

Biresin® CR80 w. SikaBiresin® CH80-1/CH80-2 Composite resin system

Product Description

Biresin® CR80 is a low viscosity epoxy resin system suitable for the production of high performance fibre reinforced composite parts and moulds with thermal properties ~90°C

Application Areas

Biresin® CR80 with hardeners (B) SikaBiresin® CH80-1 and CH80-2 is especially suited for repairs or production of small parts in wet lay up or infusion process. It can be used for various applications, such as Marine or general industrial Composite production.

Features / Advantages

- Uniform mixing ratio of 100:30 by weight gives even more processing flexibility
- Excellent wet-out of fabrics and non-wovens due to optimised viscosity and good wetting characteristics
- Suited for applications where curing temperatures >75°C can not be realized
- Demoulding after curing at room temperature is possible with both hardeners
- Glass transition temperatures >90°C depending on curing conditions

Physical Data		Resin (A)		Hardener (B)	
Individual Components		Biresin® CR80	SikaBiresin® CH80-1	SikaBiresin® CH80-2	
Mixing Ratio, parts by	Weight	100	30		
Mixing Ratio, parts by	Volume	100	34		
Colour		translucent	colourless to brownish		
Viscosity, 25°C	mPa.s	~1,100	~170	~80	
Density, 25°C	g/ml	1.15	1.01	1.01	
		Mixture			
Potlife, 100 g / RT, approx. values	min		30	60	
Mixed viscosity, 25°C, approx. values	mPa.s		700	500	

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.
- 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".

Typical Mechanical Properties of Cured Neat Resin, Curing 8h @ 80°C				
Biresin® CR80 resin (A)	with hardener (B)	SikaBiresin®	CH80-1	CH80-2
Tensile strength	ISO 527	MPa	88	83
Tensile E-Modulus	ISO 527	MPa	3,000	2,900
Elongation at maximum	ISO 527	%	6.3	5.8
Flexural strength	ISO 178	MPa	131	122
Flexural E-Modulus	ISO 178	MPa	3,100	2,950
Compressive strength	ISO 604	MPa	107	99
Density	ISO 1183	g/cm ³	1.17	1.17
Shore hardness	ISO 868	-	D85	D84
Impact resistance	ISO 179	kJ/m ²	28	29

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.

Thermal data of fully cured neat resin, Curing 8h @ 80°C				
Biresin® CR80 resin (A)	with hardener (B)	SikaBiresin®	CH80-1	CH80-2
Heat distortion temperature	ISO 75A	°C	90	89
	ISO 75B	°C	94	92
	ISO 75C	°C	79	79
Glass transition temperature	ISO 11357	°C	98	93

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® CR80 resin (A)	200		10
SikaBiresin® CH80-1 hardener (B)	180	25	3
SikaBiresin® CH80-2 hardener (B)	180	25	3

Storage

- Minimum shelf life of Biresin® CR80 resin (A) is 24 month and that of hardeners (B) SikaBiresin® CH80-1 and SikaBiresin® CH80-2 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 at least 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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