

Biresin® CR83 Composite resin system

Product Description

Biresin® CR83 is an epoxy resin system with extremely low viscosity designed specifically for the infusion process for the production of high performance fibre reinforced composites parts and moulds. The system has thermal properties up to 80°C. Biresin® CR83 epoxy resin has a low tendency to crystallise.

Application Areas

Biresin® CR83 is especially suited to the infusion and injection processes due to its low viscosity range. It can be used in the marine and general industrial composite areas. Due to its good wetting properties it is particularly suited for use with carbon fibre reinforcement.

Features / Advantages

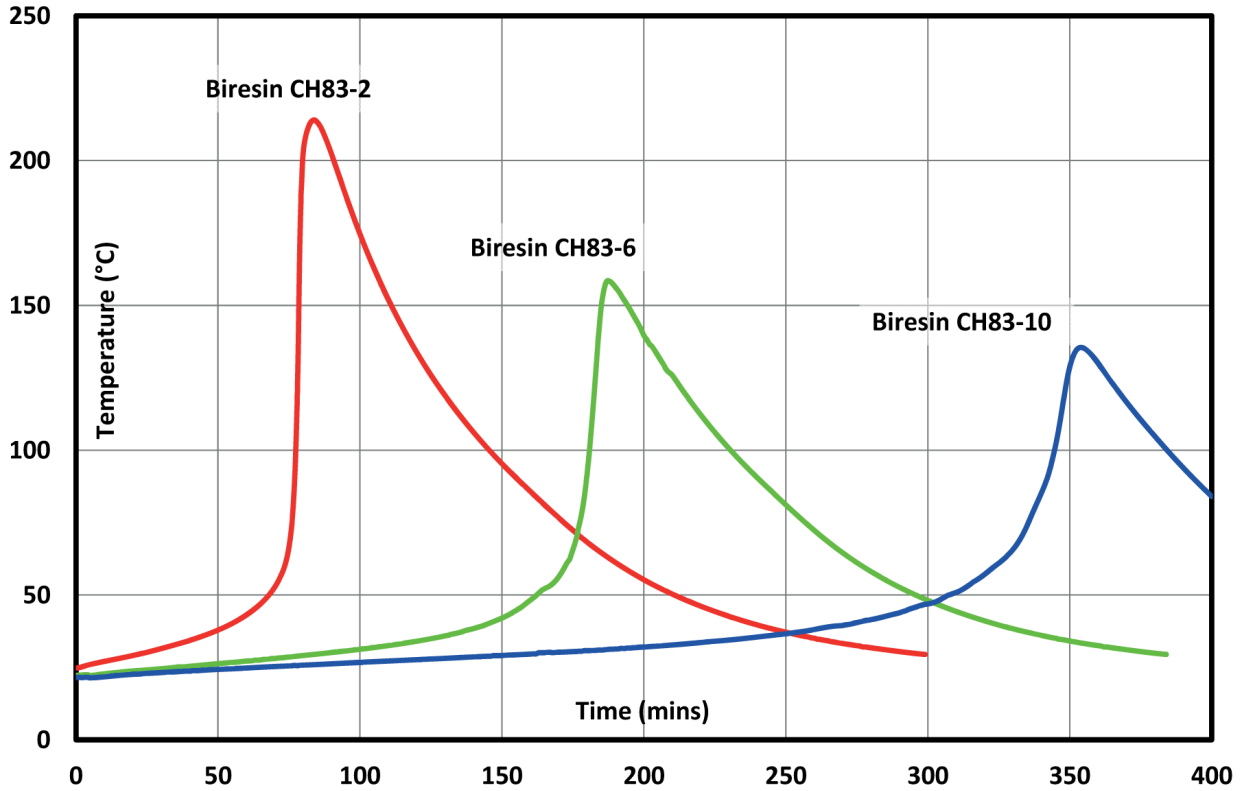
- 3 hardeners (B) give a wide range of processing times
- The reactivity can be adapted by mixing the hardeners
- Fast infusion and good wet-out of fabrics and non-wovens due to low viscosity and good wetting characteristics even at low temperatures
- All systems Germanischer Lloyd approved, Certificate No. WP 1420017 HH.
- Glass transition temperatures up to 80°C dependent on curing conditions
- Carbon fibres are wet out well by all of the resin systems
- Biresin® CR83 resin (A) has a low tendency to crystallise

Physical Data		Resin (A)		Hardener (B)	
Individual Components		Biresin® CR83	Biresin® CH83-2	Biresin® CH83-6	Biresin® CH83-10
Mixing ratio, parts by	weight	100	30		
Mixing ratio, parts by	volume	100	36		
Colour		translucent	colourless to yellowish		
Viscosity, 25°C	mPa.s	~510	<10	<10	< 10
Density, 25°C	g/ml	1.14	0.95	0.94	0.95
		Mixture			
Potlife, 100 g / RT, approx. values	min		60	180	300
Mixed viscosity, 25°C, approx. values	mPa.s		155	170	155

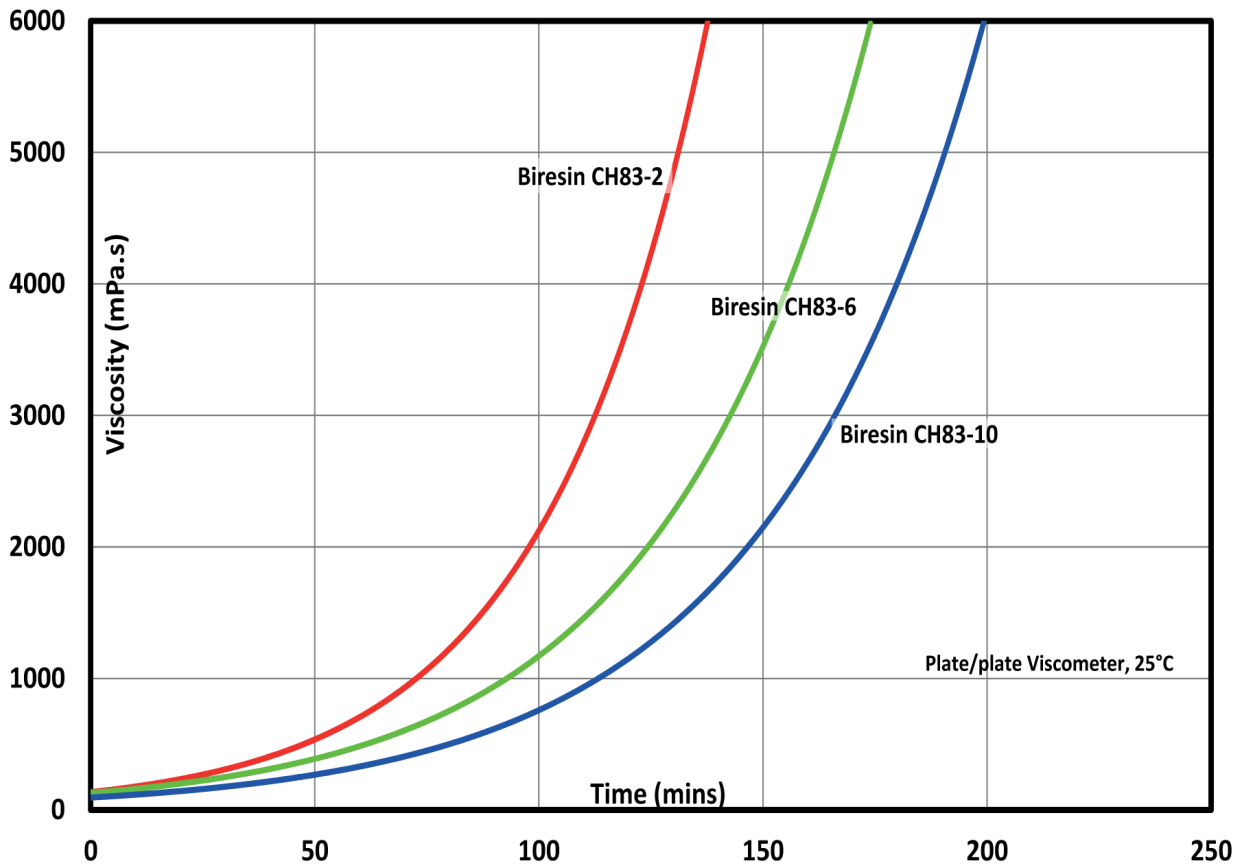
Processing

- 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".

Development of Exotherm of Biresin® CR83-Resin (A)-Hardener (B)-Mixtures, 100g / RT, insulated



Development of Viscosity of Biresin® CR83 (A)-Resin-Hardener (B)-Mixtures, 25°C



Typical Mechanical Properties of Fully Cured Neat Resin

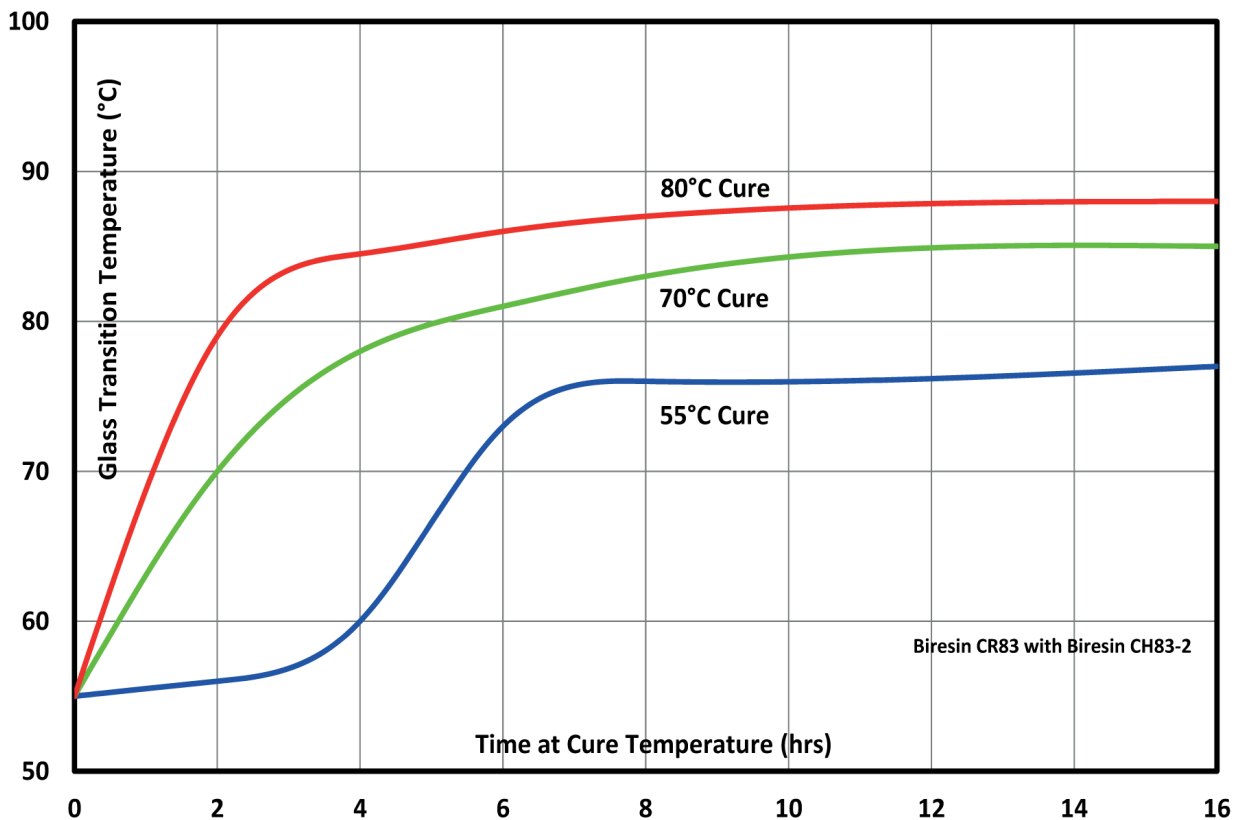
Data are for fully cured resin. Typically a minimum of 3 hours at 70°C is required to obtain full cure. When curing at lower temperatures such as 55°C, the dwell time must be substantially longer, e.g. 16 hours. When curing a composite part, the whole of the part (including the very middle of the laminate) needs to see the cure temperature.

Biresin® CR83 resin (A)	with hardener (B) Biresin®		CH83-2	CH83-6	CH83-10
Tensile strength	ISO 527	MPa	84	91	86
Tensile E-Modulus	ISO 527	MPa	2,960	3,200	3,100
Elongation at break	ISO 527	%	6.7	8.4	7.9
Flexural strength	ISO 178	MPa	129	134	131
Flexural E-Modulus	ISO 178	MPa	3,125	3,360	3,340
Compressive strength	ISO 604	N/mm ²	107	111	109
Density	ISO 1183	g/cm ³	1.15	1.15	1.15
Shore-hardness	ISO 868		D 85	D 85	D 85
Impact resistance	ISO 179	kJ/m ²	93	84	83

Typical Thermal Properties of Fully Cured Neat Resin

Biresin® CR83 resin (A)	with hardener (B) Biresin®		CH83-2	CH83-6	CH83-10
Heat distortion temperature	ISO 75B	°C	79	79	78
Glass transition temperature	ISO 11357	°C	84	80	81

Glass Transition Temperature vs. Cure Cycle



Packaging (net weight, kg)

Biresin® CR83 resin (A)	1,000	200		10
Biresin® CH83-2 hardener (B)		180	20	3.0
Biresin® CH83-6 hardener (B)		180	20	3.0
Biresin® CH83-10 hardener (B)		180	20	3.0

Storage

- Minimum shelf life of Biresin® CR83 resin (A) is 24 month and of Biresin® CH83-2, CH83-6 and CH83-10 hardeners (B) is 12 month under room conditions (18 - 25°C), when stored in original unopened containers.
- The tendency to of crystallise with this system is very low. However, if crystallisation of the resin (A) component appears, it can be easily removed by warming up the resin for a sufficient time to 50-60°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.

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