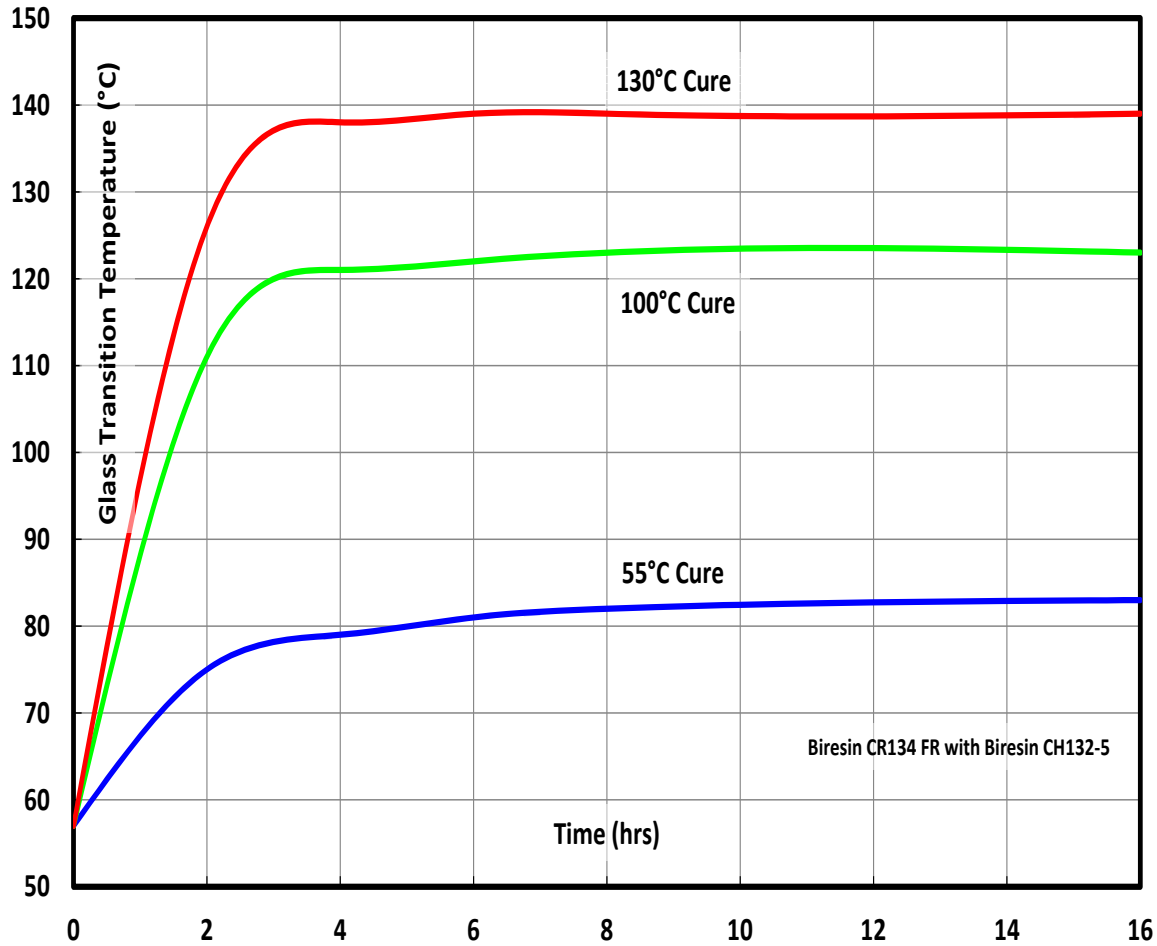
- Heat-up rate of ca. 0.2°C/Minute until approx. 10°C below the required glass transition temperature (Tg)
- Followed by a dwell at that temperature of between 2 and 12 hours.
- Part(s) should then be cooled at ~0.5°C per minute

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 Tg potential of the system in question is reached.

Typical Mechanical Properties of Fully Cured Neat Resin, values after 8 h / 125°C					
Biresin® CR134 FR resin (A) with hardener (B) **Biresin®**			**CH132-2**	**CH132-5**	**CH132-7**
Tensile strength	ISO 527	MPa	62	65	58
Tensile E-Modulus	ISO 527	MPa	3,050	3,050	2,900
Elongation at break	ISO 527	%	3.3	3.9	3.0
Flexural strength	ISO 178	MPa	116	110	109
Flexural E-Modulus	ISO 178	MPa	3,350	3,250	3,250
Compressive strength	ISO 604	MPa	114	118	112
Density	ISO 1183	g/cm³	1.22	1.22	1.22
Shore hardness	ISO 868	-	D87	D87	D86

Typical Thermal Properties of Fully Cured Neat Resin, values after 8 h / 125°C					
Biresin® CR134 FR resin (A) with hardener (B) **Biresin®**			**CH132-2**	**CH132-5**	**CH132-7**
Heat distortion temperature	ISO 75B	°C	124	134	126
Glass transition temperature	ISO 11357	°C	125	132	129

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® CR134 FR resin (A)		200	10
Biresin® CH132-2 hardener (B), (blue)			2.8
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® CR134 FR resin (A) is 24 month and of hardeners (B) Biresin® CH132-2, Biresin® CH132-5 and Biresin® 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 at aminimum 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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