Biresin® CR144 w. Biresin® CH135-4 hardener
Composite resin system

Product Description

Biresin® CR144 resin (A) cured with Biresin® CH135-4 hardener (B) is an epoxy resin system suitable for the production of high performance fibre reinforced components by the RTM process.

Application Areas

Biresin® CR144/CH135-4 is especially suited to injection processes due to its viscosity range and reactivity. It can be used in areas where both higher temperature resistance and short cycle times are required.

Features / Advantages

- Fast injection and good wet-out of fabrics and non-wovens due to low viscosity and good wetting characteristics when injected at elevated temperature into a hot mould
- This system is particularly useful for applications where fast cycle times are required
- High temperature resistance - Tg >150°C possible

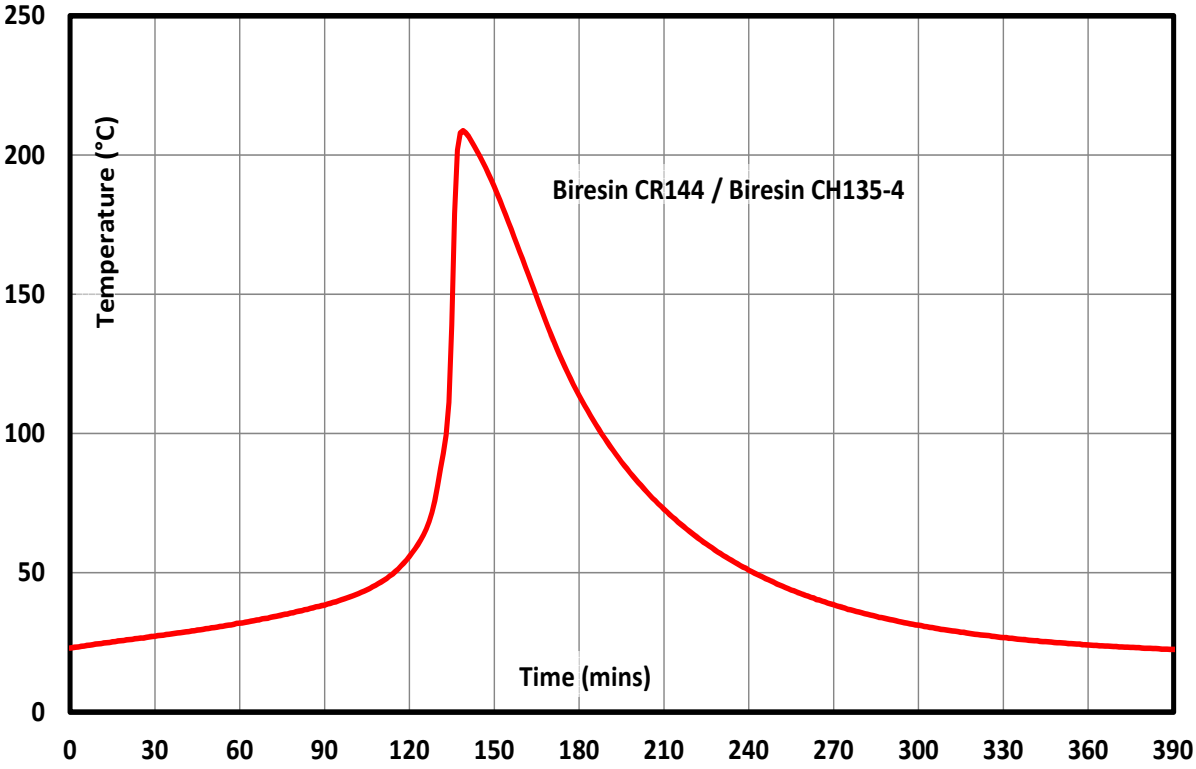
Physical Data		Resin (A)	Hardener (B)
Individual Components		**Biresin® CR144**	**Biresin® CH135-4**
Mixing Ratio, parts by	**Weight**	100	24
Mixing Ratio, parts by	**Volume**	100	30
Colour		translucent	colourless to yellowish
Viscosity, 25°C	mPa.s	~12,000	<10
Density, 25°C	g/ml	1.14	0.92
		Mixture	
Potlife, 100 g / RT, approx. values	min	140	
Mixed viscosity, 25°C, approx.	mPa.s	2,000	
Mixed viscosity, 55°C, approx.	mPa.s	200	
Mixed viscosity, 80°C, approx.	mPa.s	80	

Processing

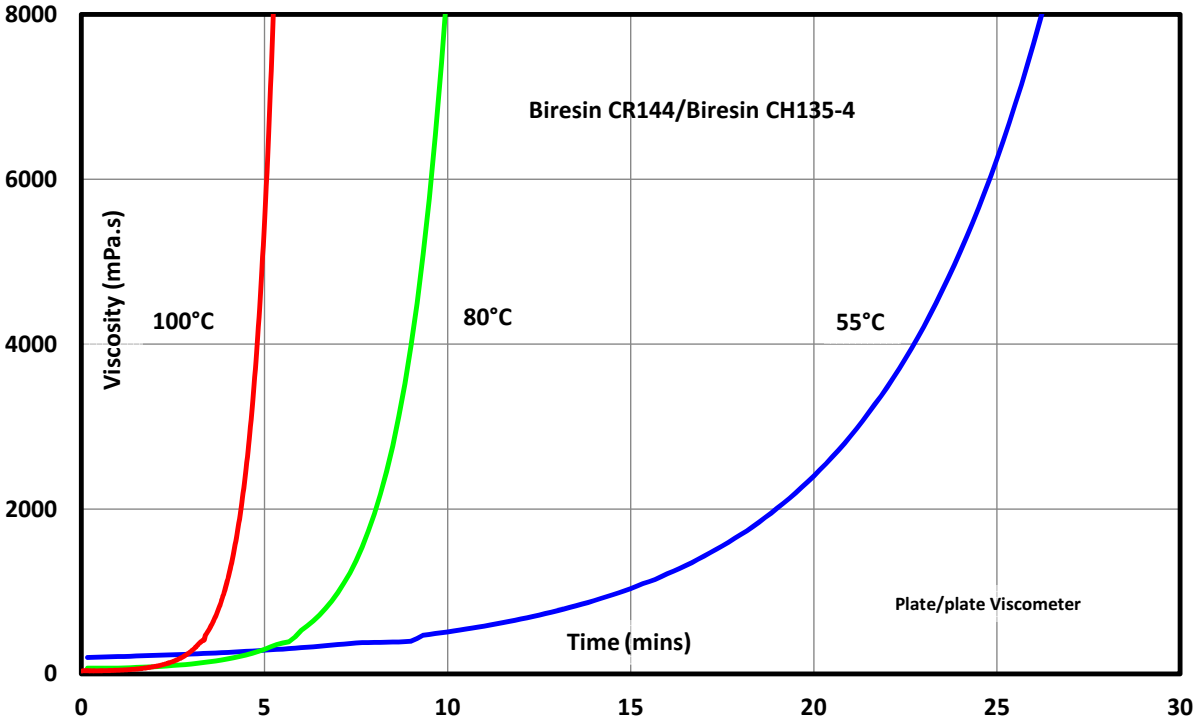
- The mixing ratio must be followed accurately to obtain best results. Deviating from the correct mix ratio will lead to lower performance.
- The injection temperature of the resin system shall be between 45°C-80°C.
- The mould temperature shall be 60°C-140°C for an isothermal process. For variothermal processing, mould temperatures can be between 60°C-180°C.
- 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”.

Thermal Properties Cured Neat Resin (approx. values after 4 h / 140°C)			
Biresin® CR144 resin (A)	with hardener (B) **Biresin®**		**CH135-4**
Heat distortion temperature	ISO 75B	°C	153
Glass transition temperature	ISO 11357	°C	153

Development of Exotherm of Biresin® CR144 Resin (A) - CH135-4 Hardener (B) (100g / RT, insulated)



Viscosity Development of Biresin® CR144-Resin (A) with CH135-4 Hardener (B) at Various Temperatures



Typical Mechanical Properties of Fully Cured Neat Resin, (approx. values after 4 h / 140°C)			
Biresin® CR144 resin (A) with hardener (B) **Biresin®**			**CH135-4**
Tensile strength	ISO 527	MPa	91
Tensile E-Modulus	ISO 527	MPa	2,750
Tensile Elongation (at break)	ISO 527	%	6.0
Flexural strength	ISO 178	MPa	135
Flexural E-Modulus	ISO 178	MPa	2,850
Compressive strength	ISO 604	MPa	123
Density	ISO 1183	g/ml	1.14
Shore hardness	ISO 868	-	D86
Impact resistance	ISO 179	kJ/m²	24

Packaging (net weight, kg)				
Biresin® CR144 resin (A)	1,000	200		10
Biresin® CH135-4 hardener (B)	850	180	26	3

Storage

- Minimum shelf life of Biresin® CR144 resin (A) is 24 month and of Biresin® CH135-4 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 (A) may occur. This is easily removed by warming up for a sufficient time 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.

Source of Data

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
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

BUILDING TRUST