

Biresin® CR172 Composite resin system

Product Description

Biresin® CR172 is an epoxy resin system designed for the hand lay-up process and injection processes and is especially for applications when a very high thermal resistance is needed.

Application Areas

Biresin® CR172 can be used in many areas including high temperature composite mouldmaking and in general industrial composites.

Features / Advantages

- Biresin® CR172 has an optimized viscosity designed for with good impregnation and non-draining properties.
- The system can be used in hand lay-up and injection
- Glass transition temperatures up to 175°C can be achieved depending on curing conditions

Physical Data		Resin (A)		Hardener (B)	
Individual Components		Biresin® CR172	Biresin® CH170-3	Biresin® CH172-6	
Mixing ratio, parts by	Weight	100	17	19	
Mixing ratio, parts by	Volume	100	21	23.5	
Viscosity, 25°C	mPas	~ 6,000	~ 10	~ 10	
Density, 25°C	g/ml	1.16	0.94	0.94	
Colour		translucent	colourless to brownish		
		Mixture			
Potlife, 100 g / RT, approx. values	min		110	220	
Mixed viscosity, 25°C, approx. values	mPa.s		800	800	

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".

Further information available at:

Sika Deutschland GmbH
Subsidiary Bad Urach
Stuttgarter Str. 139
D - 72574 Bad Urach
Germany

Tel: +49 (0) 7125 940 492
Fax: +49 (0) 7125 940 401
Email: tooling@de.sika.com
Internet: www.sika.com



Mechanical Data, neat resin specimen: approx. values after 8 h / 160°C				
Biresin® CR172 resin (A)	with hardener		Biresin® CH170-3	Biresin® CH172-6
(B)				
Tensile strength	ISO 527	MPa	70	76
Tensile E-Modulus	ISO 527	MPa	2,900	2,750
Elongation at break	ISO 527	%	3.0	3.9
Flexural strength	ISO 178	MPa	140	130
Flexural E-Modulus	ISO 178	MPa	2,900	2,950
Compressive strength	ISO 604	MPa	140	140
Density	ISO 1183	g/cm ³	1.17	1.17
Impact resistance	ISO 179	kJ/m ²	28	26

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, neat resin specimen: approx. values after 8 h / 160°C

Biresin® CR172 resin (A)	with hardener		Biresin® CH170-3	Biresin® CH172-6
(B)				
Heat distortion temperature	ISO 75A	°C	162	165
	ISO 75B	°C	168	170
Glass transition temperature	ISO 11357	°C	170	174

Packaging (net weight, kg)

Biresin® CR172 resin (A)			10
Biresin® CH170-3 hardener (B)	180	16	1.7
Biresin® CH172-6 hardener (B)			1.9

Storage

- Minimum shelf life of Biresin® CR172 resin (A) is 24 months and of Biresin® CH170-3 hardener (B) and Biresin® CH172-6 hardener (B) is 12 months 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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