

Biresin® CR141 with Biresin® CH142 hardener Composite resin system for heat curing

Areas of Application

- In particular for pultrusion and filament winding processing
- Specially for applications when low reactivity and a long potlife are required

Product Benefits

- Fast infiltration of dry fibres due to low mixed viscosity and an elevated processing temperature

Description

- Basis Two component epoxy system
- Resin (A) **Biresin® CR141**, epoxy resin, translucent
- Hardener (B) **Biresin® CH142**, carboxylic acid anhydride (pre-accelerated), transparent

Physical Data		Resin (A)	Hardener (B)
Individual Components		Biresin® CR141	Biresin® CH142
Viscosity, 20°C	mPa.s	18.000 - 24.000	30 - 80
Density, 20°C	g/ml	1.16	1.18
Mixing ratio	in parts by weight	100	100
		Mixture	
Potlife, 100 g / RT, approx. values	h	> 24	
Mixed viscosity, 20°C, approx. values	mPa.s	600 - 900	

Mechanical Data, neat resin specimen - approx. values after 2 h / 90°C (source: Sika internal)

Biresin® CR141 resin (A)		with Biresin® CH142 hardener (B)	
Density	ISO 1183	g/cm³	1.21
Shore hardness	ISO 868	-	D85 - D88
Flexural E-Modulus	ISO 178	MPa	3,500 - 3,800
Tensile E-Modulus	ISO 527	MPa	3,400 - 3,700
Flexural strength	ISO 178	MPa	130 - 150
Compressive strength	ISO 604	MPa	130 - 150
Tensile strength	ISO 527	MPa	70 - 85
Elongation at maximum flexural strength	ISO 178	%	4 - 6
Elongation at maximum tensile strength	ISO 527	%	2 - 4
Impact resistance	ISO 179	kJ/m²	12 - 18

Processing

- The material and processing temperatures should be 18 - 35°C.
- To clean brushes or tools immediately Sika Reinigungsmittel 5 is recommended.
- Additional information are available in "Processing instructions for Composite Resins".

Thermal data of neat resin specimen

Biresin® CR141 resin (A)		with Biresin® CH142 hardener (B)	
Heat distortion temperature	ISO 75B	°C	104*
	ISO 75C	°C	87*
Glass transition temperature	ISO 11357	°C	108* / 125**

* values after post curing: 2 h / 90°C

** values after post curing: 4 h / 90°C + 3 h / 120°C + 3 h / 140°C

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.

Packaging

Individual components	Biresin® CR141 resin (A) Biresin® CH142 hardener (B)	1000 kg; 220 kg; 10 kg net 1146 kg; 220 kg net
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Storage

- Minimum shelf life of Biresin® CR141 resin (A) is 24 month and of Biresin® CH142 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 may occur. This is easily removed by warming up for a sufficient time to a maximum of 80°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.

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