

Biresin® CR122

Composite resin system

Areas of Application

- For wet lay-up, pultrusion and filament winding processing
- Specially for applications when higher temperature resistance is required
- **Biresin® CR122** with **Biresin® CH122-3** and **CH122-5** approved by Germanischer Lloyd for the production of components
- **Biresin® CR122** with **Biresin® CH122-3** and **CH122-5** approved by Luftfahrt-Bundesamt (German Aeronautics Federal Office) as resin system for GRP-, CRP- and SRP parts for glider and power glider

Product Benefits

- One resin with two hardeners with different reactivity
- Uniform mixing ratio of 100 : 30
- the reactivity can be adapted by mixing the hardeners
- Because of optimized mixed viscosity good impregnation and good non draining properties
- Demoulding is possible already after RT curing
- Glass transition temperatures up to 120°C dependent on curing conditions

Description

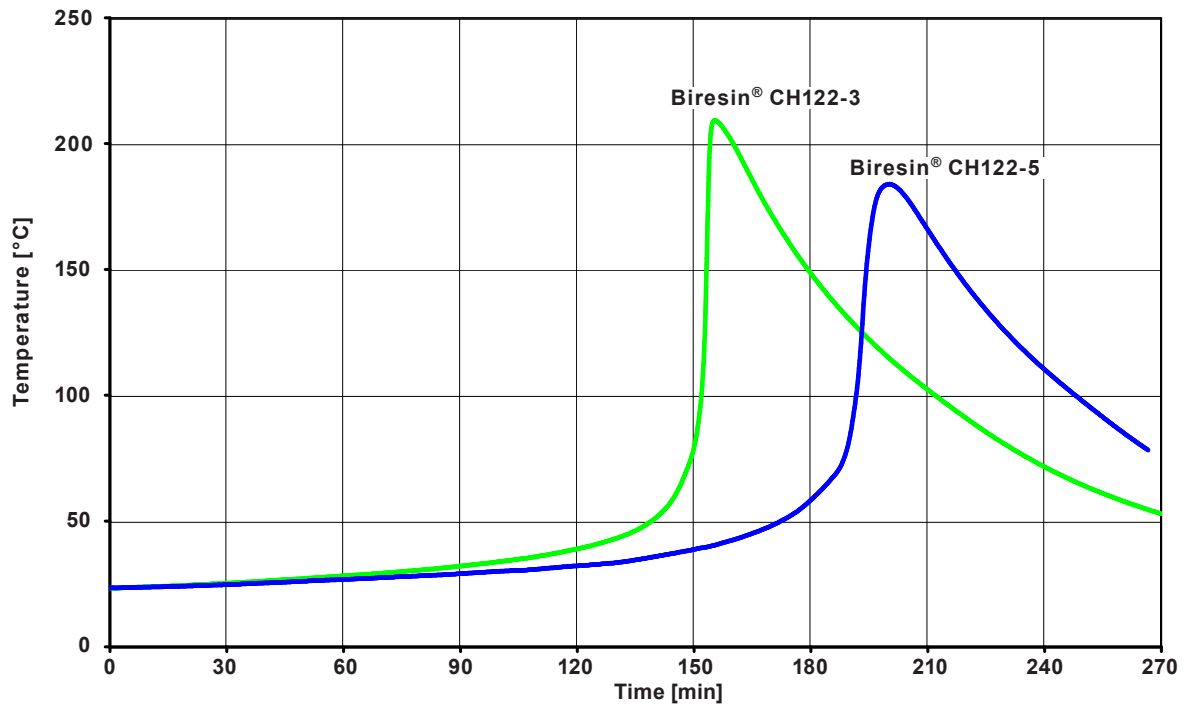
- Basis Two-component-epoxy-system
- Resin (A) **Biresin® CR122**, epoxy resin, translucent
- Hardener (B) **Biresin® CH122-3**, amine, colourless to brownish
- Hardener (B) **Biresin® CH122-5**, amine, colourless to brownish

Physical Data		Resin (A)	Hardener (B)	
Individual Components		Biresin® CR122	Biresin® CH122-3	Biresin® CH122-5
Viscosity, 25°C	mPas	850	15	15
Density, 25°C	g/ml	1.17	0.94	0.93
Mixing ratio	in parts by weight	100	30	
			Mixture	
Potlife, 100 g / RT, approx. values	min		90	150
Mixed viscosity, 25°C, approx. values	mPas		370	380

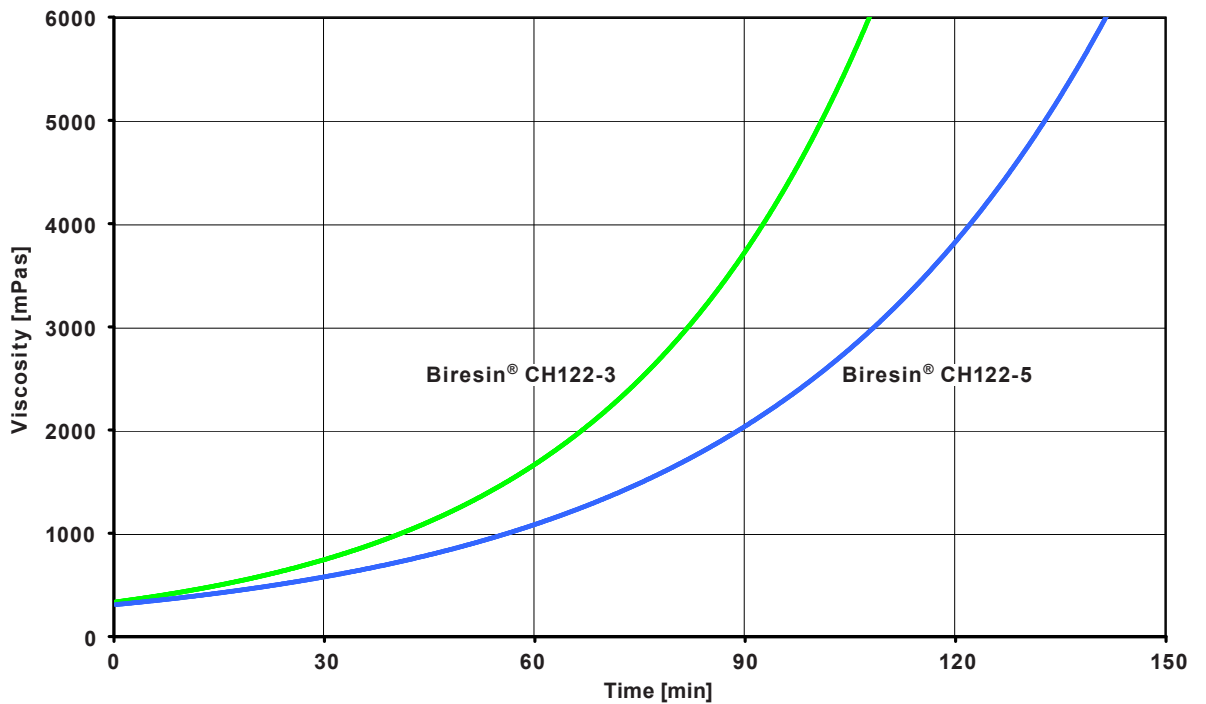
Processing

- The material and processing temperatures should be from 18 to 35°C.
 - The option of room temperature precuring before demoulding is provided.
 - Postcuring is recommended:
 - for achieving of GL minimum requirements: 16 h / 55°C plus 3 h / 70°C
 - for achieving of LBA-RHV minimum requirements with **Biresin® CH122-3**:
 - carbon fibre: 12 h / RT plus 8 h / 55-60°C
 - glass fibre: 12 h / RT plus 8 h / 60-65°C
 - for achieving of LBA-RHV minimum requirements with **Biresin® CH122-5**:
 - carbon / glass fibre: 12 h / RT plus 12 h / 65°C
- With that curing conditions the system achieves the requirements for glider and power glider (temperature range of use -60 up to +54°C)
- To clean brushes or tools immediately Sika Reinigungsmittel 5 is recommended.
 - Additional informations are available in "Processing Instructions for Composite Resins".

Development of Exotherm of Biresin® CR122-Resin(A)-Hardener(B)-Mixtures, 100g / 23°C, insulated,



Development of Viscosity of Biresin® CR122-Resin(A)-Hardener(B)-Mixtures, 25°C



Test conditions: rotation viscosimeter, plate/plate, measuring gap 0,2 mm



Mechanical Data, neat resin specimen at different post curing conditions				
Part 1: approx. values after 16 h / 55°C (source: accredited testing institute)				
Biresin® CR122 resin (A)		with hardener (B) Biresin®	CH122-3	CH122-5
Density	ISO 1183	g/cm³	1.17	1.17
Flexural E-Modulus	ISO 178	MPa	3,500	3,500
Tensile E-Modulus	ISO 527	MPa	3,300	3,400
Flexural strength	ISO 178	MPa	121	121
Elongation at maximum flexural strength	ISO 527	%	4.9	4.9
Tensile strength	ISO 527	MPa	70	70
Water absorption	ISO 175	%	0.32	0.33
Part 2: approx. values after 16 h / 55°C + 3 h / 70°C (source: accredited testing institute)				
Biresin® CR122 resin (A)		with hardener (B) Biresin®	CH122-3	CH122-5
Density	ISO 1183	g/cm³	1.17	1.17
Flexural E-Modulus	ISO 178	MPa	3,400	3,400
Tensile E-Modulus	ISO 527	MPa	3,300	3,200
Flexural strength	ISO 178	MPa	122	120
Elongation at maximum flexural strength	ISO 527	%	5.4	5.3
Tensile strength	ISO 527	MPa	70	69
Water absorption	ISO 175	%	0.32	0.33
Part 3: approx. elongation values after post curing (source: accredited testing institute)				
Biresin® CR122 resin (A)		with hardener (B) Biresin®	CH122-3	CH122-5
Post curing conditions		12 h RT +	8 h / 65°C	12 h / 65°C
Elongation at maximum tensile strength	ISO 527	%	5,1	6,0
Part 4: approx. values after 12 h / 120 °C (source: Sika internal)				
Biresin® CR122 resin (A)		with hardener (B) Biresin®	CH122-3	CH122-5
Density	ISO 1183	g/cm³	1.17	1.16
Shore hardness	ISO 868	-	D 86	D 86
Flexural E-Modulus	ISO 178	MPa	2,700	2,700
Tensile E-Modulus	ISO 527	MPa	2,800	2,800
Flexural strength	ISO 178	MPa	128	125
Compressive strength	ISO 604	MPa	120	118
Tensile strength	ISO 527	MPa	84	84
Elongation at break	ISO 527	%	5.4	5.6
Impact resistance	ISO 179	kJ/m²	52	59
Thermal data of neat resin specimen at different post curing conditions				
Biresin® CR122 resin (A)		with hardener (B) Biresin®	CH122-3	CH122-5
Post curing conditions				
Heat distortion temperature	16 h / 55°C	ISO 75A °C	68	67
	16 h / 55°C + 3 h / 70°C	ISO 75A °C	75	73
	12 h / 120°C	ISO 75B °C	118	120
Glass transition temperature	8 h / 55°C	ISO 11357 °C	78	79
	12 h / 60°C	ISO 11357 °C	82	84
	12 h / 120°C	ISO 11357 °C	114	119



Packaging

Individual components	Biresin® CR122 resin (A)	1000 kg; 200 kg; 30 kg; 10 kg net
	Biresin® CH122-3 hardener (B)	180 kg; 25 kg; 3.0 kg net
	Biresin® CH122-5 hardener (B)	180 kg; 25 kg; 3.0 kg net

Storage

- Minimum shelf life of Biresin® CR122 resin (A) is 24 month and of Biresin® CH122-3 hardener (B) and CH122-5 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 may occur. This is easily removed by warming up 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 safetyrelated 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:

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Luftfahrt-Bundesamt

Bundesoberbehörde im Geschäftsbereich des Bundesministeriums für Verkehr,
Bau und Stadtentwicklung (BMVBS)

Luftfahrt-Bundesamt - 38144 Braunschweig

Sika Deutschland GmbH
z.Hd. Herrn Holger Giese
Market-Development Manager
Composite
Stuttgarter Str. 139
72574 Bad Urach

Ihr Zeichen:
Ihre Nachricht vom: 15. Mai 2009
Unser Zeichen: T 4-20500-FVK Sika/09
Unsere Nachricht vom:

Auskunft erteilt: Herr Fendt
Telefon: 0531 2355 295
Fax: 0531 2355 724
E-Mail: Helmut.Fendt@lba.de

Datum: 20. Mai 2009

Harzsystem Sika Biresin® CR122 / CH122-3

Courtesy Translation

Dear Mr. Giese,

having reviewed the test results we received May 15th 2009, we do not object to the use of the resin-hardener-system

Sika Biresin® CR122 / CH122-3

for production of sailplanes and powered sailplanes, made from glasfiber, carbonfiber and aramidfiber reinforced plastics, provided that the user assesses suitability for his applications and production facilities. The register of LBA-accepted resin-hardener-systems has been amended accordingly.

Regarding the possible appearance of problems, related to the use of the resin-hardener-system, we expect prompt information from your side.

Yours sincerely

By order

Fendt

- enclosure

2 lists LBA-accepted resin-hardener-systems



Luftfahrt-Bundesamt

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Ihr Zeichen:
Ihre Nachricht vom: 23. Juni 2009
Unser Zeichen: T 4-20500-FVK Sika 2/09
Unsere Nachricht vom:

Auskunft erteilt: Herr Fendt
Telefon: 0531 2355 295
Fax: 0531 2355 724
E-Mail: Helmut.Fendt@lba.de

Datum: 15. Juli 2009

Harzsystem Sika Biresin® CR122 / CH122-5

Courtesy Translation

Dear Mr. Giese,

having reviewed the test results we received July 6th 2009, we do not object to the use of the resin-hardener-system

Sika Biresin® CR122 / CH122-5

for production of sailplanes and powered sailplanes, made from glasfiber, carbonfiber and aramidfiber reinforced plastics, provided that the user assesses suitability for his applications and production facilities.

Please explicitly advise the users of the temper cycle, which is recommended in the test report.

The register of LBA-accepted resin-hardener-systems has been amended accordingly. Regarding the possible appearance of problems, related to the use of the resin-hardener-system, we expect prompt information from your side.

Yours sincerely

By order

Fendt

- enclosure

2 lists LBA-accepted resin-hardener-systems

Statement of Approval



Approval No.

WP 1320019 HH

The material described below complies with the applicable requirements as given in the Rules and Regulations of Germanischer Lloyd. On this basis the material is

approved as

Laminating Resin

for the construction of components provided that the recommendations for use as specified by the producer are observed.

Type

Biresin CR122 - Series

Description

Two Component Epoxy Resin System

Producer

**SIKA Deutschland GmbH
Stuttgarter Str. 139
72574 Bad Urach**

Normative Reference

**Rules for Classification and Construction,
II - Material and Welding Technology
Part 2 Non-Metallic Materials**

This document consists of this page and a one-page annex which is integral part of the approval.

This Statement of Approval is valid until 2016-01-31.

Hamburg, 2013-04-11

Germanischer Lloyd


Stefan Röhr


Guido Michalek

Statement of Approval



ANNEX

Approval No. WP 1320019 HH

Date: 2013-04-11

Page 1 of 1

Reference Documents Technical specifications deposited at Germanischer Lloyd Head Office.

Assessed Documents

- Technical Data Sheet
- Test Report No. 175/7 issued by IMA Dresden
- Test Report issued by IFB Stuttgart
- Quality Control Documents

Fields of Application Construction of FRP laminates of components, on condition that the fibre reinforcements comply with the applicable requirements of the Germanischer Lloyd and are compatible to the resin.

Approved Variants Epoxy Resin Biresin CR122 with following hardeners:

- CH93-2
- CH122-3
- CH122-5

Limitations Any significant changes in design and/or quality of the material will render the approval invalid.

Remarks This certificate supersedes the approval WP 1220034 HH.

End of Annex

Germanischer Lloyd

A handwritten signature in blue ink, appearing to be 'M. Li.', is written over the 'Germanischer Lloyd' text.