

## Biresin® RG57 FR

### Low pressure RIM-system, flame retardant

#### Areas of Application

- Manufacture of stiff housings and coverings
- Manufacture of thin walled mouldings with complex structure
- Manufacture of flame retardant parts

#### Product Benefits

- Fast curing with good flowability
  - Short demoulding time
  - Flame retardancy tested according to:
    - DIN EN 45545-2 - Railway carriages
    - DIN 5510 - Railway carriages
    - DIN 75200, ISO 3795 - Automobiles
    - UL94 V-0 - Flame resistance
- see page 3 for more details

#### Description

- Basis Two component PUR system
- Component A **Biresin® RG57 FR**, polyol, black or beige
- Component B **Biresin® U5**, MDI-based isocyanate, brown

Processing Data		Component A	Component B
<b>Individual components</b>		<b>Biresin® RG57 FR</b>	<b>Biresin® U5</b>
Viscosity, 25°C	mPa.s	~ 3,800	~ 110
Density	g/cm³	1.30	1.23
Mixing ratio A : B	in parts by weight	100	44
		<b>Mixture</b>	
Potlife, RT	s	~ 55	
Demoulding time, RT, dependent on thickness	min	> 10	
Curing time, RT	d	~ 1	

Physical Data (approx. values)			
Biresin® RG57 FR (A)		with component B	Biresin® U5
Density	ISO 1183	g/cm³	1.30
Shore hardness	ISO 868	-	D 80*
E-Modulus	ISO 178	MPa	2,350*
Flexural strength	ISO 178	MPa	70*
Tensile strength	ISO 527	MPa	38*
Elongation at break	ISO 527	%	4*
Impact resistance	ISO 179	kJ/m²	20*
Heat distortion temperature	ISO 75B	°C	90*

\* processing in Al tool, 60°C

#### Packaging

Individual components	<b>Biresin® RG57 FR (A) black</b>	200 kg; 25 kg net;
	<b>Biresin® RG57 FR (A) beige</b>	220 kg; 25 kg net;
	<b>Biresin® U5 (B)</b>	250 kg; 20 kg; 5 kg net

## Processing

- The material and processing temperature must be from 18 to 25°C, if necessary to 40°C; the mould temperature at least 20°C up to max. 60°C.
- Component A must be stirred thoroughly before use.
- For processing a two-component dosage mixing machine is necessary which conforms to reactivity of resin and volume of casting parts.
- Machine vessel for component A must have a mixing unit and heating.
- Machine vessel for component B must be moisture tight, e. g. by installation of a silicagel filter.
- The resin and hardener components are to be mixed thoroughly and poured immediately into previously released moulds (e.g. with Sika® Liquid Wax-815 resp. Sika® Pasty Wax-818; for more information see product data sheet).
- Improved thermal stability of the demoulded mouldings can be obtained by post-curing.

## Storage

- Minimum shelf life is 12 month under room conditions (18 - 25°C), when stored in original un-opened containers.
- After prolonged storage at low temperature, crystallisation of components may occur. This is easily removed by warming up for a sufficient time to a maximum of 70°C. Allow to cool to room temperature before use.
- Containers must be closed tightly immediately after use to prevent moisture ingress. 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.

## 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.

## Results of Technical Fire Safety Testing of Biresin RG57 FR

- **Testing according to DIN 54837 (12/2009)** – Testing of materials, small parts, components for rail vehicles, determination of burning behaviour using a gas burner  
Assessment according to DIN 5510, Part 2 (05/2009) on 4 mm samples  
Flammability Class: S4  
Smoke Development Class: SR2  
Capacity to form drops: Class ST2
- **Testing according to DIN 5510 (05/2009), DIN EN ISO 5659-2 (03/2013)** –  
“Fire behaviour and side effects of materials and components, requirements and test methods: Smoke toxicity appendix C.”  
The samples passed the demands of smoke toxicity of listed products according to above test:  
FED (tzul = 30 min) = 0,69 < 1
- **Testing to NF X 70-100-1: 20006**  
Assessment of fire performance – analysis of smoke fumes  
Part 1: Analysis of the gases produced by thermal degradation  
Testing to NF X 70-100-2: 20006  
Assessment of fire performance – analysis of smoke fumes  
Part 2: Treatment of the gases produced in a muffle furnace  
Assessment according to DIN EN 45545-2:2013, rail applications – fire protection in rail vehicles  
Part 2: Requirements for the fire behaviour of materials and components  
Test method T12: CITNLP: 0,28, fulfils HL3
- **Testing according to DIN EN 45545-2 (08/2013) T10.03,**  
DIN EN ISO 5659-2 (03/2013)  
Evaluation according to DIN EN 45545-2 (08/2013) (sample thickness 3mm)  
Measured smoke density:  $D_s$  (max) = 253  
which fulfils Hazard Level HL2 for the requirement R22 and  
Hazard Level HL3 for the requirement R23
- **Testing according to DIN EN 45545-2 (08/2013), DIN EN ISO 4589-2 (06/2006)**  
Measurement of fire behaviour according to DIN EN 45545-2 (08/2013), requirements R22/R23  
The measured value of the Oxygen Index = 32.8%.  
Hazard Level HL3 is achieved
- **Testing according to DIN 75200, ISO 3795**  
Determination of the burning behaviour of materials of vehicle interiors with assessment of the maximum burning speed according to FMVSS 302:  
Maximum value of the burning rate: 0 mm/min (4mm sample thickness)
- **Burning behaviour according to UL94 (V):** Rated V-0 (3mm sample thickness)

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](mailto:tooling@de.sika.com)  
Internet: [www.sika.com](http://www.sika.com)

