

PRODUCT DATA SHEET

SikaBiresin® CR144

Composite resin system for advanced processes with T_g up to 151 °C

TYPICAL PRODUCT DATA (FURTHER VALUES SEE SAFETY DATA SHEET)

Properties	Component A SikaBiresin® CR144	Component B SikaBiresin® CH141	Component C SikaBiresin® CA144
Chemical base	Epoxy resin	Anhydride hardener	Accelerator
Color	Translucent	Colorless	Amber
Density	1.16 kg/l cured 1.21 kg/l	1.20 kg/l	1.03 kg/l
Mixing ratio	by weight by volume	100 90 87	1 – 4 1.1 – 4.5
Viscosity (CQP029-4)	12 000 mPa·s mixed 800 mPa·s	40 mPa·s	10 mPa·s
Pot life (CQP021-3 / Gel Timer TECAM)	24 hours		
Curing conditions	3 h at 80 °C + 3 h at 120 °C + 3 h at 140 °C		
Tensile strength (CQP036-2 / ISO 527)	90 MPa		
Tensile modulus (CQP036-2 / ISO 527)	2750 MPa		
Tensile elongation (CQP036-2 / ISO 527)	5.4 %		
Flexural strength (CQP027-2 / ISO 178)	140 MPa		
Flexural modulus (CQP027-2 / ISO 178)	3000 MPa		
Compressive strength (CQP028-5 / ISO 604)	120 MPa		
Shore D hardness (CQP023-1 / ISO 868)	87		
Impact resistance (CQP038-2 / ISO 179)	20 kJ/m ²		
Glass transition temperature (CQP301-5 / ISO 11357)	151 °C		
Heat deflection temperature (CQP030-1 / ISO 75B)	147 °C		
Shelf life	24 months	12 months	12 months

CQP = Corporate Quality Procedure

DESCRIPTION

SikaBiresin® CR144 is an accelerated anhydride cured epoxy resin system with thermal properties up to 151 °C. It is especially suited for heated processes, which require a very long pot life.

PRODUCT BENEFITS

- Very long pot life
- Low viscosity
- Adjustable reactivity by accelerator (C)
- DNV GL approved. Certificate No. TAK00001Y1

AREAS OF APPLICATION

SikaBiresin® CR144 is particularly suited to the filament winding and pultrusion processes due to its low viscosity, good fibre wetting capabilities and very long pot life.

This product is suitable for experienced professional users only. Tests under actual processing conditions and with additional materials such as fibers and release agents must be performed to proof material compatibility.

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METHOD OF APPLICATION

Mixing process

The components must be mixed homogeneously by using the common mixing techniques for composite resins. To get full performance, the indicated mixing ratio must be respected precisely. The mandatory amount of accelerator SikaBiresin® CA144 must be between 1 and 4 parts by weight per hundred of the resin component (A).

The temperature of the mixture has a direct influence on the viscosity and pot life of the resin system.

Note: Release agents or other additives can influence the material properties and performance.

Application

The data for viscosity and potlife in this Product Data Sheet is produced at 25 °C. Consider the change in processing parameters if the resin system is processed at different temperatures. The curing must be performed at temperatures ≥ 80 °C for the material to solidify. Subsequent postcuring is recommended.

Information regarding viscosity development and reaction time depending on the amount of accelerator are shown in the diagrams below.

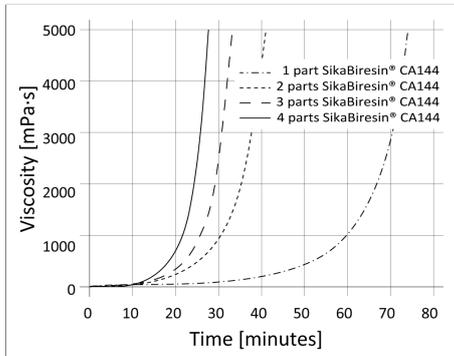


Diagram 1: Viscosity development at 100 °C depending on accelerator or concentration

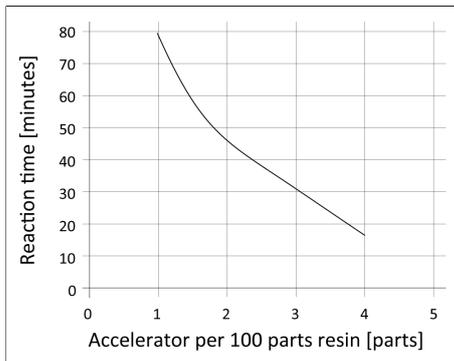


Diagram 2: Reaction time at 100 °C depending on accelerator concentration, Gelnorm (CQP021-5 / ISO 9396)

Prior to application, check all components for crystallization. The crystallization process can be reversed by heating the product to 60 °C – 70 °C until the crystals are no longer visible.

Containers must be closed tightly immediately after each use to prevent moisture ingress.

Postcuring

Mechanical and thermal values of the laminated part depend on various factors, such as laminate thickness, fiber volume content, reactivity of the resin system as well as chosen curing cycle.

For information concerning suitable curing cycles consult the General Guideline for Composite Resins.

Removal

Uncured SikaBiresin® CR144 can be removed from tools and equipment with Sika® Reinigungsmittel 5 or another suitable solvent. Once cured, the material can only be removed mechanically.

Hands and exposed skin shall be washed immediately using industrial hand cleaner and water.

Do not use solvents on skin.

STORAGE CONDITIONS

All components must be stored between 15 °C – 30 °C.

Prior to use check the material for homogeneity and crystallization and make sure to temper it to processing temperature.

FURTHER INFORMATION

The information herein is offered for general guidance only. Advice on specific applications is available on request from the Technical Department of Sika Industry.

Copies of the following publications are available on request:

- Safety Data Sheets
- General Guideline For Composite Resins
- DNV GL certificate

PACKAGING INFORMATION

SikaBiresin® CR144 (A)

Pail	10 kg
Drum	200 kg
IBC	1000 kg

SikaBiresin® CH141 (B)

Pail	9 kg
Drum	220 kg
IBC	1100 kg

SikaBiresin® CA144 (C)

Can	0.2 kg
Pail	10 kg

BASIS OF PRODUCT DATA

All technical data stated in this document are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

HEALTH AND SAFETY INFORMATION

For information and advice regarding transportation, handling, storage and disposal of chemical products, users shall refer to the actual Safety Data Sheets containing physical, ecological, toxicological and other safety-related data.

DISCLAIMER

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.

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