

Biresin® CR84 with fast cure hardeners

Thixotropic composite resin system

Product Description

This family of epoxy resin systems with Biresin® CR84 epoxy resin (A) and selected hardeners (B) has been specially designed for the fast production of sport and leisure articles.

Application Areas

High volume production of sport and leisure goods such as skis, snowboards, skateboards, wakeboards, surfboards etc. especially those which include a variety of materials such as glass fibre, wood, metal, plastic etc.

Features / Advantages

- The thixotropic A-Component provides an optimal mixed viscosity combined with a good wetting behaviour and good non draining properties
- Glass transition temperatures with both hardeners (B) approx. 90 - 100°C depending on the curing conditions
- A variety of curing speeds and system viscosities allows for a variety of processing methods and conditions
- With S12 and G30 hardener (B): good impregnation properties with dry fabrics and good curing behaviour even at room temperature
- With G30 hardener (B): equivalent properties to that of S12 but with a longer potlife
- Typically, curing cycles of 12 minutes at 80°C are possible

Physical Data		Resin (A)	Hardener (B)	
Individual Components		Biresin® CR84	Biresin® S12	Biresin® G30
Mixing ratio	in parts by weight	100	20	32
Mixing ratio	in parts by volume	100	23	38
Colour		translucent	yellowish to amber	
Viscosity, 25°C	mPa.s	~4,000	~120	~2,350
Density, 25°C	g/ml	1.16	1.00	0.98
		Mixture		
Potlife, 100 g / RT, approx. values		min	60	100
Mixed viscosity, 25°C, approx. values		mPa.s	1,600	2,950

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 Fully Cured Neat Resin				
Biresin® CR84 resin (A)	with hardener (B)		Biresin® S12	Biresin® G30
Tensile strength	ISO 527	MPa	86	75
Tensile E-Modulus	ISO 527	MPa	3,050	2,550
Elongation at break	ISO 527	%	5.5	5.2
Flexural strength	ISO 178	MPa	126	112
Flexural E-Modulus	ISO 178	MPa	3,050	2,800
Compressive strength	ISO 604	MPa	109	100
Density	ISO 1183	g/cm ³	1.18	1.16
Impact resistance	ISO 179	kJ/m ²	31	42

Thermal Data, neat resin specimen (approx. values after optimum post curing)				
Biresin® CR84 resin (A)	with hardener (B)		Biresin® S12	Biresin® G30
Heat deflection temperature	ISO 75B	°C	101	96
Glass transition temperature	ISO 11357	°C	100	98

Packaging (net weight, kg)				
Biresin® CR84 resin (A)	1,000	200		10
Biresin® S12 hardener (B)		15	2.5	box of 9 x 0,4
Biresin® G30 hardener (B)			2.5	box of 6 x 0.15

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 Sika Advanced Resins standard cycle is used to ensure that the full Tg potential of the system in question is reached.

Storage

- Minimum shelf life of Biresin® CR84 resin (A) is 24 month and of hardeners (B) Biresin® S12 and Biresin® G30 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 a minimum 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.

Legal Notice

The information, and, in particular, the recommendations relating to the application and end-use of Sika products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with Sika's recommendations. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The user of the product must test the product's suitability for the intended application and purpose. Sika reserves the right to change the properties of its products. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request.

Further information available at:

Sika Deutschland GmbH
Subsidiary Bad Urach Tel: +49 (0) 7125 940 492
Stuttgarter Str. 139 Fax: +49 (0) 7125 940 401
D - 72574 Bad Urach Email: tooling@de.sika.com
Germany Internet: www.sika.com

