

# High-Performance EP and PUR Systems for TOOLING AND COMPOSITES

- BLOCK MATERIALS AND MODEL PASTES
- VACUUM CASTING RESINS AND RIM-SYSTEMS
- COMPOSITE AND LAMINATING SYSTEMS
- EP- AND PUR-CASTING RESINS
- ELASTOMERIC CASTING RESINS
- AUXILIARY MATERIALS



### CREATING A STRONG FUTURE

#### YOUR ADDED VALUE

#### **Reliability and Safety**

Sika Advanced Resins is by your side as a strong global player. As an inherent part of the Swiss concern Sika AG you can rely on us.

#### **Quality and Innovation**

Our clients expect high-quality end products. Benefit from over 75 years of intensive expertise in the development of high-quality PUR and EP resins. With innovative and coordinated PUR and EP product systems, we help you to achieve end user satisfaction.

#### Flexibility and integrated solutions

As individual as your task. The comprehensive and integrated product range of Sika Advanced Resins offers you even more solutions for your applications.

#### Professional global support worldwide

Local experts provide you with personal on-site support in all issues relating to product processing and plant technology.

#### **Global Availability**

The consolidation of worldwide production sites, several development departments and our global dealer network maximizes the availability of our products – wherever you are located.

"As a global leader in Tooling and Composites, it is our aim to provide our customers with best in class innovative and tailor-made solutions. Being close to our customers is not only a word for us: Worldwide production and on-site support of our experts is the basis of our success. Every day, we are looking forward to create new and better solutions together with our customers."

> MORTEN MUSCHAK Corporate Target Market Manager Industry





### CUSTOMIZED SOLUTIONS FOR ...

- Foundry model making
- Automotive industry
- Transportation industry
- Sports and leisure
- Industrial applications
- Boat and yacht building industry
- Aviation industry
- Renewable energies
- Dielectrics

**ADVANCED RESINS AS PART** of Sika Industry and with over 75 years of experience, is a world leading provider and developer of high-performance resins, block materials and pastes for model and mould making. It offers customized solutions for the composite industry as well as structural adhesives. In addition, Advanced Resins offers technical casting for industrial filters.

Sika Industry is a part of Sika AG, which is headquartered in Baar Switzerland. Sika has subsidiaries in 100 countries worldwide with 300 manufacturing sites. It has approx. 25,000 employees, who generated annual turnover of CHF 8,1 billion.



### Sika Advanced Resins PRODUCT GROUPS







### BLOCK MATERIALS AND MODEL PASTES

CNC milling 3D models and moulds

- Design and Styling Boards
- Model and Tooling Boards
- Model and Mould Making Pastes
- Mass-Casting

Specially formulated machinable boards with associated adhesives and putty fillers can be used for the construction of design/master models as well as for various manufacturing moulds and tools.

Extrudable pastes and mass-casting systems are tailor-made products for making joint-free, near net shapes in styling design, cubing models and diverse moulds in high-quality.

These materials provide since decades beneficial alternative solutions technically and/or economically versus traditional methods using wood or metal.

### COMPOSITE AND LAMINATING SYSTEMS

Together they are strong

- High-Performance Composite Systems
- Gelcoats
- Laminating Systems

Composite resins are specially designed for the production of high-performance composites also giving good wetting of difficult fibre materials, variable viscosity for different production processes and application temperature ranges up to 225 °C.

Excellent processing and good resistance to external influences are the deciding features of gelcoats.

Our laminating and multipurpose resins can be used in different stages of manufacture in the construction of models, negatives, moulds and tools and result in high-grade laminates with excellent strength.

#### VACUUM CASTING RESINS AND RIM-SYSTEMS

Time and cost-efficient production of complex mouldings

- Vacuum Casting Systems
- Low Pressure RIM-Systems

For rapid production our vacuum casting systems based on polyurethane are the perfect solution. They simulate the majority of characteristics of thermoplastic series materials without limits in shapes intricacy.

The same applies for low pressure RIM-systems, which are processed with the help of 2-component-mixing and metering machines. Our RIM products can be used for small and large volume parts and are suitable for high-class prototypes as well as short runs and serial production.

Regarding the availability of the products in your country please refer to your contact person.



#### **EP AND PUR CASTING SYSTEMS**

Everything made in one casting

- Fastcast Resins
- EP Casting Resins
- PUR Casting Resins

The large range of tooling resins can be used in many different ways. They are suitable for the quick and inexpensive manufacture of production equipment such as foam-, RIM- and vacuumforming moulds or foundry patterns and metal sheet forming tools.

There are also suitable casting resins for making auxiliary items such as master and core models or negatives.

Some fastcast resins are particularly dedicated to make scale models production, mock ups and prototypes.

The system selected depends on the casting procedure in question, e.g. mass casting, backfill or facecasting.

#### **ELASTOMERIC CASTING RESINS**

Flexible also with regard to possible applications

- Elastomeric Casting Resins for Mould Making
- Elastomeric Casting Resins for Foundry Pattern Making
- Elastomeric Casting Resins for Ceramics
- Elastomeric Casting Resins for Concrete Moulds and Building Tools

The range of elastomeric PUR-casting resins includes high-quality synthetic resin systems with a variety of shore hardness levels (Shore A 40–D 66) and possible applications.

The soft elastic types are used for making flexible moulds and mouldings.

The tough elastic and tough hard types are suitable for impact resistant parts and abrasion resistant liners in foundry pattern making and special mechanical engineering.

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### DESIGN AND STYLING BOARDS

#### **DESIGN AND STYLING BOARDS**

Light PUR foam boards are most favored materials that designers prefer to work with to create shaped forms or styling prototypes/models.

These specially formulated boards are offered from 0.08 to 0.35 g/cm<sup>3</sup> density with optimum balanced mechanical and thermal properties.

All boards feature excellent machinability by hand or CNC milling, producing mainly shavings and minimal dust while delivering a fine and non-powdery surface.





Automotive design model made of Labelite range. The combination of superior surface quality and the use of dedicated adhesive Labelite Glue enables an easy painting with lowest appearance of glue lines. Credit: Estech Design

#### DESIGN AND STYLING BOARDS

|   |                      | SikaBlock® M80   | Labelite 8 GY                          | SikaBlock <sup>®</sup> M150                                    | Labelite 15 IY                             | SikaBlock® M330                                       | Labelite 25YW                              | SikaBlock® M440                                     | Labelite 35 OE                                |  |
|---|----------------------|--|--|--|--|---|--|---|---|--|
| Density   | [g/cm <sup>3</sup> ] | 0.   | 08                                     | 0.3  | 0.15                                       |   | 0.25                                       | 0.35  | 0.35  |  |
| Colour  |                      | yellowish  | grey                                   | light green  | ivory                                      | siena   | peach yellow                               | apricot   | orange  |  |
| Characteristics                                     |                      | fine   | and non-powdery s<br>low dust forma    | surface; easily work<br>tion when milled                       | able;                                      | excellen  | t surface quality; v<br>with low du        | ery good milling be<br>st formation                 | haviour;                                      |  |
| Physical data (ap                                   | prox. val            | ues)   |  |  |  |   |  |   |   |  |
| Shore hardness                                      |                      | -  | A 28                                   | -  | A 65                                       | D 25  | D 25                                       | D 38  | D 35  |  |
| Flex. strength                                      | [MPa]                | 1.1  | 1.0                                    | 2.2  | 2.2  | 5   | 5.4  | 9   | 9   |  |
| Compressive strength                                | [MPa]                | 0.8  | 0.7                                    | 1.6  | 1.6  | 4   | 3.8  | 8   | 7   |  |
| HDT   | [°C]                 | 130  | 115                                    | 80   | 80   | 60  | 75   | 60  | 70  |  |
| <b>CTE, α</b> <sub>τ</sub>                          | [1/K]                | 60 x 10 <sup>-6</sup>                                  | 40 x 10 <sup>-6</sup>                  | 65 x 10 <sup>-6</sup>  | 65 x 10 <sup>-6</sup>                      | 65 x 10 <sup>-6</sup>                                 | 60 x 10 <sup>-6</sup>                      | 65 x 10 <sup>-6</sup>                               | 60 x 10 <sup>-6</sup>                         |  |
| Processing data (                                   | approx. \            | values)  |  |  |  |   |  |   |   |  |
| <b>Dimensions</b><br>other dimensions<br>on request | [mm]                 | 2000 x 1000 x<br>thickness:<br>100/200/300/<br>400/450 | 2000 x 1000 x<br>thickness:<br>100/200 | 2000 x 1000 x<br>thickness:<br>100/150/200/<br>250/300/350/400 | 2000 x 1000 x<br>thickness:<br>100/150/200 | 1500 x 500 x<br>thickness:<br>50/100/200              | 1500 x 500 x<br>thickness:<br>50/100/200   | 1500 x 500 x<br>thickness:<br>50/75/100/150/<br>200 | 1500 x 500 x<br>thickness:<br>50/100/150/200  |  |
|   |                      | 2400 x 1300 x<br>thickness:<br>100/200/400             |  |  |  | 2000 x 1000 x<br>thickness:<br>50/100/150/<br>200/250 | 2000 x 1000 x<br>thickness:<br>100/150/200 | 2000 x 1000 x<br>thickness:<br>50/100/150/200       | 2000 x 1000 x<br>thickness:<br>50/100/150/200 |  |
| Adhesive  |                      |  | SikaBire                               | sin® B200  |  |   | SikaBiresin® B200 / SikaBiresin® B260      |   |   |  |
| Filler  |                      |  |  |  | SikaBire                                   | sin® B370   |  |   |   |  |

## MODEL AND TOOLING BOARDS

#### MODEL AND TOOLING BOARDS

Medium density brown boards are the ideal material for making master models or moulds for short series of parts. From 0.45 to 0.70 g/cm<sup>3</sup> we offer a complete range to satisfy every preference of model makers in mechanical strength, thermal resistance and of course surface aspect. Prolab boards display the smoothest surface aspect in such category in the market place while SikaBlocks<sup>®</sup> are thermally the most resistant and stable.



Full scale car model made of SikaBlock® M330 boards bonded with SikaBiresin® B260

MODEL AND TOOLING BOARDS





Models milled out of SikaBlock® PROLAB 65 fulfil highest demands of surface quality

|                            |        | SikaBlock <sup>®</sup> M450   | Labelite 45 PK                                   | SikaBlock® M455                                  | SikaBlock <sup>®</sup> M600 N   | SikaBlock <sup>®</sup> PROLAB 65               | SikaBlock <sup>®</sup> M700 N                          |  |
|----------------------------|--------|---|--|--|---|--|--|--|
| Density [g/                | /cm³]  |   | 0.45   |  | 0.60  | 0.70   | 0.70   |  |
| Colour                     |        | orange  | pink apricot                                     |  | light brown   | brown  | light brown  |  |
| Characteristics            | 5      | good economical<br>grade  | superior surface quality;<br>good edge stability | superior surface quality;<br>good edge stability | easily workable; fine, dense surface; good compressive strength<br>and edge stability; good heat distortion temperature |  |  |  |
| Physical data (            | appro  | ox. values)   |  |  |   |  |  |  |
| Shore hardnes              | s      |   | D 45   |  | D 58  | D 65   | D 64   |  |
| Flex. strength [I          | MPa]   |   | 12   | 12   |   | 29   | 25   |  |
| Compressive<br>strength [l | MPa]   |   | 10   |  | -   | -  | 25   |  |
| HDT                        | [°C]   | 78  | E  | 55   | 77  | 77   | 78   |  |
| CTE, α <sub>τ</sub>        | [1/K]  |   | 55 x 10 <sup>-6</sup>                            |  | 55 x 10 <sup>-6</sup>   | 75 x 10 <sup>-6</sup>                          | 55 x 10 <sup>-6</sup>                                  |  |
| Processing dat             | a (app | prox. values)   |  |  |   |  |  |  |
| Dimensions                 | [mm]   | 1500 x 500 x 1500 x 500 x 1500 x 500 x 1500 |  | 1500 x 500 x<br>thickness:<br>50/75/100/150/200  | 1500 x 500 x<br>thickness:<br>30/50/75/100/150/200  | 1500 x 500 x<br>thickness:<br>30/50/75/100/150 | 1500 x 500 x<br>thickness:<br>30/50/75/100/150/<br>200 |  |
| Adhesive                   |        | SikaBiresin® B260   | SikaBiresin® B200                                | / SikaBiresin® B260                              | SikaBiresin® B260   |  |  |  |
| Filler                     |        |   |  | SikaBires  | sin® B370   |  |  |  |

High-quality master models made of SikaBlock® M600 N / 700 N provides highest dimensional accuracy

### TOOLING BOARDS

#### **TOOLING BOARDS**

For composites tooling we offer epoxy boards with very compact surface aspect, high dimensional stability under heat and pressure to produce prepreg moulds or parts in autoclave and up to 130 °C.

We offer medium to high density PUR tooling boards from 0.78 to 1.7g/m<sup>3</sup> with high mechanical strength and sufficient heat resistance up to 100 °C combined with high dimensional stability. Their performance package makes them suitable for applications such as checking fixtures, gauges, vacuum forming tools, low pressure RIM-moulds as well as metal sheet stamping tools.



Gauge with high dimensional accuracy milled out of SikaBlock® M1050

| BOARDS FO  | BOARDS FOR HIGHEST DIMENSIONAL STABILITY |   |  |  |                              |   |  |  |  |  |
|--|--|---|--|--|------------------------------|---|--|--|--|--|
|  |  | LAB 975 NEW   | LAB 973  | SikaBlock <sup>®</sup> M1000   | SikaBlock <sup>®</sup> M1050 | SikaBlock <sup>®</sup> LAB 1000           |  |  |  |  |
| Density [g   | /cm³]                                    | 0.70  | 0.75   | 1,0  | 1.0                          | 1.67                                      |  |  |  |  |
| Colour light green                                 |  | light green   | blue   | white  | light grey                   | grey                                      |  |  |  |  |
| Characteristics                                    |  | new low density epoxy<br>board with high dimensional<br>stability under pressure<br>and heat up to 130 °C;<br>excellent performance/<br>price ratio | low density epoxy board<br>with high dimensional<br>stability under pressure and<br>heat up to 125 °C; superior<br>machinability and surface<br>aspect | medium density, good compressive strength and<br>edge stability; low thermal expansion and<br>high dimensional stability |                              | heavy-duty high density<br>tooling board  |  |  |  |  |
| Physical data                                      | (appro                                   | ox. values)   |  |  |                              |   |  |  |  |  |
| Shore hardness                                     |  | D75 (D68@130°C)   | D 73 (D 63 @ 130 °C)   | D 75   | D 76                         | D 89                                      |  |  |  |  |
| Flex. strength                                     | [MPa]                                    | 37  | 30   | 48   | 50                           | 90  |  |  |  |  |
| Compressive strength                               | [MPa]                                    | 50  | 50   | 47 48  |                              | 110                                       |  |  |  |  |
| HDT  | [°C]                                     | 130   | 125  | 85   | 90                           | Tg= 92                                    |  |  |  |  |
| <b>CTE, α</b> <sub>τ</sub>                         | [1/K]                                    | 35-42 x 10 <sup>-6</sup>  | 35-45 x 10 <sup>-6</sup>   | 55 x 10 <sup>-6</sup>  | 55 x 10 <sup>-6</sup>        | 45 x 10 <sup>-6</sup>                     |  |  |  |  |
| Processing da                                      | ta (apj                                  | prox. values)   |  |  |                              |   |  |  |  |  |
| <b>Dimensions</b><br>other dimension<br>on request | <b>[mm]</b><br>ons                       | 1500 x 500 x<br>thickness:<br>50/75/100/150/200   | 1500 x 500 x<br>thickness:<br>50/75/100/150/200  | 1500 x 500 x<br>thickness: thickness:<br>50/75/100 50/75/100   |                              | 830 x 500 x<br>thickness:<br>30/50/75/100 |  |  |  |  |
| Adhesive   |  | Н 8   | 973  | SikaBiresin® B180  |                              |   |  |  |  |  |



High durability with SikaBlock® M980 for foundry core boxes even in complicated shapes

SikaBlock® M945 provides excellent milling behaviour with low dust formation

#### FOUNDRY TOOLING BOARDS

Sika Advanced Resins offers a wide range of tooling boards specially dedicated to make foundry patterns and cold core boxes.

Model-makers can select the most suitable board for their requirement in durability: abrasion resistance level from low to higher series of sand mouldings to be made as well as strength and dimensional stability.

These boards are cost-effective alternative solutions to metallic patterns and cold core boxes for most foundry processes up to medium size series.



| BOARDS                                  | FOR TO                  | OLS AND FOUNDRY   |   |   |  |   |   |
|---|-------------------------|---|---|---|--|---|---|
|   |                         | SikaBlock® M935   | SikaBlock® M945   | SikaBlock® M960   | SikaBlock <sup>®</sup> LAB 920             | SikaBlock® LAB 850  | SikaBlock <sup>®</sup> M980   |
| Density                                 | [g/cm <sup>3</sup> ]    | 1.2   | 1.35  | 1.2   | 1.30                                       | 1.18  | 1.35  |
| Colour                                  |                         | light green   | green   | blue  | green                                      | dark blue   | blue  |
| Characteristics                         |                         | high dimensional<br>stability; easy to mill;<br>large length for less<br>bonding points | good abrasion<br>resistance; easy to mill;<br>high strength | good abrasion good abrasion resistance; easy to mill;<br>esistance; easy to mill; good impact resistance<br>high strength |  | high abrasion<br>resistance; excellent<br>milling behavior;<br>very high strength | excellent combination<br>between good abrasion<br>resistance and dimensional<br>stability; very high strength |
| Physical da                             | ta (appro               | ox. values)   |   |   |  |   |   |
| Shore hard                              | ness                    | D 82  | D 83  | D 78  | D 83                                       | D 79  | D 86  |
| Flex. strengt                           | th [MPa]                | 74  | 100   | 80  | 70   | 57  | 145   |
| Compressive<br>strength [MPa]           |                         | 74  | 95  | 70  | 69   | 47  | 120   |
| Impact resi                             | stance                  | 18  | 25  | 30  | 40   | 70-80   | 35  |
| HDT                                     | [°C]                    | 89  | 80  | 80  | 90   | 70  | 85  |
| <b>CTE, α</b> <sub>τ</sub>              | [1/K]                   | 56 x 10 <sup>-6</sup>   | 65 x 10 <sup>-6</sup>                                       | 85 x 10 <sup>-6</sup>   | 88 x 10 <sup>-6</sup>                      | 110 x 10 <sup>-6</sup>  | 60 x 10 <sup>-6</sup>   |
| Abrasion<br>resistance                  |                         | +   | ++  | +++   | ++   | +++   | +++   |
| Processing                              | data (ap                | prox. values)   |   |   |  |   |   |
| Dimensions<br>other dimer<br>on request | <b>s [mm]</b><br>isions | 1500 x 500 x<br>thickness:<br>30/50/75/100  | 1000 x 500 x<br>thickness:<br>30/50/75/100                  | 1000 x 500 x<br>thickness:<br>30/50/75/100  | 1000 x 500 x<br>thickness:<br>30/50/75/100 | 1000 x 500 x<br>thickness:<br>50/75/100   | 1000 x 495 x<br>thickness:<br>30/50/75/100  |
| Adhesive                                |                         |   |   | SikaBire  | sin® B180                                  |   |   |

### MODEL AND MOULD MAKING PASTES

#### **MODEL & MOULD MAKING PASTES**

Large size models and tools are made with extrudable PUR and epoxy pastes providing a workable surface applied onto a stable core substructure. This technique is widely used to make plugs for boats or wind blades as well as automotive or architectural designs. This technology is beneficial versus boards as offering lighter models with a smooth and seamless surface (joint-free unlike boards).

The PUR base allows for standard performance the fast-making of models without any post-curing.

The epoxy range provides higher dimensional stability and heat resistance for models or direct tooling applications in composite parts making.





MODEL AND MOULD MAKING PASTES



 $\mathsf{SikaBiresin}^{\otimes}$  SC175 thixotropy enables vertical application in single layer and without sagging



43 m long boat hull made of SikaBiresin® SC175 with a perfectly smooth and seamless surface

| MODEL / ME           |       | JOL   | D MARINI O PASTE  | 5   |  |   |  |   |
|----------------------|-------|-------|---|---|--|---|--|---|
| Component            |       | Α     | Biresin <sup>®</sup> M72  | SikaBiresin <sup>®</sup> SC175  | SikaBiresin® SC180   | SikaBiresin <sup>®</sup> SC380  | SikaBiresin <sup>®</sup> SC390   | SikaBiresin® SC258  |
| Component            |       | В     | Biresin <sup>®</sup> M70  | SikaBiresin® SC175  | SikaBiresin® SC180   | SikaBiresin <sup>®</sup> SC380  | SikaBiresin® SC390   | SikaBiresin® SC258  |
| Mixing vatio         | []    | А     | 100   | 100   | 100  | 100   | 100  | 100   |
|                      |       | В     | 45  | 100   | 100  | 100   | 100  | 100   |
| Colour               |       |       | brown   | light grey  | brown  | grey  | grey   | light brown   |
| Characteristics      |       |       | PUR paste; fast<br>curing; easily<br>workable; fine,<br>dense surface; easy<br>to varnish | epoxy paste; very good<br>surface aspect; good<br>behaviour on vertical<br>support up to<br>30 mm; high thermal<br>resistance | medium density<br>epoxy paste and hard-<br>ness with short time<br>before machining for<br>epoxy; good thermal<br>resistance | multi-purpose epoxy<br>paste with good<br>strength and heat<br>resistance for high-<br>quality models<br>and moulds | medium density epoxy<br>paste with high<br>strength and heat<br>resistance ideal for<br>direct tooling | manual epoxy paste (hand or<br>planetary mixer) applicable until<br>40 mm; quick hardening in thin<br>coat and good adhesion on various<br>supports (wood, PS/PUR foams,<br>boards and on itself) |
| Processing dat       | a (ap | pro   | k. values)  |   |  |   |  |   |
| Viscosity [Pas]      |       | А     | 15,000 mPas   | 800   | 1,000  | 900   | 800  | -   |
|                      |       | В     | 175 mPas  | 800   | 900  | 800   | 800  | -   |
| Mixed viscosit       | y [Pa | s]    | pasty   | 800   | 1,000  | 800   | 800  | pasty   |
| Pot life             | [n    | nin]  | 10 (after machine<br>application)   | -   | -  | -   | -  | 65  |
| Workable afte        | r     | [h]   | 8   | 24-48   | 16-18  | 24  | 12-16  | 12-18   |
| Physical data (      | appr  | ox. v | alues)  |   |  |   |  |   |
| Density              | [g/c  | m³]   | 0.9   | 0.63  | 0.81   | 0.82  | 1.08   | 0.60  |
| Shore hardnes        | s     |       | D 65  | D 53  | D 58   | D 67  | D 75   | D 60  |
| Flexural streng      | th [N | IPa]  | 20  | 13  | 17   | 24  | 36   | 15  |
| Compressive strength | [M    | IPa]  | -   | 13  | 20   | -   | 36   | 23  |
| Tg                   |       | [°C]  | 47  | 83  | 84   | 83  | 91   | 51  |
| CTE, α <sub>τ</sub>  | [1    | /K]   | -   | 70  | 80   | 60  | 58   | 48  |
| Putty filler         |       |       | SikaBiresin® B370   | SC175/GC11  | SC180/GC11   | SC380/GC11  | SC390/GC11   | SikaBiresin® B370   |

## MASS CASTING PRODUCTS

#### NEAR NET SHAPE CAST BLANKS OUT OF MODEL CAST RESIN Biresin® M67

The model casting resin based on polyurethane is casted by a specialized Sika Advanced Resins partner based on your requested dimensions to near net shape cast blanks. After postcuring this blanks can be milled easily and with only low dust generation to the final shape. The outstanding properties of the final products, e.g. design models are fine and dense surfaces without seams and with high dimensional accuracy which can be painted subsequently very good.





Near net shape casting with Biresin® M67 in thin wall thicknesses results in models of light weight

#### Services offered:

- «Made-to-size» forms = pick your preferred material from medium to high density boards and request a customized mass-casting
- Block Mass-Casting (BMC)
- Shape Mass-Casting (SMC)

In-house service and/or provided with dedicated partners. Sika Advanced Resins offers service on project-basis but also regular partnerships are welcomed. Consult and make Sika Advanced Resins your partner of choice for a customized solution.

#### **Benefits:**

- Reduced material costs
- Joint-free castings
- Sustainable as less waste
- Wide choice of technical performance as offered in boards range to match any application from modeling to tooling
- Quality
- Confidence

#### BIRESIN® NEAR NET SHAPE CAST BLANKS

|                              | Biresin <sup>®</sup> M67  |  |  |  |  |
|------------------------------|---|--|--|--|--|
| Colour                       | light brown   |  |  |  |  |
| Characteristics              | excellent surface quality; very good milling behaviour with<br>low dust formation; good adhesion of paints;<br>good mechanical properties |  |  |  |  |
| Applications                 | design, styling or cubing models;<br>light weight laminating moulds   |  |  |  |  |
| Processing data (appro       | x. values)  |  |  |  |  |
| Dimensions                   | customized casting up to more than 1 m <sup>3</sup> ; realization by specialized Sika partner, please contact our regional provider       |  |  |  |  |
| Filler                       | SikaBiresin® B370 SikaBiresin® SC258  |  |  |  |  |
| Mixing ratio                 | 100:2 100:100   |  |  |  |  |
| Pot life                     | 5 min 65 min  |  |  |  |  |
| Setting time                 | > 20 min 12–18 h  |  |  |  |  |
| Physical data (approx.       | values)   |  |  |  |  |
| Density [g/cm <sup>3</sup> ] | 0.86  |  |  |  |  |
| Shore hardness               | D 67  |  |  |  |  |
| Flexural strength [MPa]      | 30  |  |  |  |  |
| CTE. α <sub>τ</sub> [1/K]    | 78 x 10 <sup>-6</sup>   |  |  |  |  |



Also huge models in scale 1:1 can be casted out of Biresin® M67 in one shot

### GELCOATS

#### GELCOATS

Sika's specially formulated gelcoat for mould making offers high-quality products with easy application and required strength such as mechanical, thermal or chemical stress to resist to tooling constraints. Some grades in the range are polishable to obtain a shining mold surface that will transfer on the final part.

#### SikaBiresin® GC050:

- Proven standard gelcoat (white) for models and negatives
- SikaBiresin® GC14 hardener with longer pot life
- Good spreading and covering properties
- Easily workable

#### SikaBiresin® GC080:

- Blue gelcoat with good workability
- With SikaBiresin<sup>®</sup> GC11 hardener applicable on wet plaster (previously treated)
- With SikaBiresin<sup>®</sup> GC14 hardener better chemical and heat resistance for ceramic and RTM moulds (polyester)

|--|

|                   |              | Α     | SikaBires  | in <sup>®</sup> GC050 | SikaBires   | in® GC080                                      | SikaBiresin <sup>®</sup> GC108  |  |
|-------------------|--------------|-------|--|-----------------------|---|--|---|--|
|                   |              | В     | SikaBiresin® GC11  | SikaBiresin® GC14     | SikaBiresin® GC11   | SikaBiresin® GC14                              | SikaBiresin® GC08   |  |
| Mixing            | <b>A</b> 100 |       | 100  | 100                   | 100   | 100  | 100   |  |
| ratio             | [g]          | В     | 10   | 10                    | 10  | 10   | 20  |  |
| Colour            |              |       | white  | white                 | blue / white  | blue / white                                   | black   |  |
| Characteristics   |              |       | good spreading and covering properties;<br>easily workable |                       | can be applied on wet plaster<br>(previously treated), sandable<br>and polishable | high resistance to chemicals;<br>easy to apply | polishable to high gloss; heat resistant;<br>good styrene resistance    |  |
| Applications      |              |       | master models, r   | legatives, gauges     | ceramic moulds; applicable on<br>plaster models (previously<br>treated)           | ceramic moulds, RTM moulds<br>(polyester)      | vacuumforming moulds; master models;<br>moulds for composite production |  |
| Processing        | data         | a (ap | prox. values)  |                       |   |  |   |  |
| Pot life          | [n           | nin]  | 19   | 35                    | 12  | 25   | 30  |  |
| Geltime           | [n           | nin]  | 60   | 120                   | 40  | 60   | 60  |  |
| Demouldin<br>time | g            | [h]   | 16   | 24                    | 16  | 24   | 16-24   |  |
| Physical da       | ata (a       | appro | ox. values)  |                       |   |  |   |  |
| Density           | [g/c         | m³]   | 1,57   | 1.45                  | 1,73  | 1,72 1.22                                      |   |  |
| Shore hard        | ness         |       | D 88   | D 88                  | D 91  | D 90   | D 86*   |  |
| Flexural strength | [M           | Pa]   | 72   | 66                    | 74  | 82   | 90*   |  |
| HDT               |              | [°C]  | -  | -                     | -   | -  | 136*  |  |
| T <sub>G</sub>    |              | [°C]  | 85*  | 53                    | 100*  | 104*   | -   |  |





Tool for making reinforcements of bonnets made of SikaBiresin® GC080

| GELCOATS WITH EASY WORKABILITY |                      |  |  |  |  |  |  |  |
|--------------------------------|----------------------|--|--|--|--|--|--|--|
|                                | Α                    | SikaBiresin <sup>®</sup> GC112   | SikaBiresin <sup>®</sup> GC119   |  |  |  |  |  |
|                                | В                    | SikaBiresin® GC12  | SikaBiresin® GC19  |  |  |  |  |  |
| Mixing                         | А                    | 100  | 100  |  |  |  |  |  |
| ratio                          | [g] B                | 8  | 12   |  |  |  |  |  |
| Colour                         |                      | grey   | black  |  |  |  |  |  |
| Characteri                     | stics                | heat resistant; abrasion resistant;<br>good solvent and styrene resistance | high heat resistance   |  |  |  |  |  |
| Applications                   |                      | vacuumforming moulds, foundry patterns,<br>moulds for composite production | vacuumforming moulds, prototype / test<br>injection moulds, moulds for composite<br>production |  |  |  |  |  |
| Processing                     | g data (aj           | oprox. values)   |  |  |  |  |  |  |
| Pot life                       | [min]                | 30   | 45-60  |  |  |  |  |  |
| Geltime                        | [min]                | 45   | 150-180  |  |  |  |  |  |
| Demouldin<br>time              | ig<br>[h]            | 16-24  | 24   |  |  |  |  |  |
| Physical da                    | ata (appi            | ox. values)  |  |  |  |  |  |  |
| Density                        | [g/cm <sup>3</sup> ] | 2,1  | 1.65   |  |  |  |  |  |
| Shore hard                     | ness                 | D 92   | D 89*  |  |  |  |  |  |
| Flexural strength              | [MPa]                | 78   | 85*  |  |  |  |  |  |
| HDT                            | [°C]                 | > 100*   | 145*   |  |  |  |  |  |
| TG                             | [°C]                 | -  | 158*   |  |  |  |  |  |

Easy application of SikaBiresin® GC119

### LAMINATING SYSTEMS

#### LAMINATING AND MULTIPURPOSE RESINS

Sika Advanced Resins laminating systems result in high-grade laminates with excellent strength.

#### SikaBiresin® LS100 / SikaBiresin® L202 :

- Proven standard laminating systems for multipurpose use (ordinary laminates, coupling layer and backfillings)
- SikaBiresin<sup>®</sup> LS100 with different hardeners to reach various viscosity and pot life
- SikaBiresin<sup>®</sup> L202 with low exothermic temperature for large moulds in ceramic industry

#### SikaBiresin® L402:

- Green standard laminating pastes which are easy to mix and to apply
- For fast reinforcement of large negatives, foundry patterns and diverse moulds of low weight
- SikaBiresin<sup>®</sup> L402 offers lowest density of 0.72 g/l for large lightweight laminates

#### SikaBiresin® L84:

- High-grade laminating system for multipurpose use
- Different hardeners to reach various viscosity and pot life
- With SikaBiresin<sup>®</sup> L84 T hardener for heat resistant moulds (e.g. vacuumforming)

| STANDARD | LAMINATING | <b>RESINS AND</b> | LAMINATING | PASTES |
|----------|------------|-------------------|------------|--------|
| 5        |            |                   |            |        |

|                       | Α        |  | SikaBires          | in® LS100            |  | SikaBiresin® L202   | Si   | ikaBiresin® L8         | 30   | SikaBiresin® L402   | SikaBiresin <sup>®</sup> L90   |
|-----------------------|----------|--|--------------------|----------------------|--|---|--|------------------------|--|---|--|
|                       | В        | SikaBiresin®<br>LS100                                | SikaBiresin®<br>L4 | SikaBiresin®<br>GC11 | SikaBiresin®<br>GC12                               | SikaBiresin® L202   | SikaBiresin®<br>CH80-1                             | SikaBiresin®<br>CH80-2 | SikaBiresin®<br>GC12   | SikaBiresin® L400   | SikaBiresin® L90   |
| Mixing<br>ratio [g    | A I      |  | 10                 | 00                   |  | 100   |  | 100                    |  | 100   | 100  |
|                       | В        | 12   | 18                 | 19                   | 16   | 12  | 15   | 15                     | 12   | 14  | 14   |
| Colour                |          |  | yellowish-t        | ransparent           |  | clear transparent   | yellowish-t  | ransparent             | amber  | green   | blue   |
| Characterist          | tics     | all-purpose; variable pot life and viscosity         |                    |                      |  | low odour;<br>low exothermic<br>temperature;<br>good dimensional<br>stability | white colour; filled;<br>high dimensional accuracy |                        |  | low density<br>laminating paste,<br>very easy to mix;<br>very low shrinkage   | high dimensional<br>accuracy; very<br>smooth and with<br>good adhesion;<br>very easy to mix;<br>high thickness in<br>one operation |
| Application           | S        | ordinary laminates, coupling layers and backfillings |                    |                      | big moulds<br>and negatives in<br>ceramic industry | true-to-size laminates for gauges<br>and models                               |  |                        | for reinforcement<br>of large negatives,<br>models and moulds<br>of low weight<br>(e.g. foundry and<br>ceramic industry) | for reinforcement<br>of big negatives,<br>models, moulds<br>and tools; true-to-<br>size laminate for<br>difficult reinforce-<br>ment layers |  |
| Processing            | data (   | approx. value  | s)                 |                      |  |   |  |                        |  |   |  |
| Mixed<br>viscosity [m | 1Pas]    | 580  | 350                | 2,150                | 1,230  | 950   | 2,200  | 1,600                  | 2,000  | 4,000   | pasty  |
| Potlife               | [min]    | 55   | 80                 | 16                   | 60   | 45  | 45   | 75                     | 60   | 120   | 60   |
| Demoulding time       | [<br>[h] | 12   | 16                 | 8                    | 12   | -   | 16-24  | 16-24                  | 16-20  | 24  | 24   |
| Physical dat          | ta (ap   | prox. values)  |                    |                      |  |   |  |                        |  |   |  |
| Density [g/           | ′cm³]    |  | 1                  | .2                   |  | 1.17  | 1.   | 37                     | 1.35   | 0.72  | 1.0  |
| Shore hardn           | iess     | D 83   | D 80               | D 84                 | D 82   | D 86  | D 86   | D 86                   | D 85   | D 80  | D 73   |
| Flexural strength [   | MPa]     | 95   | 88                 | 95                   | 96   | 90  | 85/100   | 90/100                 | 75/80  | 42  | 50   |
| HDT                   | [°C]     | 51/70*   | 46 / 53*           | 50/61*               | 72*  | -   | 52 / 70*   | 52 / 70*               | 54/80*   | -   | 60   |
| T <sub>G</sub>        | [°C]     | -  | -                  | -                    | -  | 65  | -  | -                      | -  | 70  | -  |



High-grade laminates with excellent strength can be achieved with Sika Advanced Resins laminating resins.

| LAMINATING SYSTEMS WITH HIGHER HEAT RESISTANCE |           |                       |                           |                                |  |  |                                      |  |  |  |  |  |
|--|-----------|-----------------------|---------------------------|--------------------------------|--|--|--------------------------------------|--|--|--|--|--|
|  | Α         |                       | SikaBiresin® L84          |                                | SikaBiresin® CR172   | SikaBires                                  | in® CR190                            |  |  |  |  |  |
|  | В         | SikaBiresin® L84      | SikaBiresin® GC12         | SikaBiresin <sup>®</sup> L84 T | SikaBiresin® CH170-3   | SikaBiresin® CH190-4                       | SikaBiresin® L205                    |  |  |  |  |  |
| Mixing<br>ratio                                | [g] A     |                       | 100                       |                                | 100  | 100  | 100                                  |  |  |  |  |  |
|  | В         | 25                    | 20                        | 24                             | 17   | 41   | 35                                   |  |  |  |  |  |
| Colour   |           |                       | yellowish-transparent     |                                | colourless to brownish   | amber                                      | dark green                           |  |  |  |  |  |
| Characteri                                     | stics     | all-purpose, hig      | h mechanical strength and | heat resistance                | high heat resistance<br>after post curing                                      | MDA free; very good temperature resistance |                                      |  |  |  |  |  |
| Applicatio                                     | ns        | laminating moulds, va | cuumforming moulds, hea   | t resistant backfillings       | injection moulds and<br>other heat resistant<br>moulds, prototype<br>injection | heat resistant mo<br>and composi           | oulds, backfillings<br>te structures |  |  |  |  |  |
| Processing                                     | g data (a | approx. values)       |                           |                                |  |  |                                      |  |  |  |  |  |
| Mixed<br>viscosity                             | [mPas]    | 390                   | 1,090                     | 590                            | 800  | 2,000                                      | 650                                  |  |  |  |  |  |
| Pot life                                       | [min]     | 40                    | 20                        | 60                             | 110  | 150  | 300                                  |  |  |  |  |  |
| Demouldir<br>time                              | 1g<br>[h] | 24                    | 24                        | 24+ post curing                | 24+ post curing  | 24/RT +<br>24 h 60 °C                      | 24/RT +<br>24 h 60 °C                |  |  |  |  |  |
| Physical d                                     | ata (apj  | prox. values)         |                           |                                |  |  |                                      |  |  |  |  |  |
| Density [                                      | g/cm³]    |                       | 1.1                       |                                | 0.94   | 1.12                                       | 1.09                                 |  |  |  |  |  |
| Shore hard                                     | lness     | ess D 82 D 84 D 86    |                           |                                | D 85   | D  | 90                                   |  |  |  |  |  |
| Flexural strength                              | [MPa]     | Pa] 76 130 131*       |                           | 131*                           | 140  | 62   | 105                                  |  |  |  |  |  |
| HDT  | [°C]      | 100*                  | 91*                       | 110*                           | 162  |  |                                      |  |  |  |  |  |
| T <sub>G</sub>                                 | [°C]      | 104*                  | -                         | 123*                           | 170  | 190*                                       | 185                                  |  |  |  |  |  |

### COMPOSITE SYSTEMS FOR WET LAY-UP

Systems especially designed for wet lay-up applications. Good degassing behavior and non-draining properties support the best quality of the final result.

#### SikaBiresin® CR122:

- High-performance 120 °C System
- Approved by the german aviation authority LBA (Luftfahrtbundesamt)
- Meets the standards of the European RHV-guidelines (Part 22)
- Can be used for the production of gliders, motor gliders and ultralights without any further approval

#### SikaBiresin® CR172:

- T<sub>G</sub> potential of 174 °C
- Nontoxic system with a good price/performance ratio
- Very good wetting behavior for a high T<sub>G</sub> system
- Especially suitable for moulds and parts with a high heat resistance



Motorglider produced by Schempp-Hirth with SikaBiresin® CR122



SikaBiresin® CR82 with optimized viscosity for wet lay-up

#### COMPOSITE SYSTEMS FOR WET LAY-UP

|                           |  | Α                |        | SikaBires | sin® CR8                    | 2  |         | SikaBires | in® CR122  | 2       |         | SikaBires   | in® CR132 |  | SikaBires | in® CR172 | SikaBiresin® CR190 |
|---------------------------|--|------------------|--------|-----------|-----------------------------|--|---------|-----------|--|---------|---------|---|-----------|--|-----------|-----------|--------------------|
|                           |  | В                | CH80-1 | CH80-2    | CH80-6                      | CH80-10  | CH122-1 | CH122-3   | CH122-5  | CH122-9 | CH132-2 | CH132-5   | CH132-7   | CH122-9  | CH170-3   | CH172-6   | CH190-4            |
| Mixing                    |  | А                |        | 10        | 00                          |  |         | 100       |  | 100     | 10      | 00  | 100       | 100  | 100       | 100       | 100                |
| ratio                     | [g]  | В                |        | 2         | 7                           |  |         | 30        |  | 40      | 2       | 8   | 32        | 38   | 17        | 19        | 41                 |
| Characteris               | haracteristics modular 80 °C system with<br>GL-approval; 4 hardeners provide<br>a wide range of processing times<br>and applications |                  |        |           | with<br>provide<br>ig times | modular 120 °C system with<br>GL-approval and excellent properties;<br>additionaly approved by LBA/RHV to<br>build gliders, motor gliders and<br>ultralights |         |           | system with 1 <sub>c</sub> up to 162 °C. e.g.<br>suitable for high-performance moulds<br>for wind blades |         |         | nontoxic high T <sub>c</sub><br>system up to 174 °C |           | high T <sub>c</sub> system e.g.<br>suitable for moulds<br>in aviation market or<br>prepreg tools |           |           |                    |
|                           |  |                  |        |           |                             |  |         |           |  |         |         |   |           |  |           |           |                    |
| T <sub>G</sub>            | [°   | <b>C</b> ]       | 88     | 89        | 83                          | 85   | 103     | 114       | 119  | 145     | 130     | 135   | 135       | 162  | 170       | 174       | 190                |
| Pot life,<br>100 g/RT     | [mi  | in]              | 30     | 50        | 220                         | 330  | 30      | 90        | 150  | 330     | 60      | 150   | 210       | 480  | 110       | 220       | 150*               |
| Mixed visco<br>RT         | osity<br>[mPa  | ,<br>is]         | 1.100  | 800       | 400                         | 390  | 310     | 370       | 380  | 680     | 360     | 550   | 550       | 940  | 800       | 800       | 2.000*             |
| Impact<br>resistance [    | [k]/m  | 1 <sup>2</sup> ] | 17     | 21        | 55                          | 56   | 58      | 47        | 34   | 44      | 47      | 32  | 33        | 25   | 28        | 26        | -                  |
| Tensile<br>E-Modulus      | GF   | Pa]              | 3.3    | 3.25      | 2.9                         | 2.9  | 2.9     | 2.8       | 2.8  | 2.6     | 2.7     | 2.6   | 2.4       | 2.4  | 2.9       | 2.8       | 2.8***             |
| Tensile<br>strength [MPa] |  | 87               | 85     | 84        | 82                          | 86   | 84      | 84        | 87   | 83      | 77      | 78  | 68        | 70   | 76        | 40        |                    |
| Elongation<br>at break    | ۱<br>[۹  | %]               | 4.3    | 5.0       | 6.4                         | 6.2  | 6.3     | 5.4       | 5.6  | 6.9     | 6.6     | 4.6   | 5.7       | 3.9  | 3.0       | 3.9       | -                  |

\* 500g, RT \*\* Brookfield LVT, RT

\*\*\* Flexural E-Modulus [GPa]

### COMPOSITE SYSTEMS FOR VACUUMINFUSION

Infusionsystems with optimized viscosity and wetting properties guarantee a fast and proper fibre wet out.



Vacuuminfusion of a wind blade with SikaBiresin® CR131

#### COMPOSITE SYSTEMS FOR INFUSION

#### SikaBiresin® CR83:

- System with extremely low mixed viscosity
- Especially designed for vacuuminfusion processes at lower temperatures (15-18 °C)
- GL-approved system with all 3 hardeners
- Very low tendency to cristallize
- Suitable for marine industry or for very big and/or complex parts





Lightweight transporter by Carbon Truck & Trailer

Α SikaBiresin® CR80 SikaBiresin® CR83 SikaBiresin<sup>®</sup> CR120 SikaBiresin<sup>®</sup> CR131 CH94-2 CH83-2 CH83-6 CH83-10 CH120-3 CH120-6 CH135-4 CH132-5 CH132-7 CH135-8 B CH80-2 CH80-6 CH80-10 А 100 100 100 100 Mixing [g] B 26 28 32 21 ratio 30 24 30 30 modular 80 °C system with modular 80°C system with GL-approval with an system with system with 4 hardeners for a wide range Characteristics GL-approval; 3 hardeners provide a wide range of processing times extremely low viscosity and a low tendency to crystallize; especially for processing at lower of processing times and a  $T_{G}$  potential up to 140 °C (e.g. suitable for wind blade moulds) GL-approval with 2 hardeners and and applications temperatures or for big and/or complex parts a T<sub>G</sub> potential up to 115 °C 127  $T_{G}$ [°C] 93 85 85 97 84 80 81 113 115 138 136 138 Pot life, 60 190 330 60 60 180 300 90 180 160 140 260 260 100 g / RT [min] Mixed viscosity, 500 230 210 320 170 155 24N 540 450 450 360 RT [mPas] Impact 50 76 41 93 84 83 55 27 46 37 29 29 68 resistance [kJ/m<sup>2</sup>] Tensile 2.9 3.0 3.0 3.0 3.2 3.1 2.8 2.7 2.8 2.7 2.7 2.8 E-Modulus [GPa] Tensile 80 78 91 80 80 86 84 89 83 83 84 89 strength [MPa] Elongation 6 1 5.8 6 3 4 F 67 84 58 5 5 9 6.7 6.3 [%] at break

\* 500g, RT

\*\* Brookfield LVT, RT

\*\*\* Flexural E-Modulus [GPa]

SikaBiresin® CR80 offers ideal flowing properties and good wetting behaviour

### VACUUM CASTING SYSTEMS

#### **VACUUM CASTING SYSTEMS**

Sika vacuum casting systems are the optimal solution for complicated moulds and rapid prototyping. Vacuum casting process provides parts with best visual appearance and highest mechanical properties.

#### SikaBiresin® PX840:

- 3 components to cover all A shore range
- Low viscosity
- Easy to pigment

#### SikaBiresin® PX212 L5:

- Filled PP similarity
- Perfectly suitable for automotive parts
- High impact resistance
- Available in two reactivities



Front light lens made of SikaBiresin® PX522

| SUFIIUSE             | MI-RIGID     | SY2  |  |   |  |   |  |
|----------------------|--------------|------|--|---|--|---|--|
| Component IS         | OCYANATE     | Α    | SikaBiresin® PX761   | SikaBiresin® PX840  | SikaBiresin® PX205   | SikaBiresin® PX212 L5   | SikaBiresin® PX100   |
| Component P          | OLYOL        | В    | SikaBiresin® PX761   | SikaBiresin® PX840  | SikaBiresin® PX205   | SikaBiresin® PX212 L5   | SikaBiresin® PX100   |
| Component E          | XTENDER      | С    | -  | SikaBiresin® PX840 Extender   | -  | -   | -  |
|                      |              | А    | 100  | 100   | 100  | 100   | 100  |
| Mixing ratio         | [g]          | В    | 45   | 100   | 50   | 100   | 100  |
|                      |              | С    | -  | 0-500   | -  | -   | -  |
| Colour               |              |      | amber  | off-white   | amber to dark amber  | translucent   | off-white  |
| Characteristics      | 5            |      | fast demoulding; high<br>reproduction accuracy;<br>«moulded rubber» aspect;<br>abrasion resistance; max.<br>peak temperature: 100 °C | 3 components for variable<br>hardness; fixed mix ratio in<br>between polyol & isocyanate;<br>easy to tint; low silicone<br>moulds agressiveness | very good impact<br>resistance; quick<br>hardening; thermoplastic<br>aspect; easy processing | low viscosity for easy<br>casting; excellent<br>impact resistance;<br>fast demoulding   | low viscosity; long pot life;<br>good mechanical proper-<br>ties; can be painted |
| Applications         |              |      | soft technical parts under<br>vacuum process   | prototype and short series of<br>soft parts to cover all A shore<br>range; fully compatible with<br>ESSIL 291 silicone moulds                   | parts with high impact<br>and abrasion resistance;<br>hinge effect                           | thermoplastic-like parts<br>with a flexural modulus of<br>elasticity close to filled PP | cast by hand or vacuum<br>machine to achieve ABS<br>type large parts             |
| Processing dat       | a (approx. v | alue | 25)  |   |  |   |  |
| Mixed viscosity      | y [mF        | Pas] | 1,500  | -   | 1,600  | 800   | 100  |
| Pot life             | [n           | nin] | 8-12   | 13-15   | 12-15  | 4-6   | 15-20  |
| Demoulding tir       | me [n        | nin] | 60-90  | 120   | 60   | 60-75   | 240  |
| Physical Data (      | approx. valı | ues) |  |   |  |   |  |
| Density              | [g/c         | m³]  | 1.02   | 1.14  | 1.08   | 1.15  | 1.06   |
| Shore hardness       | ;            |      | A 63   | A 95  | D 70   | D 76  | D 78   |
| E-Modulus            | [M           | Pa]  | -  | -   | 500  | 1,200   | 1,700  |
| Tensile strengt      | th [M        | Pa]  | -  | 19.6  | 25   | 40  | 38   |
| Flexural strength [i |              | Pa]  | -  | -   | 30   | 80  | 67   |
| Elongation at break  |              | [%]  | 1,000  | 660   | 100  | 25  | 4  |
| Impact strength [k   |              | m²]  | -  | -   | unbreakable  | > 50  | 25   |
| HDT                  |              | [°C] | -  | -   | 55   | 78  | -  |
| T <sub>G</sub>       |              | [°C] | -  | -   | 90-100   | 90  | 75   |
|                      |              |      |  |   |  |   |  |

#### SikaBiresin® PX226:

- Filled ABS or Nylon similarity
- Household appliances; electrical components production
- Excellent ratio pot life/demoulding time
- Available in two reactivities

#### SikaBiresin<sup>®</sup> PX245:

Pigmented stiff housing part

- Stiffer product on the market
- Filled polyamide similarity
- High rigidity parts like electronic devices casings
- High reproduction accurancy
- Available in two reactivities

#### TOUGH-HARD TO STIFF SYSTEMS

| 10000-04       |                            |         | 5 Y 5 I E M 5  |   |   |  |  |   |   |
|----------------|----------------------------|---------|--|---|---|--|--|---|---|
| Component      | ISOCYANATE                 | Α       | SikaBiresin® PX221   | SikaBiresin® PX212 L5   | SikaBires   | in® PX226  | SikaBiresin® PX300   | SikaBires   | in® PX245   |
| Component      | POLYOL                     | В       | SikaBiresin® PX221   | SikaBiresin® PX225 L4   | SikaBiresin®<br>PX2645 L4   | SikaBiresin®<br>PX2645 L9  | SikaBiresin® F55   | SikaBiresin®<br>PX2645 L4   | SikaBiresin®<br>PX2645 L9   |
| Mixing ratio   | [4]                        | А       | 100  | 100   | 1(  | 00   | 80   | 10  | 00  |
| MIXING TALIO   | [8]                        | В       | 45   | 80  | 5   | 0  | 100  | 4   | 0   |
| Colour         |                            |         | off-white  | opalescent  | wh  | nite   | yellowish-translucent  | off-v   | vhite   |
| Characteristi  | ics                        |         | high reproduction accuracy;<br>can be easily pigmented<br>with colouring CP; high<br>impact resistance     | good impact and flexural<br>resistance; very easy coloring<br>with all kind of pigments<br>(non water based)            | thermal resistance; available in<br>two reactivity; high<br>thermal resistance; can<br>be easily coloured with<br>CP pigments |  | very stiff; high flexural<br>strength; impact<br>resistance; simulates<br>ABS, PVC | high flexura<br>elasticity; higl<br>accuracy; ava<br>reactivities;<br>coloured with<br>fast den | l modulus of<br>n reproduction<br>ailable in two<br>can be easily<br>CP pigments;<br>noulding |
| Applications   |                            |         | prototype parts and<br>mock-ups with mechanical<br>properties similar to<br>thermoplastics such<br>as HiPS | thermoplastic-like<br>parts with a flexural<br>modulus of elasticity<br>close to 2,500 MPa<br>(ex: polycarbonate, ABS). | prototype<br>mock-ups with<br>properties<br>thermoplast<br>Al   | parts and<br>th mechanical<br>s similar to<br>tics like filled<br>BS | very stiff housings<br>with high strength and<br>impact resistance                 | prototype<br>mechanical pro<br>to thermop<br>polyoxyme<br>polya                                 | parts with<br>operties similar<br>olastics like<br>thylene and<br>imide                       |
| Processing d   | ata (approx. v             | alu     | es)  |   |   |  |  |   |   |
| Mixed viscos   | ity [mP                    | as]     | 350  | 600   | 2,0   | 000  | 600  | 2,2   | 200   |
| Pot life       | [m                         | [min] 7 |  | 4-5   | 4   | 7.5  | 4  | 4   | 8   |
| Demoulding     | time [m                    | nin]    | 30-40  | 45  | 25 60   |  | 60-90  | 45  | 60  |
| Physical Data  | a (approx. valu            | ies)    |  |   |   |  |  |   |   |
| Density        | [g/ci                      | m³]     | 1.20   | 1.20  | 1.  | 20   | 1.1  | 1.  | 22  |
| Shore hardne   | SS                         |         | D 81   | D 85  | D   | 82   | D 84   | D   | 85  |
| E-Modulus      | [M                         | Pa]     | 2,100  | 2,500   | 2,5   | 500  | 2,800  | 4,5   | 00  |
| Tensile stren  | nsile strength [M          |         | 60   | 70  | 7   | 0  | 75   | 8   | 5   |
| Flexural stre  | exural strength [MPa]      |         | 105  | 110   | 10  | 05   | 120  | 15  | 50  |
| Elongation at  | ngation at break [%] 7.5 9 |         | 1  | 5   | 7   | 3  | 3  |   |   |
| Impact stren   | gth [kJ/ı                  | m²]     | 71   | 50  | 7   | 0  | > 100  | 3   | 0   |
| HDT            |                            | [°C]    | -  | -   | 9   | 2  | 80   | 92  |   |
| T <sub>G</sub> |                            | [°C]    | 95   | 100   | 1(  | 05   | -  | 95  |   |

Vacuum casting process provides parts with best visual appearance and highest mechanical properties

#### SikaBiresin® PX523

- Water clear transparency
- Perfect suitde for all parts with optical properties
- UV and weather resistant
- Casting up to 100 mm

#### SikaBiresin® PX223 HT:

- Leader on the market
- Low aggressiveness on silicone moulds
- Temperature and thermal resistance



Jewelry articles made of transparently pigmented SikaBiresin® PX 523

#### TRANSPARENT OR SPECIFIC USE SYSTEMS

| Component            | ISOCYANATE      | Α    | SikaBires  | in® PX521  | SikaBiresin®<br>PX223 HT   | SikaBiresin® PX234 HT  | SikaBiresin® PX280  | SikaBiresin® PX331  |
|----------------------|-----------------|------|--|--|--|--|---|---|
| Component            | POLYOL          | в    | SikaBiresin®<br>PX522  | SikaBiresin®<br>PX523  | SikaBiresin®<br>PX223 HT   | SikaBiresin® PX234 HT  | SikaBiresin® PX280  | SikaBiresin® PX331  |
| Mixing ratio         | [4]             | А    | 100  | 100  | 100  | 100  | 100   | 100   |
| Mixing ratio         | [8]             | В    | 50   | 62   | 80   | 50   | 80  | 100   |
| Colour               |                 |      | transparent  | transparent  | black  | light amber  | off-white   | off-white   |
| Characteristics      |                 |      | high transparen<br>easy polishing; h<br>accuracy; good<br>easy processing; h<br>tempe  | icy (water clear);<br>igh reproduction<br>UV resistance;<br>igh stability under<br>erature                 | low viscosity for<br>easy casting; good<br>impact and flexural<br>resistance;<br>temperature<br>resistance above<br>120 °C             | good thermal resistance<br>up to 190 °C; low visco-<br>sity; fast demoulding;<br>good impact resistance;<br>two pot lifes available;<br>colourable | compliance with directive<br>10/2011; compliance with<br>directive 2007/19/CE regarding<br>food contact; compliance<br>with FDA 21 CFR 177.2600<br>regulation for repeated use;<br>good mechanical properties | fast demoulding; good<br>thermal properties;<br>self-extinguishing FAR 25<br>certified, UL 94 V0<br>in 3 mm according<br>NF EN 60695-11-10;<br>can be easily coloured<br>with CP pigments |
| Applications         |                 |      | transparent parts<br>until 10 mm thick-<br>ness: crystal glass<br>like parts, fashion,<br>jewellery, art and<br>decoration parts,<br>lenses for lights | transparent parts<br>until 100mm<br>thickness: crystal<br>glass like parts,<br>art and decoration<br>parts | universal system<br>to match ABS type<br>thermoplastic<br>when temperature<br>resistance is<br>required; good che-<br>mical resistance | all parts with very good<br>thermal resistance such<br>as: PA6.6, PPS, PEEK  | can be cast by hand, 2K or<br>vacuum machine to achieve<br>ABS type parts; could be<br>used for parts in contact with<br>aqueous, acid and greasy<br>foods; none homologated<br>for liquid contact            | all parts in general<br>industry or aeronautic<br>when requiring a fire<br>classification   |
| Processing d         | ata (approx. v  | alue | es)  |  |  |  |   |   |
| Mixed viscos         | ity [mP         | Pas] | 500  | 500  | 850  | 250  | 450   | 700   |
| Pot life             | [n              | nin] | 8  | 20   | 6-7  | 5  | 20  | 5-7   |
| Demoulding           | time [n         | nin] | 60   | 45   | 45-75  | 60   | 120   | 45  |
| <b>Physical Data</b> | a (approx. valı | les) |  |  |  |  |   |   |
| Density              | [g/ci           | m³]  | 1.06   | 1.06   | 1.14   | 1.19   | 1.19  | 1.35  |
| Shore hardne         | :55             |      | D 85   | D 86   | D 80   | D 80   | D 85  | D 86  |
| E-Modulus            | [M              | Pa]  | 2,400  | 2,100  | 2,300  | 1,850  | 2,800   | 3,700   |
| Tensile stren        | gth [M          | Pa]  | 66   | 68   | 60   | 61   | 75  | 55  |
| Flexural stre        | ngth [M         | Pa]  | 110  | 100  | 80   | 80   | 117   | 133   |
| Elongation a         | t break         | [%]  | 7.5  | 6  | 11   | 13   | 5   | 4   |
| Impact stren         | gth [k]/i       | m²]  | 48   | 42   | > 60   | 41   | 25  | 26  |
| HDT                  |                 | [°C] | 80   | 85   | 110  | 190-195  | -   | 90  |
| T <sub>G</sub>       |                 | [°C] | 95   | 100  | >120   | 220  | 80  | 100   |

### SILICONES

#### ESSIL 291:

- Compatibility with PUR casting resins
- High surface quality even for clear parts
- Dimensional stability in use
- Exists with self bleeding version for longer ageing





Art and Deco cats in SikaBiresin® PX

Elastic mould produced by addition curing silicone Essil 291 for optical parts

#### SILICONES

| Resin A         |       |       | ESSI   | . 291   | ESSI   | L 125   | ESSIL 222   |  |
|-----------------|-------|-------|--|---|--|---|---|--|
| Catalyst        |       | В     | ESSIL 291  | ESSIL 292   | ESSIL 125  | ESSIL 124   | ESSIL 222   |  |
| Mixing ratio    | [_]   | А     | 10   | 0   | 1  | 00  | 100   |  |
| Mixing ratio    | r 81  | В     | 1  | 0   |  | 5   | 100   |  |
| Colour          |       |       | transp   | arent   | W  | light blue  |   |  |
| Characteristics |       |       | high transparency; good<br>chemical resistance towards<br>polyurethanes; vulcanized<br>by polyaddition; very easy<br>to mix and to cast; very low<br>shrinkage when hardening<br>at room temperature;<br>dry surface | self bleeding silicone.<br>Improve moulds ageing;<br>oily surface for better<br>releasing and demoulding                                | vulcanized by polyconden<br>available in slow<br>high value for elongatic<br>resistance; thixotropic a   | sation; high tear strength;<br>and fast versions;<br>nn at break; temperature<br>dditive (ESSIL 126 THIXO)        | vulcanized by polyaddition;<br>very good temperature<br>resistance; high tear strength;<br>very low viscosity;<br>quick setting time        |  |
| Applications    |       |       | soft negatives, flexible n<br>industry; ESSIL 291 silico<br>for casting resins (PX rar<br>machine; Essil 292 cataly<br>the number of part  | noulds for the prototype<br>ne is particularly suitable<br>nge) in a vacuum casting<br>vst is advised to increase<br>:s in a same mould | achievement of soft neg<br>and soft skin moulds de<br>with undercuts; proto<br>small-scale serial produc | atives by casting process<br>dicated to detailed shapes<br>otyping applications or<br>tion for art and deco parts | flexible moulds for prototypes<br>industry (gravity casting or<br>under vacuum); self-demoulding<br>moulds for decorative<br>concrete parts |  |
| Processing dat  | a (ap | pro   | (. values)   |   |  |   |   |  |
| Mixed viscosity | [ml   | Pas]  | 40,000   | 38,000  | -  | -   | 4,000   |  |
| Pot life        | [r    | nin]  | 6  | 0   | 80   | 40  | 10  |  |
| Demoulding tin  | ie    | [h]   | 1  | 6   | 24   | 12  | 1   |  |
| Physical Data ( | ppr   | ox. \ | values)  |   |  |   |   |  |
| Density [g/cm3  |       | m3]   | -  |   | 1  | 1   | 1.13  |  |
| Shore hardness  |       | (A)   | A  | 38  | A 24   | A 25  | A 22  |  |
| Tear strength   | [N/r  | nm]   | 2  | 4   | 17 19  |   | 20  |  |
| Elongation at b | eak   | [%]   | 35   | 50  | -  | 380   |   |  |

### LOW PRESSURE RIM-SYSTEMS

#### LOW PRESSURE RIM-SYSTEMS

Sika offers a wide range of low pressure RIM systems for rapid production of small and medium series, covering the properties of thermoplastic systems.

#### SikaBiresin® RG53:

- Proven allrounder system with very easy processing
- Offers high impact resistance for PE/PP aspect housings
- With hardener SikaBiresin<sup>®</sup> RG500 for housings with good heat coverings



| LOW PRESSURE RIM-SYSTEMS  |                 |          |  |   |  |  |  |  |  |  |
|---|-----------------|----------|--|---|--|--|--|--|--|--|
| Component   | POLYOL          | Α        | SikaBiresin® RG51 HS                     | SikaBires                                   | in® RG53                                   |  |  |  |  |  |
| Component   | ISOCYANATE      | В        | SikaBiresin® RG530                       | SikaBiresin® RG500                          | SikaBiresin® RG530                         |  |  |  |  |  |
| Mining and a  | [-1             | А        | 100                                      | 100   |  |  |  |  |  |  |
| Mixing ratio  | [g]             | В        | 50                                       | 75  | 80   |  |  |  |  |  |
| [ltr.] B  |                 | В        | 43                                       | 62  | 66   |  |  |  |  |  |
| Colour  |                 |          | black / beige                            | black / bei                                 | ge / grey                                  |  |  |  |  |  |
| Characterist  | ics             |          | high impact resistant;<br>wear resistant | allrounder system; ve<br>high impact and go | ery easy processing;<br>od heat resistance |  |  |  |  |  |
| Applications   shock-resistant housings and covers   housings and covers of<br>medium stiffness |                 |          |  |   |  |  |  |  |  |  |
| Processing  | lata (approx. v | /alue    | es)                                      |   |  |  |  |  |  |  |
| Viscosity (R  | esin) [ml       | Pas]     | 1,300                                    | 2,2   | 00   |  |  |  |  |  |
| Pot life  | [               | sec]     | 60                                       | 60  |  |  |  |  |  |  |
| Demoulding  | time [r         | nin]     | 10-20                                    | >10   |  |  |  |  |  |  |
| Physical dat  | a (approx. val  | ues)     |  |   |  |  |  |  |  |  |
| Density   | [g/c            | m3]      | 1.15                                     | 1.  | 2  |  |  |  |  |  |
| Shore hardn   | ess             |          | D 65                                     | D 78  | D 80                                       |  |  |  |  |  |
| E-Modulus   | [M              | IPa]     | 450                                      | 1,300                                       | 1,400                                      |  |  |  |  |  |
| Flexural strength [MPa]   |                 |          | 20                                       | 54  | 58   |  |  |  |  |  |
| Impact strength [kJ/m <sup>2</sup> ] no break   |                 | no break | 95                                       | 90  |  |  |  |  |  |  |
| HDT   |                 | [°C]     | 65                                       | 63/120*                                     | 60 / 110*                                  |  |  |  |  |  |
| T <sub>G</sub>  |                 | [°C]     | -  | -   | -  |  |  |  |  |  |

#### SikaBiresin® RG53 FR and RG57 FR:

- Flame retardant RIM systems for stiff ABS aspect housings and coverings with good heat resistance
- SikaBiresin<sup>®</sup> RG53 FR with UL94 V-0 offers longer pot life for bigger parts
- SikaBiresin® RG57 FR tested according to DIN EN 45545-2





Housing of a lawn-mower with high mechanical properties

Automotive RIM part with complex geometry

| SikaBiresin® RG53 Fibre                       | SikaBiresin® RG53 FR  | SikaBiresin® RG57 FR  |
|---|---|---|
| SikaBiresin® RG500                            | SikaBiresin® RG500  | SikaBiresin® RG500  |
| 100   | 100   | 100   |
| 60  | 54  | 44  |
| -   | 52  | -   |
| black   | black / beige   | dark grey / beige   |
| stiff, low shrinkage;<br>good heat resistance | flame retardant; thermal resistant; high<br>strength and stiffness  | flame retardant; thermal resistant; high strength and stiffness   |
| stiff housings and covers                     | stiff housings and covers<br>with UL 94 V-0   | stiff housings and covers with<br>DIN EN 45545-2  |
|   |   |   |
| 6,000   | 3,500   | 3,800   |
| 50  | 75  | 55  |
| > 10  | > 10  | >10   |
|   |   |   |
| 1.2   | 1.27  | 1.30  |
| D 81  | D 84  | D 80*   |
| 1,730   | 2,200   | 2,350   |
| 55  | 70  | 70*   |
| 48  | 35  | 20*   |
| 63 / 125*                                     | 110*  | 90*   |
| -   | -   | -   |
|   | SikaBiresin® RG53 Fibre   SikaBiresin® RG500   100   60   -   black   stiff, low shrinkage;<br>good heat resistance   stiff housings and covers   6,000   50   >10   1.2   0 81   1,730   55   48   63 / 125*   - | SikaBiresin® RG53 Fibre   SikaBiresin® RG500     SikaBiresin® RG500   SikaBiresin® RG500     100   100     60   54     -   52     black   black / beige     stiff, low shrinkage;<br>good heat resistance   flame retardant; thermal resistant; high<br>strength and stiffness     stiff housings and covers   with UL 94 V-0     6,000   3,500     50   75     >10   >10     1.2   1.27     D 81   D 84     1,730   2,200     55   70     48   35     63 / 125*   110* |

# FASTCAST RESINS

| FASTCAST RESINS - FILLED      |                      |   |   |   |  |   |  |  |  |  |
|-------------------------------|----------------------|---|---|---|--|---|--|--|--|--|
| POLYOL                        | Α                    | SikaBiresin <sup>®</sup> F230   | SikaBiresin® F40  | SikaBiresin <sup>®</sup> F10  | SikaBiresin® F21   | SikaBiresin® F23  |  |  |  |  |
| ISOCYANATE                    | В                    | SikaBiresin® F230   | SikaBiresin® F40  | SikaBiresin <sup>®</sup> F10  | SikaBiresin® F21   | SikaBiresin® F23  |  |  |  |  |
| Mixing ratio [g]              | А                    | 100   | 100   | 100   | 100  | 100   |  |  |  |  |
| Mixing facto [g]              | В                    | 20  | 20  | 100   | 15   | 15  |  |  |  |  |
| Colour                        |                      | white   | blue  | ivory, green, black   | light grey or black  | lightblue   |  |  |  |  |
| Characteristics               |                      | very good surface aspect<br>after machining; easy to carve,<br>to sand, to polish   | high abrasion resistance;<br>low shrinkage;<br>low viscosity; quick<br>setting; short pot life                                | 1:1 mix ratio; short pot life;<br>low viscosity; quick setting;<br>good temperature<br>resistance; low shrinkage                            | almost odourless; easy to<br>mix by hand; very good<br>flowability; very fine<br>structure; very good<br>mechanically workable | almost odourless; good mixable<br>by hand; very good flowability;<br>very low shrinkage; good adhesion<br>to wooden materials; very good<br>mechanically workable |  |  |  |  |
| Applications                  |                      | tools and parts: thermo-<br>forming tools; checking<br>fixtures; positioning fixtures;<br>decorative applications when<br>marble aspect is needed | tools as foundry patterns;<br>core boxes, model plates<br>and any type of castings<br>requiring a good abrasion<br>resistance | multipurpose system for<br>tools: thermoforming tools;<br>checking fixtures; positioning<br>fixtures; prototype parts;<br>foundry negatives | casting of master and<br>core models, negatives<br>and mouldings of<br>medium size   | casting of master and core<br>models, negatives and<br>mouldings of larger dimensions;<br>for high surface quality and<br>mould precision                         |  |  |  |  |
| Processing data (             | approx.              | values)   |   |   |  |   |  |  |  |  |
| Mixed viscosity               | [mPas]               | 900   | 2.000   | 2.500   | 2.100  | 1.500   |  |  |  |  |
| Pot life                      | [min]                | 4.25-5.25   | 5.25-6.30   | 4.45  | 5-6  | 7-8   |  |  |  |  |
| Demoulding time               | [min]                | 30  | 60  | 45  | 30   | 120   |  |  |  |  |
| Physical data (ap             | prox. va             | alues)  |   |   |  |   |  |  |  |  |
| Density                       | [g/cm <sup>3</sup> ] | 1.58  | 1.70  | 1.64  | 1.7  | 1.7   |  |  |  |  |
| Shore hardness                |                      | D 80  | D 84  | D 73  | D 80   | D 80  |  |  |  |  |
| Flexural strength             | n [MPa]              | 47  | 61  | 35  | 35   | 45  |  |  |  |  |
| Compressive strength<br>[MPa] |                      | 63  | 57  | 33  | 75   | 60  |  |  |  |  |
| T <sub>G</sub>                | [°C]                 | 60  | 69  | 71  | 80   | 70  |  |  |  |  |

#### FASTCAST RESINS - UNFILLED

| POLYOL           |       | Α      | SikaBiresin <sup>®</sup> F160  | Si   | ikaBiresin® F2   | ?7                  | SikaBiresin® F27 LV | SikaBiresin® F180   | SikaBiresin® F190   |
|------------------|-------|--------|--|--|--|---------------------|---------------------|---|---|
| ISOCYANATE       |       | В      | SikaBiresin <sup>®</sup> F160  | SikaBiresin®<br>F27  | SikaBiresin®<br>F27 w.   | SikaBiresin®<br>F55 | SikaBiresin® F26    | SikaBiresin <sup>®</sup> F180   | SikaBiresin® F190   |
| Mixing ratio     | .1    | А      | 100  |  | 100  |                     | 100                 | 100   | 100   |
| Mixing latio [   | 51    | В      | 100  | 100  | 100  | 80                  | 100                 | 100   | 100   |
| Colour           |       |        | beige  | beige white  |  | ite                 | beige               | off white   | beige   |
| Characteristics  |       |        | <pre>quick setting system; low viscosity;<br/>good temperature resistance<br/>after heat curing; easy-to-use mix<br/>ratio (1:1 by weight); adjustable<br/>filler content</pre>                                | quick setting system;<br>reduced viscosity;<br>low shrinkage; adequate<br>viscosity even with high<br>rate of filler   | very low shrinkage;<br>low viscosity even filled;<br>easy to use mix ratio<br>(1:1 by weight); high<br>filler content possible |                     |                     |   |   |
| Applications     |       |        | mainly used with filler for tools:<br>moulds, masters, negatives with<br>RZ 30150 to get easy machining;<br>thermoforming tools with RZ 209/6<br>aluminium powder in order to<br>increase thermal conductivity | mainly used with filler for tools:<br>moulds, masters, negatives with<br>RZ 30150 to get easy machining;<br>ermoforming tools with RZ 209/6<br>aluminium powder in order to<br>increase thermal conductivity |  |                     |                     | mainly used for mock-ups<br>and decorative parts<br>using the unfilled product<br>or filled with RZ 30150<br>to get low shrinkage and<br>easy machining | same as SikaBiresin®<br>F160 but able to cast<br>up to 50 mm in one<br>shot |
| Processing data  | (apj  | prox.  | values)  |  |  |                     |                     |   |   |
| Mixed viscosity  | [m    | Pas]   | 90   | 50   | 30   | 140                 | 35                  | 80  | 125   |
| Pot life         | [1    | min]   | 2^20**   | 2151   | 2151   | 1′30′′              | 212011              | 312511  | 7-9   |
| Demoulding tim   | e [I  | min]   | 30   | > 20   | > 20   | >15                 | > 15                | 45  | 90  |
| Physical data (a | ppro  | ox. va | lues)  |  |  |                     |                     |   |   |
| Density          | [g/0  | cm³]   | 1.08   |  | 1.1  |                     | 1.1                 | 1.08  | 1.07  |
| Shore hardness   |       |        | D 75   | D 70   | D 70   | D 75                | D 70                | D 70  | D 68  |
| Flexural strengt | h [N  | /Pa]   | 60   | 55   | 42   | 60                  | 45                  | 38  | 40  |
| Impact resistanc | e [kj | /m²]   | 14   | 25   | 60   | 50                  | 23                  | 18  | 20  |
| HDT              |       | [°C]   | -  | 80   | 75   | 75                  | 75                  | -   | -   |
| T <sub>c</sub>   |       | [°C]   | 110  | -  | -  | -                   | -                   | 97  | 90  |

### PUR CASTING RESINS

#### **FILLED FASTCAST RESINS**

Filled fastcast resins are especially suitable for making e.g. master, core models, negatives and patterns with large dimensions and are characterized by low shrinkage.



#### **UNFILLED FASTCAST RESINS**

The unfilled fastcast resins are usually used for making detailed models and mouldings with thin walls due to their excellent flowability. They can, however, be cast in thicker layers by adding filling materials to them.

#### PUR Casting systems with long pot life

#### SikaBiresin® F46

- Prefilled casting resin can be cast in thick sections (e.g. backfilling)
- Results in durable core models with high dimensional accuracy

#### SikaBiresin® F48 and SikaBiresin® F50

- Offer lower viscosity and are used unfilled by face casting process
- Both systems can be filled with high filler loading to use them as high-grade mass casting systems with high strength values

SikaBiresin® F160 with additional fillers for casting of models with thicker sections

| PIRC | ASTINC. | SVSTEMS | WITH I C | IFF |
|------|---------|---------|----------|-----|
|      |         |         |          |     |

| POLYOL                        |         | А    | SikaBiresin® F46  |   | SikaBiresin <sup>®</sup> F48                         |   | SikaBire   | sin <sup>®</sup> F50   |  |
|-------------------------------|---------|------|---|---|--|---|--|--|--|
| ISOCYANA                      | ΓE      | В    | SikaBiresin® F46  |   | SikaBiresin® F55                                     |   | SikaBire   | sin <sup>®</sup> F50   |  |
| FILLER                        |         | С    | -   | -   | TE-Füller  | Al-Pulver   | -  | RZ 30150   |  |
|                               |         | А    | 100   | 100   | 100  | 100   | 100  | 100  |  |
| Mixing ratio                  | [g]     | В    | 25  | 100   | 100  | 100   | 50   | 50   |  |
|                               |         | С    | -   | -   | 350  | 250   | -  | 180-240  |  |
| Colour                        |         |      | beige   | opaque  | beige  | grey  | be   | ige  |  |
| Characteris                   | tics    |      | easily workable; can be<br>cast in thick sections;<br>high dimensional accuracy | easily workable; high<br>filler loading; abrasion<br>and impact resistant     | very low shrinkage; easily<br>thick sections; high c | y workable; can be cast in<br>ompressive strength | very low shrinkage; low exothermic reaction;<br>casting in high thickness (400 mm) when filled |  |  |
| Applications                  |         |      | master and core models,<br>negatives, foundry<br>patterns                       | facecasting layer for<br>metal sheet forming<br>tools and foundry<br>patterns | backfilling for metal sl<br>foundry                  | neet forming tools and patterns                   | unfilled for negatives, m<br>version for higher volume<br>for stamping tools with              | noulds and masters; filled<br>casting; with RZ 209/6<br>n better surface gliding |  |
| Processing                    | data (a | app  | rox. values)  |   |  |   |  |  |  |
| Mixed<br>viscosity            | [mP     | as]  | 3,000   | 1,500   | castable   |   | 350  | 7,500  |  |
| Pot life                      | [n      | nin] | 40  |   | 45-60  |   | 35-50  | -  |  |
| Demoulding                    | g time  | [h]  | 16-24   |   | 16-24  |   | 6-   | 12   |  |
| Physical da                   | ta (ap  | prox | c. values)  |   |  |   |  |  |  |
| Density                       | [g/ci   | m³]  | 1.7   | 1.15  | 1.7  | 1.7   | 1.24   | 1.75   |  |
| Shore hardness                |         |      | D 87  | D 80  | D 86   | D 84  | D 83   | D 85   |  |
| Compressive<br>strength [MPa] |         | Pa]  | 110   | 94  | 104  | 90  | 85   | 90   |  |
| HDT                           |         | [°C] | 80  | 75  | -  | -   | -  | -  |  |
| T.                            |         | oc1  | _   | _   | _  | _   | _  | 65   |  |

### EP CASTING RESINS

#### **EP CASTING RESINS**

Typical advantages of EP resins are their good resistance to mechanical, chemical or thermal influence and easy processing due to low shrinkage and low moisture sensitivity.

#### **EP CASTING RESINS FOR TOOLING**

#### SikaBiresin® G519:

- Black allrounder resin with good workability
- Offers good compressive strength and abrasion resistance (e.g. foundry patterns)

#### SikaBiresin® G32:

- Green filled casting resin for backfilling
- With SikaBiresin<sup>®</sup> L4 hardener for additional filler loading to reduce shrinkage

#### SikaBiresin® G33:

 Black filled casting resin offers highest abrasion resistance and dimensional accuracy

#### HEAT RESISTANT EP CASTING SYSTEMS

#### SikaBiresin® G36:

- Grey prefilled casting resin with high heat resistance
- Can be cast up to 100 mm thickness with G36 hardener (B)
- Offers highest heat resistance with hardener CH170-3 (B)
- Can be used as gelcoat with P7 hardener (B)

#### SikaBiresin® G38:

- With good flowing behaviour can be cast up to 40 mm
- Don't need to be post cured before demoulding



Vacuum forming mould for blister packaging out of SikaBiresin® G38

| EPCASTIN                | NG RESI              | NS FOR TOOLING   | HEAT RESISTANT EP CASTING RESINS                                      |   |   |  |
|-------------------------|----------------------|--|---|---|---|--|
|                         | А                    | SikaBiresin <sup>®</sup> G519  | SikaBiresin® G32  | SikaBiresin® G33  | SikaBiresin® G36  | SikaBiresin® G38   |
|                         | В                    | SikaBiresin <sup>®</sup> G519  | SikaBiresin <sup>®</sup> L4   | SikaBiresin® GC115  | SikaBiresin® G36  | SikaBiresin® G38   |
| Mixing ratio            | A A                  | 100  | 100   | 100   | 100   | 100  |
| MIXING LALIO            | ISI B                | 10   | 7   | 6   | 10  | 7  |
| Colour                  |                      | black  | green   | black   | grey  | grey   |
| Characteristics         |                      | multi-purpose with good<br>workability; low shrinkage;<br>good compressive strength<br>and abrasion resistance | low viscosity; high filler<br>loading for higher casting<br>thickness | very low shrinkage;<br>high abrasion resistance<br>and compressive strength | low shrinkage, good<br>workability, can be cast in<br>thick sections, very high<br>heat resistance, use as<br>gelcoat with P7 (B) | good flowing and degassing<br>properties; high heat<br>resistance; demoulding<br>possible before post curing |
| Applications            |                      | production moulds,<br>metal sheet forming tools,<br>foundry patterns   | backfilling in foundry pattern /<br>mould making<br>for engineering   |   | vacuumforming moulds and other heat resistant tools   | heat resistant moulds,<br>e.g. vaccumforming moulds<br>(blister pack)  |
| Processing d            | ata (appr            | ox. values)  |   |   |   |  |
| Mixed<br>viscosity      | [mPas]               | 24,500   | 1,700   | 6,000   | 18,000  | 10,500   |
| Pot life                | [min]                | 80   | 70  | 45-60   | 60-120  | 120  |
| Demoulding              | time [h]             | 24   | 24  | 16  | 24*   | 16-24  |
| Physical data           | a (approx            | . values)  |   |   |   |  |
| Density                 | [g/cm <sup>3</sup> ] | 2.25   | 1.6   | 1.9   | 1.7   | 1.8  |
| Shore hardno            | ess                  | D 90   | D 90  | D 90  | D 89  | D 90*  |
| Compressive<br>strength | [MPa]                | 110  | 112   | 120   | 130*  | 112*   |
| HDT                     | [°C]                 | -  | 51  | 60 / 95*  | 141*  | >130*  |
| T <sub>G</sub>          | [°C]                 | 74   | -   | -   | -   | -  |

#### **TRANSPARENT EP CASTING SYSTEMS**

Sika's transparent EP systems offers high transparency and are mainly used for glass clear embedding and coatings of decorative arts and transparent parts.

#### SikaBiresin® TD150 systems:

- Multipurpose transparent epoxy casting system
- One resin with several hardeners suitable for various applications from deep pouring to thin coating
- Easy-to-use manually
- Excellent transparency
- Good UV resistance



Excellent transparency with SikaBiresin® TD150 systems



#### TRANSPARENT EP CASTING RESINS

| _                |   |  |  |   |  |
|------------------|---|--|--|---|--|
|                  | Α   |  | SikaBiresin® TD150   |   |  |
|                  | В   | SikaBiresin® TD140   | SikaBiresin® TD150   | SikaBiresin® TD165  |  |
| Mixing ratio [g] | А   | 100  | 100  | 100   |  |
| o [8]            | В   | 50   | 45   | 50  |  |
|                  |   | transparent  | transparent  | transparent   |  |
| Characteristics  |   | high transparency; low viscosity; self-degassing<br>behaviour; good UV stability                 | high transparency; low viscosity; self-degassing<br>behaviour; single pour casting up to 50 mm;<br>good UV resistance  | high transparency; easy mixing ratio 2:1;<br>self-degassing behaviour; quick setting in thin<br>layers; good UV resistance  |  |
| Applications     |   | applications in art and decoration, embeddings,<br>river tables, mock-ups                        | applications furniture, art and decoration<br>to make deep pour transparent and UV resistant<br>castings such as river table, embeddings,<br>mock-ups, trophies  | applications in art and decoration to make<br>transparent objects from 1 mm up to 10 mm<br>such as thin inclusions, embeddings, wood<br>surface sealing and coatings  |  |
| data (a          | appr  | ox. values)  |  |   |  |
| [mP              | as]   | 220  | 300  | 500   |  |
| [m               | nin]  | de   | epending on thickness, volume and room temperatu   | re  |  |
| g                | [h]   | de   | epending on thickness, volume and room temperatu   | re  |  |
| ita (apj         | prox  | . values)  |  |   |  |
| [g/ci            | m³]   | -  | -  | 1.00  |  |
| ness             |   | D 78   | D 80   | D 81  |  |
|                  | [°C]  | 42   | 39   | 53  |  |
|                  | o [g]<br>tics<br>s<br>data (;<br>[mF<br>[n<br>g<br>ta (ap)<br>[g/cn<br>ness | A<br>B<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C | A SikaBiresin® TD140   B SikaBiresin® TD140   B 100   B 50   transparent transparent   tics high transparency; low viscosity; self-degassing behaviour; good UV stability   ss applications in art and decoration, embeddings, river tables, mock-ups   data (approx. values) 220   [mPas] 220   [min] detata (approx. values)   [g/cm³] -   ness D 78   [°C] 42 | A SikaBiresin® TD150   B SikaBiresin® TD150   B SikaBiresin® TD150   A 100 100   B 50 45   transparent transparent transparent   tics high transparency; low viscosity; self-degassing behaviour; good UV stability high transparency; low viscosity; self-degassing behaviour; good UV stability   is applications in art and decoration, embeddings, river tables, mock-ups applications furniture, art and decoration to make deep pour transparent and UV resistant castings such as river table, embeddings, mock-ups, trophies   data (approx. values) 220 300   [mPas] 220 300   [min] depending on thickness, volume and room temperatu d |  |

\* tack free time

## ELASTOMERIC RESINS

Elastomeric Casting Resins are high-quality PUR systems with a wide range of shore hardness levels (Shore A 40 to D 67) used in manifold application areas.

#### ELASTOMERIC CASTING RESINS FOR FOUNDRY PATTERN MAKING

The tough elastic systems are mainly used for high abrasion resistant liners (face casting process) for core boxes and match plates with long working life.

#### SikaBiresin® UR419:

- The low shore hardness of around A 97 offers highest abrasion resistance of core boxes also opposite the shooting nozzles due to the high rebound elasticity
- SikaBiresin<sup>®</sup> UR419 with 6-7 min pot life for small core boxes and short demoulding time

#### SikaBiresin® UR132 NT:

- Proven market leader of nontoxic foundry resins for series core boxes
- Standard hardener SikaBiresin<sup>®</sup> UR132 L Neu (B) works also for big castings up to 100 kg
- Sika Cleaner 205 increases bonding on prepared aluminium substructures

#### SikaBiresin® UR390:

- Provides higher shore hardness (D 67) and good heat resistance besides its good abrasion resistance
- Favourite product for match plates



Core box made of SikaBiresin® UR322 NT

#### ELASTOMERIC CASTING RESINS FOR FOUNDRY PATTERN MAKING

| ISOCYANAT              | TE .     | Α  | SikaBiresi  | n® UR419  | SikaBiresin <sup>®</sup> UR132 NT  | SikaBiresin® UR390   |  |
|------------------------|----------|--|---|---|--|--|--|
| POLYOL / AI            | MINE     | B SikaBiresin® U   | JR419   | SikaBiresin® UR458  | SikaBiresin <sup>®</sup> UR132 L Neu   | SikaBiresin® UR390   |  |
| Mixing until           | [_]      | A  | 10  | 0   | 100  | 100  |  |
| Mixing ratio           | o [8]    | <b>B</b> 16  |   | 18  | 40   | 50   |  |
| Colour                 |          |  | coloured-tr   | ansparent   | beige  | beige to dark beige  |  |
| Characterist           | tics     | very high abrasion and impact resistance;<br>high rebound elasticity; good flowability;<br>fast demoulding |   | d impact resistance;<br>ty; good flowability;<br>ioulding | very high abrasion resistance; both<br>components without toxic classifictation;<br>simple hand casting without postcuring | good abrasion resistance and impact resistance;<br>higher shore hardness and better heat resistance;<br>low toxicity |  |
| Application            | 15       | smaller core   | smaller core boxes, areas / spots opposite the shooting nozzles |   | high abrasion resistant core boxes and match plates, also in larger sizes  | core boxes and match plates with higher shore hardness and heat resistance (T_{\rm G} ~100 $^\circ \rm C)$           |  |
| Processing             | data (aj | pprox. values)   |   |   |  |  |  |
| Mixed<br>viscosity     | [mPa     | <b>s]</b> 2,800  |   | 4,000   | 8,000  | 1,500  |  |
| Pot life               | [mi      | <b>n]</b> 6-7  |   | 20  | 16   | 14   |  |
| Demoulding             | g time [ | <b>h]</b> 1-3  |   | 16  | > 16   | 16   |  |
| Physical dat           | ta (appi | rox. values)   |   |   |  |  |  |
| Density                | [g/cm    | 3] 1.1   |   | 1.1   | 1.15   | 1.08   |  |
| Shore hardr            | ness     | A 98 (D 5-   | 4)  | A 97 (D 45)   | D 62   | D 67   |  |
| Elongation<br>at break | [9       | <b>%]</b> 375  |   | 700   | 330  | 120  |  |
| Abrasion<br>resistance | [mm      | 1 <sup>3</sup> ] 90  |   | 270   | 70   | 190  |  |

#### ELASTOMERIC CASTING RESINS FOR MOULD MAKING

The soft elastic types with very high elongation qualities are used for making flexible moulds (similar to silicone) and for castings made of the most varied of materials (even ceramic). The tough elastic products are suitable for more high-resistant moulds and mouldings as well as for wear-resistant coatings in special machine construction.

#### SikaBiresin® UR350:

- Rubber like elastomer; black color
- High mechanical properties
- Chemical resistance
- Exists in Shore A 80 & 85 (SikaBiresin® UR360)

#### SikaBiresin® UR409:

- New technology giving high properties
- Friendly use 1:1 ratio and low viscosity
- High frequency vibrations resistance



#### ELASTOMERIC CASTING RESINS FOR GENERAL MOULD MAKING

| ISOCYANATE             | Α   | SikaBires               | in® UR404   | SikaBiresin® UR340  | SikaBires             | in® UR350   | SikaBiresin® UR303  | SikaBiresin® UR305   | SikaBiresin® UR409    |
|------------------------|---|-------------------------|---|---|-----------------------|---|---|--|-----------------------|
| POLYOL / AMINE         | в   | SikaBiresin®<br>UR404   | SikaBiresin®<br>UR434   | SikaBiresin®<br>UR340   | SikaBiresin®<br>UR350 | SikaBiresin®<br>UR360   | SikaBiresin®<br>UR402   | SikaBiresin®<br>UR305  | SikaBiresin®<br>UR409 |
| Mixing uptio           | A   | 80                      | 50  | 100   | 100                   | 100   | 100   | 100  | 100                   |
| Mixing ratio [g        | В   | 100                     | 100   | 50  | 35                    | 40  | 35  | 60   | 100                   |
| Colour                 |   | reddish-<br>transparent | light-beige   | light amber   | black                 | black   | coloured-<br>transparent  | cream-white / black  | beige                 |
| Characteristics        | naracteristics very soft; high elongation;<br>low shrinkage   |                         | low viscosity; low<br>moisture sensitivity;<br>good abrasion resistance;<br>good dimensional<br>stability | good tear resistance; very good<br>hydrolysis and chemical resistance;<br>high abrasion resistance;<br>good elongation at break       |                       | intensitive to mois-<br>ture; rubbery; good<br>tensile strength<br>and elasticity; low<br>shrinkage | high abrasion<br>resistance; can<br>be accelerated by<br>SikaBiresin® HC586 | insensitive to<br>moisture; good tear<br>strength and<br>elasticity                    |                       |
| Applications           | Applications ceramic industry, flexible moulds and components |                         | production of parts<br>requiring high properties<br>(seals, soft moulds,<br>sanding mask etc).            | production of semi flexible<br>moulds, forming tools or parts<br>requiring good abrasion resistance<br>and tear resistance properties |                       | production of flexible<br>moulds and compo-<br>nents, ceramic and<br>concrete industry              | wear resistant<br>coating, electronic<br>encapsulation                      | flexible fixtures for<br>parts for ultra sonic<br>welding; elastic,<br>flexible moulds |                       |
| Processing data        | (app  | rox. values)            |   |   |                       |   |   |  |                       |
| Mixed<br>viscosity [m  | Pas]  | 3,000                   | 3,700   | 1,500   | 3,000                 | 3,600   | 4,000   | 2,300  | 2,500                 |
| Pot life [             | min]  | 25                      | 20  | 17  | 18                    | 20  | 25  | 15-20  | 30                    |
| Demoulding tim         | e [h]   | 24                      | >16   | 24  | 24                    | 24  | >16   | 10-16  | >16                   |
| Physical data (a       | pro   | x. values)              |   |   |                       |   |   |  |                       |
| Density [g/            | cm³]  | 1.05                    | 1.3   | 1.02  | 1.08                  | 1.09  | 1.11  | 1.2  | 1.10                  |
| Shore hardness         |   | A 40                    | A 55  | A 63  | A 80                  | A 85  | A 81  | A 89   | A 92                  |
| Tear<br>strength [N/   | mm]   | 7                       | 9   | 24  | 67                    | 83  | 18  | 27   | 12                    |
| Elongation<br>at break | [%]   | > 600                   | > 600   | 1,000   | 620                   | 810   | 400   | 300  | 650                   |

#### SikaBiresin® UR763:

- Special filled elastomer for ceramic case moulds
- No moisture sensitivity
- No shrinkage in volume



Release of SikaBiresin® UR548 soft mould for stone facing

| ELASTOMERIC CASTING RESINS FOR CERAMICS |         |      |  |  |   |  |  |  |
|---|---------|------|--|--|---|--|--|--|
| ISOCYANAT                               | E       | Α    | SikaBiresin <sup>®</sup> UR406   | SikaBiresin® UR701   | SikaBiresin® UR303  |  |  |  |
| POLYOL / AM                             | INE     | В    | SikaBiresin <sup>®</sup> UR406   | SikaBiresin® UR763   | SikaBiresin® UR302  |  |  |  |
| Mixing ratio                            | []      | А    | 100  | 50   | 100   |  |  |  |
| Mixing ratio                            | r81     | В    | 30   | 100  | 40  |  |  |  |
| Colour                                  |         |      | yellowish-transparent  | pink   | coloured-transparent  |  |  |  |
| Characterist                            | ics     |      | rubbery; high elongation at break; insensitive to moisture; excellent flowability at processing; good tensile strength and elasticity; very slow shrinkage | easy sanding after curing; homogeneous material;<br>low moisture sensitivity; chemical resistance<br>to release agents | rubbery, insensitive to moisture; good tensile<br>strength and elasticity; choice of polyols for<br>different hardness levels; very low shrinkage |  |  |  |
| Applications                            | 5       |      | casting of flexural moulds for ceramic industry;<br>moulds for concrete mouldings; flexible mouldings  | ceramic case moulds by hand casting  | casting of flexural moulds for ceramic industry;<br>moulds for concrete mouldings; flexible mouldings   |  |  |  |
| Processing d                            | lata (a | ippi | 'ox. values)   |  |   |  |  |  |
| Mixed<br>viscosity                      | [mP     | as]  | 2,800  | 3,000  | 3,800   |  |  |  |
| Pot life                                | [m      | in]  | 15-20  | 20   | 25  |  |  |  |
| Demoulding                              | time    | [h]  | >16  | 16   | > 16  |  |  |  |
| Physical data                           | a (app  | orox | . values)  |  |   |  |  |  |
| Density                                 | [g/cr   | n³]  | 1.05   | 1.34   | 1.03  |  |  |  |
| Shore hardn                             | ess     |      | A 55   | A 63   | A 73  |  |  |  |
| Tear<br>strength                        | [N/m    | m]   | 5  | 16   | 15  |  |  |  |
| Elongation<br>at break                  | [       | %]   | 450  | 850  | 550   |  |  |  |

#### SikaBiresin® UR530:

- Soft filled elastomer for concrete moulds
- High chemical resistance
- Dimensional stability



Casting of SikaBiresin® UR404

#### SikaBiresin® UR595:

- Semi rigid elastomer for tools and parts
- 3 reactivity and 8 colors available
- Dedicated for concrete stamps; soft rulers; inserts in concrete casting



Mould out of SikaBiresin® UR503 for concrete casting

#### ELASTOMERIC CASTING RESINS FOR CONCRETE AND BUILDING INDUSTRY **ISOCYANATE** Δ SikaBiresin® UR703 SikaBiresin® UR404 SikaBiresin® UR503 SikaBiresin® UR505 SikaBiresin<sup>®</sup> SikaBiresin® SikaBiresin® **SikaBiresin®** SikaBiresin® SikaBiresin<sup>®</sup> SikaBiresin<sup>®</sup> POLYOL / AMINE В SikaBiresin® UR620 UR595 UR530 UR730 **UR745 UR548** UR563 L20 **UR572** A 40 70 10 30 35 30 55 Mixing ratio [g] В 100 100 100 40 100 100 100 Colour beige beige reddish-transparent beige ochre grey or beige beige coloured high elongation high elongation easy processing; easy processing; good Characteristics low shrinkage after hardening; high chemical tear strength; high resistance: good high elongation at break: at break: low at break: low excellent tear viscosity; good mechanical strength; good low moisture sensitivity: hardness; chemical mechanical properimpact resistance; good chemical resistance stability ties; two pot lifes chemical resistance quick setting; resistance available available in 8 colours Applications production of production of moulds or flexible parts, production of production of production of moulds production of by hand casting or with help of intricated moulds moulds for concrete and tools for the conmoulds or flexible semi-flexible parts 2K machine; large volumes possible in for concrete industry by hand crete industry; espeparts, by hand or moulds; pot one shot with SikaBiresin® UR745 industry casting or with a cially dedicated to casting or with life adapted to 2K machine make soft moulds to 2K machine process (hand or 2K machine) cast concrete part in mass production Processing data (approx. values) Mixed 2,000 1,000 2,300 2,450 6,500 4,000 2.500 1,000 [mPas] viscosity Pot life [min] 15-20 (30 with Sika-40-60 40-50 15-20 15-20 15-20 various Biresin<sup>®</sup> UR563 S) Demoulding time [h] 24 18 >16 24 16 16-24 24 12 Physical data (approx. values) Density [g/cm<sup>3</sup>] 1,16 1.1 1.35 1.31 1.31 1.25 1.25 1.14 A 30 A 50 A 60-65 A 30 A 50 A 65 A 75 A 94 Shore hardness Tear 8.5 18 13 6 14 16.5 31 64 strength [N/mm] Elongation 1,500 300 900 550 670 700 400 [%] at break

### ADHESIVE AND PUTTY FILLER SYSTEMS FOR BOARDS AND PASTES

#### ADHESIVE AND PUTTY FILLER SYSTEMS FOR BOARDS AND PASTES

The adhesive and putty filler systems are specially adapted to Sika Advanced Resins boards. This relates to colour and mechanical-physical properties. This results in a similiar behaviour regarding machinability and subsequent use in application.

#### **ADHESIVES**

In the development of adhesives, special attention is paid to achieving a sufficiently high degree of adhesive strength and rapid curing.



| ADHESIVE FOR BOARDS       |          |      |  |   |   |                   |   |  |  |
|---------------------------|----------|------|--|---|---|-------------------|---|--|--|
|                           |          | Α    | Labelite Glue  | SikaBiresin® B260   | Adekit <sup>®</sup> A130  | SikaBiresin® B180 | H 8973  |  |  |
|                           |          | В    | -  | SikaBiresin® RG530  | Adekit <sup>®</sup> A130  | SikaBiresin® B180 | -   |  |  |
| Mixing rati               | io [g]   | А    | -  | 100   | 100   | 100               | 100   |  |  |
| Mixing rati               | IO [8]   | В    | -  | 65  | 100   | 32                | 14  |  |  |
| Colour                    |          |      | dark amber   | orange / brown  | light amber   | amber             | blue  |  |  |
| Basis                     |          |      | -  | PUR   |   | Ероху             |   |  |  |
| Characteristics           |          |      | dedicated 1K glue with<br>no mixing; easy to apply<br>and fast setting while giving<br>same aspect as light density<br>foams | dedicated glue for orange/<br>brown colored medium<br>density boards with good<br>balance open-time and<br>setting time | 2K quick setting epoxy<br>adhesive for bonding small<br>pieces together and allowing<br>to mill within 30 min<br>2K thixotropic epoxy<br>adhesive for easy application<br>for large bonding works or<br>for applications requiring<br>heat resistance |                   | dedicated adhesive system<br>for bonding of LAB 973<br>or LAB9 75 NEW boards<br>to each other |  |  |
| Suitable fo<br>references | or board | ls   | all Labelite and M blocks<br>from M80 till M450  | Labelite 350E and 45PK, all<br>Prolabs and M blocks from<br>M440 till M700  | all medium to high density boards   |                   | LAB 975 NEW and<br>LAB 973  |  |  |
| Processing                | data (a  | app  | rox. values)   |   |   |                   |   |  |  |
| Consumptio                | on [kg/ı | m²]  | 0.12-0.15  | 0.9   | 0.60-0.65   | 0.65-0.70         | 0.53  |  |  |
| Open time                 |          |      | -  | 20 min  | 10 min  | 15 min            | 60 min  |  |  |
| Setting tim               | 1e       |      | 2 h  | 6 h   | 30 min  | 16 h              | 16 h  |  |  |
| Physical da               | ata (app | orox | (. values)   |   |   |                   |   |  |  |
| Density                   | [g/ci    | n³]  | 1.15   | 0.8   | 1.15  | 1.16              | 0.78  |  |  |
| Shore hard                | ness     |      | -  | D 63  | D 80  | D 82              | D 74  |  |  |
| Tg                        |          | [°C] | 80   | -   | -   | HDT: 90 °C        | 125   |  |  |



#### **PUTTY FILLERS**

The creamy-soft consistence of the putty fillers results in easy application properties. They are also suitable for levelling, repairing and moulding of models and negatives out of tooling resins, wood and metal etc. for model, mould and tool making.

Easymax perfect match repair putty to medium density boards having the same PUR chemistry with quick setting and odour-less

#### PUTTY FILLERS FOR BOARDS AND PASTES

|                                |                | Α     | SikaBiresin® B370                                   | SikaBiresin® B375                 | Easymax   | SikaBiresin <sup>©</sup> SC175 / SC180 /<br>SC380 / SC390   |
|--------------------------------|----------------|-------|---|-----------------------------------|---|---|
|                                |                | В     | BPO-Paste   | BPO-Paste                         | Easymax R   | SikaBiresin® GC11   |
| Mixing uptio                   | [_]            | А     | 100   | 100                               | 100   | 100   |
| Mixing ratio                   | , fâi          | В     | 2   | 2                                 | 100   | 20/13/17/15   |
| Colour                         |                |       | brown   | white                             | grey, brown, beige  | grey, brown   |
| Basis                          |                |       | polye   | ester                             | PUR   | Ероху   |
| Characteristics                |                |       | good adhesion; fast o<br>easily s                   | curing and non-tacky;<br>sanded   | quick setting low density 2K PUR<br>putty for medium density brown<br>boards; odor-free | epoxy mastic with similar<br>properties as extrudable paste |
| Suitable for<br>paste refere   | board<br>ences | ls/   | SikaBlock® PROLAB 65,<br>SikaBlock® M600 N / M700 N | all medium to high density boards | SikaBlock® PROLAB 65,<br>SikaBlock® M600 N / M700 N                                     | SikaBiresin® SC175 / SC180 /<br>SC380 / SC390               |
| Processing                     | data (a        | appro | ox. values)   |                                   |   |   |
| Pot life                       | [m             | in]   | 5   | 5                                 | 5   | 10  |
| Setting time                   | e (m           | in]   | > 20  | > 20                              | 20  | 4 h   |
| Physical data (approx. values) |                |       |   |                                   |   |   |
| Density                        | [g/cr          | n³]   | 1.6   | 1.9                               | 0.73  | 0.62 / 0.75 / 0.75 / 0.90                                   |
| Shore hardn                    | iess           |       | D 70  | D 75                              | D 64  | D 57 / D 63 / D 64 / D 70                                   |

### FILLING MATERIALS AND SURFACE PRE-TREATMENT

#### **FILLING MATERIALS**

These materials in powder and granulate form can modifiy different properties of laminating and casting resins:

- lower shrinkage and exothermic temperature and higher casting thickness
- higher compressive strength or thermal conductivity
- reducing of material costs

Regarding the availability of the products in your country please refer to your contact person.



| FILLING MATERIALS               |   |   |   |  |  |  |  |  |
|---------------------------------|---|---|---|--|--|--|--|--|
|                                 | Aluminium grit  | Aluminium powder  |   | LF-Füller  | TE-Füller  |  |  |  |
|                                 |   | RZ 209/6  | RZ 1476   | RZ 30002   | RZ 30150   |  |  |  |
| Colour                          | silver to matt-grey   | silver to matt-grey   | white   | grey   | white  |  |  |  |
| Delivery unit                   | 25 kg paper bag   | 6 x 5 kg; 25 kg paper bag   | 7 kg paper bag  | 20 kg paper bag                                    | 25 kg paper bag                                    |  |  |  |
| Description                     | aluminium granulate   | aluminium powder  | hollow glass microballon aluminium silicate microballon   |  | aluminium hydroxide powder                         |  |  |  |
| Applications                    | backfill castings with good<br>thermal conductivity and<br>good machinability | backfill castings and parts<br>with good thermal conductivity<br>and good machinability | fill castings and partssyntactic foambackfill casting with lowod thermal conductivitydensity, light concrete mixesJ good machinabilitydensity, light concrete mixes |  | backfill casting with good<br>workability          |  |  |  |
| Processing data (ap             | prox. values)   |   |   |  |  |  |  |  |
| Bulk density [g/cm <sup>3</sup> | ] 1-1.5   | 1.0   | 0.15  | 0.4  | 1.2  |  |  |  |
| Mixture for exampl              | SikaBiresin® G32 (A)<br>Resin : Filler (100 : 100)                            | SikaBiresin® F27 (A)<br>Resin : Filler (100 : 300)                                      | SikaBiresin® F46 (A)<br>Resin : Filler (100 : 100)  | SikaBiresin® F27 (A)<br>Resin : Filler (100 : 100) | SikaBiresin® F26 (A)<br>Resin : Filler (100 : 250) |  |  |  |
| Physical data (appr             | ox. values)   |   |   |  |  |  |  |  |
| Density [g/cm <sup>3</sup>      | 2.7   | 2.7   | 0.25  | 0.6-0.7  | 2.4  |  |  |  |
| Grain [mm                       | 0.6-1.2   | 0-0.07 or < 0.063   | 0.1   | 0.01-0.25 or 0.3                                   | 0-0.032 or 0.07                                    |  |  |  |

#### SURFACE PRE-TREATMENT

High-grade release agents, cleaners and activators provide an optimal surface pre-treatment.



#### SURFACE PRE-TREATMENT

|                         |                      |  |  |   |  |   |                                   | <u> </u>  |
|-------------------------|----------------------|--|--|---|--|---|-----------------------------------|---|
|                         |                      | Sika®<br>Liquid Wax-815 *  | Sika®<br>Pasty Wax-818 *   | Sika®<br>Liquid Wax-852 *   | Sika®<br>Liquid Spray-872 *  | Sika®<br>Handclean  | Sika®<br>Reinigungsmittel 5       | Sika®<br>Activator 205  |
| Colour                  |                      | milky  | whitish  | whitish   | transparent  | orange/white  | clear transparent                 | colourless  |
| Delivery unit           |                      | 6 x 0,71kg;<br>3,55 kg   | 8 x 0.45 kg  | 6 x 0.73 kg;<br>7.3 kg  | 6 x 400 ml   | 70 pcs/unit   | 1  ; 10                           | 1 I; 0.25 I   |
| Description             |                      | low viscosity wax<br>dispersion; fast drying   | pasty wax dispersion;<br>fast drying   | liquid greasy wax;<br>fast drying   | greasy wax in<br>spray; silicone free                                | impregnated cloths<br>with hand cleaning<br>formula                   | mild solvent blend                | primer with low<br>viscosity for<br>nonporous surfaces  |
| Applications            |                      | release agent for EP-<br>and PUR-systems in<br>model making; for<br>sealed, lacquered and<br>metallic surfaces | release agent for EP-<br>and PUR-systems in<br>model making; for<br>sealed, lacquered and<br>metallic surfaces | release agent for<br>PUR-systems in<br>model making and<br>silicones; can be<br>used for porous<br>surfaces | release agent for<br>PUR-systems<br>in model making<br>and silicones | time saving fast<br>cleaning of<br>machines, tools<br>and accessories | cleaning of tools<br>and surfaces | increasing of bonding<br>of elastomeric PUR-<br>system (SikaBiresin®<br>UR320 NT) on<br>prepared aluminium<br>substructures |
| Processing da           | ata (appro           | x. values)   |  |   |  |   |                                   |   |
| Material<br>consumption | brushed<br>coats     | 70   | 50-100   | 70  | -  | -   | -                                 | 30-60   |
| [g/m²]                  | sprayed<br>coats     | 30   | -  | 30  | 30   | -   | -                                 | -   |
| Drying time             | [min]                | 5-10   | 5-10   | 5-10  | 5-10   | -   | -                                 | 10  |
| Physical data           | (approx.             | values)  |  |   |  |   |                                   |   |
| Density                 | [g/cm <sup>3</sup> ] | 0.71   | 0.84   | 0.73  | 0.73   | -   | -                                 | -   |

 $\ast$  Names of release agents vary from one country to another.

#### ADDITIVES

Additives are added to liquid systems in order to reach a specific thixotropy, thinning, acceleration or colouring of products.



| ADDITIVES (thixotroping, acceleration, colouring) |   |   |  |   |  |  |  |  |
|---|---|---|--|---|--|--|--|--|
|   | Stellmittel T   | Biresin® HC 586<br>(catalyst)   | Biresin <sup>®</sup> Colour<br>Paste                                     | CP Color  |  |  |  |  |
|   | RZ 55   |   |  |   |  |  |  |  |
| Colour  | white   | light yellow  | white, black,<br>green, red, blue,<br>yellow, dark blue,<br>pink, orange | white, black,<br>green, red,<br>blue, yellow  |  |  |  |  |
| Delivery unit                                     | 1.0 kg  | 0.5 kg  | 8 x 0.5 kg   | 0.5 kg;<br>Colorkit:<br>6 x 0,025 kg  |  |  |  |  |
| Applications                                      | light weight,<br>non dusty<br>powder for<br>thixotroping<br>of EP- and<br>PUR-systems | acceleration of<br>selected PUR-<br>systems based<br>on MDI techno-<br>logy in order to<br>obtain a shorter<br>demolding time | colouring of<br>EP- and PUR-<br>systems                                  | Colouring and<br>pigmenting of<br>PUR vacuum<br>casting resins,<br>specific for the<br>PX range |  |  |  |  |



# GLOBAL SOLUTIONS -LOCAL SERVICE

Our most current General Sales Conditions shall apply.

Please consult the Product Data Sheet prior to any use and processing.

Actual Product Data Sheets and information about additional products please find in: www.sika.com/advanced-resins



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