Tooling & Composites

Product Data Sheet
Version 05 / 2017

# Biresin® CR132
## Composite resin system

### Product Description

Biresin® CR132 is an epoxy resin system suitable for the production of high performance fibre reinforced composite parts and moulds with thermal properties up to 130°C

### Application Areas

Biresin® CR132 is especially suited to the hand lay-up, pultrusion and filament winding processes and can be used in general industrial composites and in composite tooling where higher thermal resistance is needed.

### Features / Advantages

- 3 hardeners (B) give a wide range of processing times
- Good impregnation and good non-draining properties due to optimized mixed viscosity
- Glass transition temperatures up to 135°C dependent on curing conditions
- Hardeners (B) are pigmented blue to assist in mixing and to help see where has been laminated

| Physical Data | | Resin (A) | Hardener (B) | | |
|---|---|---|---|---|---|
| **Individual Components** | | **Biresin® CR132** | **Biresin® CH132-2** | **Biresin® CH132-5** | **Biresin® CH132-7** |
| Mixing Ratio, parts by | **Weight** | 100 | 28 | 28 | 32 |
| Mixing Ratio, parts by | **Volume** | 100 | 34 | 34 | 39 |
| Colour | | translucent | blue | | |
| Viscosity, 25°C | mPa.s | ~1,800 | <10 | <10 | ~20 |
| Density, 25°C | g/ml | 1.14 | 0.95 | 0.93 | 0.93 |
| | | | **Mixture** | | |
| Potlife, 100 g / RT, approx. values | min | | 60 | 150 | 210 |
| Mixed viscosity, 25°C, approx. values | mPa.s | | 360 | 550 | 550 |

### 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.
- Before demoulding precuring of at least 2 h at 60°C is recommended.
- 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 Data, neat resin specimen (approx. values after 8 h / 125°C) | | | | | |
|---|---|---|---|---|---|
| **Biresin® CR132** resin (A) | | with hardener (B) | **Biresin® CH132-2** | **Biresin® CH132-5** | **Biresin® CH132-7** |
| Heat distortion temperature | ISO 75A | °C | 118 | 136 | 130 |
| Glass transition temperature | ISO 11357 | °C | 130 | 135 | 135 |



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| Typical Mechanical Properties of Fully Cured Neat Resin | | | | | |
|---|---|---|---|---|---|
| **Biresin® CR132** resin (A) | | with hardener (B) | **Biresin® CH132-2** | **Biresin® CH132-5** | **Biresin® CH132-7** |
| Tensile strength | ISO 527 | MPa | 83 | 77 | 78 |
| Tensile E-Modulus | ISO 527 | MPa | 2,700 | 2,650 | 2,450 |
| Elongation at break | ISO 527 | % | 6.6 | 4.6 | 5.7 |
| Flexural strength | ISO 178 | MPa | 125 | 115 | 114 |
| Flexural E-Modulus | ISO 178 | MPa | 2,750 | 2,750 | 2,700 |
| Compressive strength | ISO 604 | MPa | 109 | 118 | 115 |
| Shore hardness | ISO 868 | - | D 87 | D 87 | D 86 |
| Impact resistance | ISO 179 | kJ/m² | 47 | 32 | 33 |

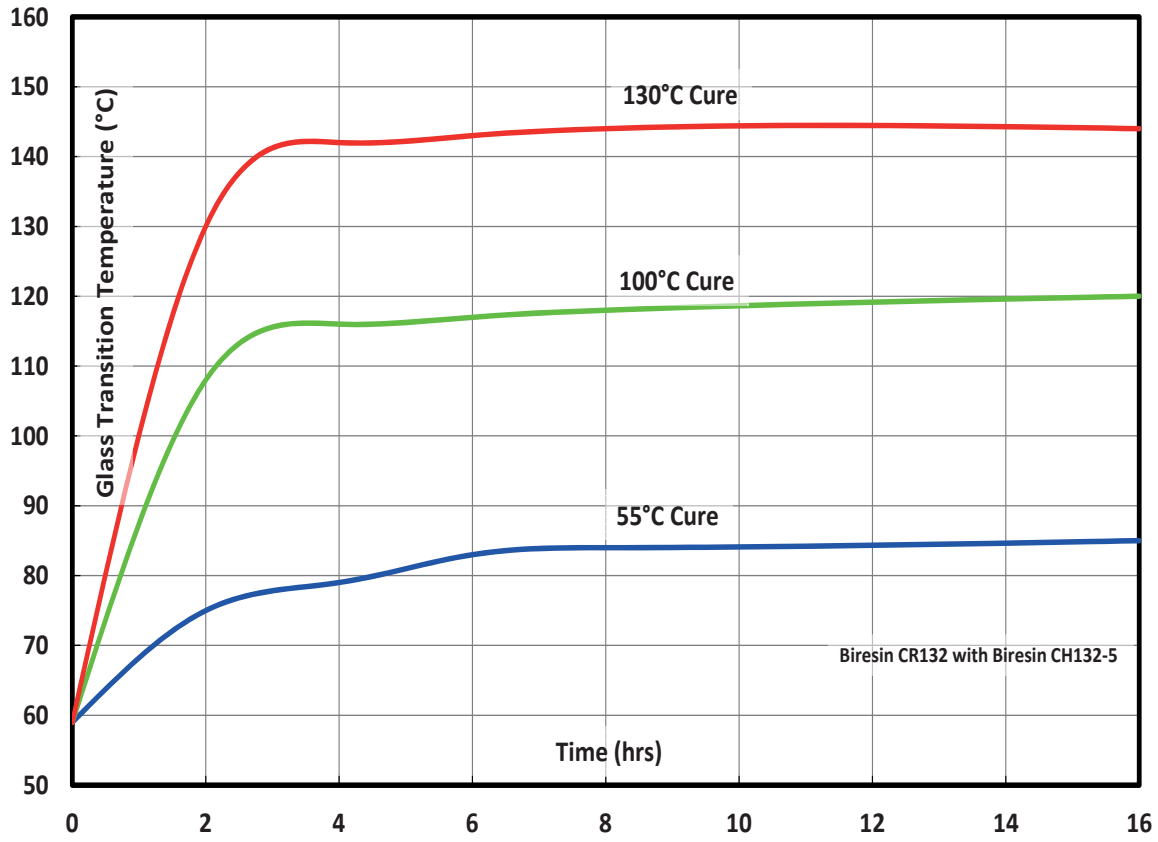
## Postcuring

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

## Glass Transition Temperature vs. Cure Cycle




The test specimens were produced from 3 mm thick pure resin. Before the above postcuring, the samples were cured for 7 days at 23°C. When curing a composite part, the whole of the part (including the very middle of the laminate) needs to see the cure temperature.

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## Packaging (net weight, kg)

| | | | | |
|---|---|---|---|---|
| Biresin® CR132 resin (A) | 1,000 | 200 | 15 | 10 |
| Biresin® CH132-2 hardener (B), (blue) | | | | 2.8 |
| Biresin® CH132-5 hardener, (B), (blue) | 900 | 180 | | 2.8 |
| Biresin® CH132-7 hardener (B), (blue) | | 180 | | 3.2 |

## Storage

- Minimum shelf life of Biresin® CR132 resin (A) is 24 month and that of hardeners (B) Biresin® CH132-2, CH132-5 and CH132-7 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 to 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





Further information available at:

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