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
WITH OVER 75 YEARS OF EXPERIENCE, Sika Advanced Resins is the world leading provider and developer of high-performance resins, block materials and pastes for model and mould making. Sika Advanced Resins offers customized solutions for the composites industry – from the model to the shape and finished parts up to the fitting structural adhesive.

In addition, Sika Advanced Resins offers casting resins and functional coatings for industrial filters and dielectrics.

Sika Advanced Resins generates an annual turnover of € 150 million with 450 employees.

Sika Advanced Resins is part of Sika AG, which is headquartered in Baar, Switzerland. Sika has subsidiaries in 101 countries worldwide, with more than 200 manufacturing sites. It has approx. 19,500 employees, who generated an annual turnover of CHF 7.1 billion in 2018.
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**

Complicated mouldings quickly made

- Vacuum Casting Systems
- Low Pressure RIM Systems

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

The same applies for the 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.

**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, backFIL or faccasting.

**ELASTOMIC 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.
### 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/cm³ 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.

#### DESIGN AND STYLING BOARDS

<table>
<thead>
<tr>
<th>SikaBlock® M80</th>
<th>Labelite 8 GY</th>
<th>SikaBlock® M150</th>
<th>Labelite 15 IY</th>
<th>SikaBlock® M330</th>
<th>Labelite 25YW</th>
<th>SikaBlock® M440</th>
<th>Labelite 35 OE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density [g/cm³]</td>
<td>0.08</td>
<td>0.15</td>
<td>0.24</td>
<td>0.25</td>
<td>0.35</td>
<td>0.35</td>
<td></td>
</tr>
<tr>
<td>Colour</td>
<td>yellowish</td>
<td>grey</td>
<td>light green</td>
<td>ivory</td>
<td>peach yellow</td>
<td>orange</td>
<td></td>
</tr>
<tr>
<td>Characteristics</td>
<td>fine and non-powdery surface; easily workable; low dust formation when milled</td>
<td>excellent surface quality; very good milling behaviour; with low dust formation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### 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/cm³ we offer a complete range to satisfy every preference of model makers in mechanical strength, thermal resistance and of course surface aspect. Polyform boards display the smoothest surface aspect in such category in the market place while SikaBlocks® are thermally the most resistant and stable.

#### MODEL AND TOOLING BOARDS

<table>
<thead>
<tr>
<th>SikaBlock® M450</th>
<th>Labelite 45 PK</th>
<th>SikaBlock® M600</th>
<th>Prolab 65 (XL)</th>
<th>SikaBlock® M680</th>
<th>SikaBlock® M700</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density [g/cm³]</td>
<td>0.45</td>
<td>0.60</td>
<td>0.60 (0.70)</td>
<td>0.64</td>
<td>0.70</td>
</tr>
<tr>
<td>Colour</td>
<td>orange</td>
<td>pink</td>
<td>light brown</td>
<td>light brown</td>
<td>light brown</td>
</tr>
<tr>
<td>Characteristics</td>
<td>good economical grade</td>
<td>superior surface quality; good edge stability; easily workable; fine, dense surface; good compressive strength and edge stability; good heat distortion temperature;</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Physical data (approx. values)

- **Shore hardness**: D 45 D 58 D 63 (D 70) D 63 D 66
- **Flex. strength [MPa]**: 12 19 34 23 26
- **Compressive strength [MPa]**: 10 17 28 21 25
- **Thermal resistance [°C]**: 78 65 80 85 80 90
- **CTE, α [1/K]**: 55 x 10^-6 55 x 10^-6 75 x 10^-6 55 x 10^-6 55 x 10^-6

#### Processing data (approx. values)

- **Dimensions (other dimensions on request)**: 2000 x 1000 x Thickness: 100/100/200/300/400/450 2400 x 1200 x Thickness: 100/100/200/300/400/450 2000 x 1000 x Thickness: 100/100/200/300/400/450 2000 x 1000 x Thickness: 100/100/200/300/400/450 2000 x 1000 x Thickness: 100/100/200/300/400/450 2000 x 1000 x Thickness: 100/100/200/300/400/450 2000 x 1000 x Thickness: 100/100/200/300/400/450
- **Adhesive**: Biresin® Foam Adhesive / Labelite Glue
- **Filler**: Biresin® Spachtel orange

#### MODEL AND TOOLING BOARDS

#### MODEL AND TOOLING BOARDS

High quality master models made of SikaBlocks® M680/M700 provide highest dimensional accuracy.
**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 1.7 g/m³ with high mechanical strength and sufficient heat resistance up to 180 °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.

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### BOARDS FOR HIGHEST DIMENSIONAL STABILITY

<table>
<thead>
<tr>
<th>Density [g/cm³]</th>
<th>LAB 973</th>
<th>Probab 75</th>
<th>Skilblock® M9106</th>
<th>LAB 1000</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.75</td>
<td>0.75</td>
<td>0.78</td>
<td>1.67</td>
</tr>
</tbody>
</table>

- **Colour**
  - light green
  - blue
  - light grey
  - white
  - grey

- **Characteristics**
  - BOARDS FOR HIGHEST DIMENSIONAL STABILITY
  - medium density, good compressive strength and edge stability, low thermal expansion and high dimensional stability

- **Processing data (approx. values)**
  - Density [g/cm³]
  - Flex. strength [MPa]
  - Compressive strength [MPa]
  - Thermal resistance [°C]
  - CTE, α [1/K]
  - Processing data (approx. values)

- **Dimensions (other dimensions, on request)**
  - 1500 x 500 x Thickness: 50/75/100/150/200
  - 1500 x 500 x Thickness: 50/75/100/150/200
  - 1500 x 500 x Thickness: 50/75/100/150/200
  - 1500 x 500 x Thickness: 50/75/100/150/200
  - 1500 x 500 x Thickness: 50/75/100/150/200

- **Adhesive**
  - Probab Cow / Biresin® Kleber Braun
  - M990 / Biresin® Power Adhesive Thix

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### BOARDS FOR TOOLS AND FOUNDRY

<table>
<thead>
<tr>
<th>Density [g/cm³]</th>
<th>Skilblock® M900</th>
<th>Skilblock® M945</th>
<th>Skilblock® M980</th>
<th>LAB 810</th>
<th>LAB 910</th>
<th>Skilblock® M960</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.0</td>
<td>1.35</td>
<td>1.2</td>
<td>1.30</td>
<td>1.18</td>
<td>1.35</td>
</tr>
</tbody>
</table>

- **Colour**
  - mint green
  - green
  - blue
  - orange

- **Characteristics**
  - FOUNDRY TOOLING BOARDS
  - high dimensional stability, very easy to mill and smooth surface aspect

- **Processing data (approx. values)**
  - Shore hardness
  - Flex. strength [MPa]
  - Compressive strength [MPa]
  - Impact resistance
  - Thermal resistance [°C]
  - CTE, α [1/K]
  - Abrasion resistance

- **Dimensions (other dimensions, on request)**
  - 1500 x 500 x Thickness: 50/75/100/150/200
  - 1500 x 500 x Thickness: 50/75/100/150/200
  - 1500 x 500 x Thickness: 50/75/100/150/200
  - 1500 x 500 x Thickness: 50/75/100/150/200
  - 1500 x 500 x Thickness: 50/75/100/150/200

- **Adhesive**
  - Biresin® Kleber grün / Biresin® Power Adhesive Thix
  - H9930 / Biresin® Power Adhesive Thix
  - M920 / Biresin® Power Adhesive Thix

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**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.
Large size models and tools are made with extrudable PUR and epoxy pastes providing a workable surface applied onto a stable core substrate. This technique is widely used to make parts for boats or wind blades as well as automotive or architectural design. 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 & MOULD MAKING PASTES**

**Mass Casting Products**

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.

**BIRESIN® M67**

- **Colour:** Light brown
- **Characteristics:** excellent surface quality, very good milling behaviour with low dust formation, good adhesion of paints, good mechanical properties
- **Applications:** design, styling or cubing models, multi-purpose epoxy paste with high strength and heat resistance ideal for direct tooling
- **Processing data (approx. values):**
  - **Dimensions:** customised casting up to 0.7 m³; realization by specialized Sika partner, please contact your regional provider
  - **Filter:** Spachtel braun Neu, SC 258
  - **Mixing ratio:** 100 : 2
  - **Potlife:** > 20 min
  - **Setting time:** > 24 h
- **Physical Data (approx. values):**
  - **Density (g/cm³):** 0.86
  - **Shore hardness:** D 67
  - **Flexural strength (MPa):** 30
  - **CTE, α (1/K):** 78 ±15

**BIRESIN® NEAR NET SHAPE CAST BLANKS OUT OF MODEL CAST RESIN BIRESIN® M67**

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

GELCOATS

The specially formulated gelcoat range offers high-quality products with easy application and necessary resistance to external influences such as mechanical, thermal or chemical stresses.

**GC1 050:**
- Proven standard gelcoat (white) for models and negatives
- GC14 hardener with longer potlife
- Good spreading and covering properties
- Easily workable

**GC1 080:**
- Blue gelcoat with good workability
- With GC11 hardener applicable on wet plaster (previously treated)
- With GC14 hardener better chemical and heat resistance for ceramic and RTM moulds (polyester)

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**GELCOATS OF EASY WORKABILITY**

<table>
<thead>
<tr>
<th></th>
<th>GC1 050</th>
<th>GC1 080</th>
<th>Biresin® S8</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>GC1 11</td>
<td>GC1 14</td>
<td>Biresin® S8</td>
</tr>
<tr>
<td>B</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Colour</td>
<td>white</td>
<td>blue / white</td>
<td>blue / white</td>
</tr>
<tr>
<td>Characteristics</td>
<td>good spreading and covering properties, easily workable</td>
<td>high resistance to chemicals, easy to apply, polishable to high gloss, heat resistant, good styrene resistance</td>
<td></td>
</tr>
<tr>
<td>Applications</td>
<td>master models, negatives, gauges, ceramic moulds, RTM moulds (previously treated)</td>
<td>vacuumforming moulds, master models, moulds for composite production</td>
<td></td>
</tr>
</tbody>
</table>

**Processing data (approx. values):**
- Potlife [min]: 16, 37, 25, 30
- Gelling time [min]: 50, 45, 60
- Demoulding time [h]: 16, 18, 24

**Physical data (approx. values):**
- Density [g/cm³]: 1.57, 1.45, 1.72, 1.22
- Shore hardness: 88, 88, 91, 88
- Flexural strength [MPa]: 72, 74, 82, 90
- HDT [°C]: –, –, –, 136
- Tg [°C]: 85, 53, 101, –

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**GELCOATS OF HIGH ABRASION OR HEAT RESISTANCE**

<table>
<thead>
<tr>
<th></th>
<th>GC1 070</th>
<th>Biresin® S12</th>
<th>GC1 120</th>
<th>Biresin® S19</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>GC1 11</td>
<td>GC1 14</td>
<td>GC 20</td>
<td>Biresin® S19</td>
</tr>
<tr>
<td>B</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Colour</td>
<td>blue</td>
<td>blue</td>
<td>grey</td>
<td>light green</td>
</tr>
<tr>
<td>Characteristics</td>
<td>very good abrasion resistance, heat resistant, abrasion resistant, good solvent and styrene resistance</td>
<td>abrasion resistant, high heat resistance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Applications</td>
<td>foundry patterns, moulds for low pressure SMC and RTM (polyester, EP), vacuumforming moulds, prototype / test injection moulds, moulds for composite production</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Processing data (approx. values):**
- Potlife [min]: 16, 37, 30, 14, 45 – 60
- Gelling time [min]: 50, 45, 30, 150 – 180
- Demoulding time [h]: 16, 18, 24 – 24

**Physical data (approx. values):**
- Density [g/cm³]: 1.72, 1.65, 2.1, 1.50, 1.85
- Shore hardness: 89, 89, 92, 90, 90
- Flexural strength [MPa]: 85, 78, 110, 110
- HDT [°C]: –, > 108, 148
- Tg [°C]: 92, 90, 118, 158

* after appropriate treatment
LAMINATING SYSTEMS

LAMINATING AND MULTIPURPOSE RESINS

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

Biresin® LS / Epolam 2002:
- Proven standard laminating systems for multipurpose use (ordinary laminates, coupling layer and backfillings)
- Biresin® LS with different hardeners to reach various viscosity and potlife
- Epolam 2002 with low exothermic temperature for large moulds in ceramic industry

Epopast 400 and 402:
- 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
- EPOPAST 402 offers lowest density of 0.72 g/l for large lightweight laminates

Biresin® L84:
- High-grade laminating system for multipurpose use
- Different hardeners to reach various viscosity and potlife
- With L84 T harder for heat resistant moulds (e.g. vacuumforming)

STANDARD LAMINATING RESINS AND LAMINATING PASTES

<table>
<thead>
<tr>
<th></th>
<th>Biresin® LS</th>
<th>Biresin® F4</th>
<th>Epolam 2002</th>
<th>Biresin® L80</th>
<th>Epopast 400</th>
<th>Epopast 402</th>
<th>Biresin® L90</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixture</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>B</td>
<td>12</td>
<td>18</td>
<td>19</td>
<td>16</td>
<td>12</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>Colour</td>
<td>yellowish-transparent</td>
<td>clear transparent</td>
<td>white/clear, filled, high dimensional stability</td>
<td>yellowish-transparent, amber</td>
<td>green</td>
<td>green</td>
<td>blue</td>
</tr>
<tr>
<td>Characteristics</td>
<td>all-purpose, variable potlife and viscosity</td>
<td>low exothermic temperature – good dimensional stability</td>
<td>highly dimensional accuracy</td>
<td>high dimensional accuracy, very smooth and with good adhesion, very easy to mix, very low shrinkage</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Applications</td>
<td>ordinary laminates, coupling layers and backfills,</td>
<td>highly dimensional accuracy,</td>
<td>true-to-size laminates for gauges and models</td>
<td>for reinforcement of large negatives, models and moulds of low weight (e.g. foundry and ceramic industry)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Processing data</td>
<td>mixed viscosity [mPas]</td>
<td>580 310 2350 2130 950 1600 1100 2000</td>
<td>4400 4600 4000 4100</td>
<td>pasty</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Density [g/cm³]</td>
<td>1.2</td>
<td>1.17</td>
<td>1.35</td>
<td>0.91</td>
<td>0.72</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>Shore hardness</td>
<td>D 83</td>
<td>D 84</td>
<td>D 84</td>
<td>D 82</td>
<td>D 86</td>
<td>D 86</td>
<td>D 86</td>
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<tr>
<td>Flexural strength [MPa]</td>
<td>95</td>
<td>88</td>
<td>95</td>
<td>96</td>
<td>90</td>
<td>71</td>
<td>72</td>
</tr>
<tr>
<td>HDT [°C]</td>
<td>51/70°</td>
<td>46/95°</td>
<td>50/63°</td>
<td>72°</td>
<td>53/78°</td>
<td>52/89°</td>
<td>54/80°</td>
</tr>
</tbody>
</table>
| * after appropriate treatment

LAMINATING SYSTEMS OF HIGHER HEAT RESISTANCE

<table>
<thead>
<tr>
<th></th>
<th>Biresin® L84</th>
<th>Biresin® S12</th>
<th>Epolam 2080</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixture</td>
<td>100</td>
<td>100</td>
<td>200</td>
</tr>
<tr>
<td>B</td>
<td>25</td>
<td>20</td>
<td>41</td>
</tr>
<tr>
<td>Colour</td>
<td>yellowish-transparent</td>
<td>colourless to brownish</td>
<td>amber</td>
</tr>
<tr>
<td>Characteristics</td>
<td>all-purpose, high mechanical strength and heat resistance</td>
<td>heat resistance after post curing</td>
<td>MDA free, very good temperature resistance</td>
</tr>
<tr>
<td>Applications</td>
<td>laminating moulds, vacuumforming moulds, heat resistant backfillings</td>
<td>injection moulds and other heat resistant moulds, prototype injection</td>
<td>heat resistant moulds, backfills and composite structures</td>
</tr>
<tr>
<td>Processing data</td>
<td>mixed viscosity [mPas]</td>
<td>390</td>
<td>1090</td>
</tr>
<tr>
<td>Potlife [min]</td>
<td>40</td>
<td>20</td>
<td>60</td>
</tr>
<tr>
<td>Demoulding time [h]</td>
<td>24</td>
<td>24</td>
<td>24+ post curing</td>
</tr>
<tr>
<td>Physical data</td>
<td>Density [g/cm³]</td>
<td>1.1</td>
<td>0.84</td>
</tr>
<tr>
<td>Shore hardness</td>
<td>D 82</td>
<td>D 84</td>
<td>D 86</td>
</tr>
<tr>
<td>Flexural strength [MPa]</td>
<td>76</td>
<td>130</td>
<td>111°</td>
</tr>
<tr>
<td>HDT [°C]</td>
<td>100°</td>
<td>91°</td>
<td>110°</td>
</tr>
</tbody>
</table>
| * after appropriate treatment

High-grade laminates with excellent strength can be reached with Sika Advanced Resins laminating resins.
## COMPOSITE SYSTEMS FOR WET LAY-UP

- **Biresin® CR122:**
  - High performance 120 °C System
  - Approved by the German aviation authority LBA (Lufthansaufbauamt)
  - 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

- **Biresin® CR172:**
  - T<sub>T</sub> potential of 174 °C
  - Nontoxic system with a good price/performance ratio
  - Very good wetting behavior for a high T<sub>T</sub> system
  - Especially suitable for moulds and parts with a high heat resistance

### Characteristics

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>80</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>120</td>
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<td>100</td>
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<td>100</td>
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<td>100</td>
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<td>160</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
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<tr>
<td>174</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
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<td>100</td>
</tr>
</tbody>
</table>

- **Biresin® CR82:**
  - With optimized viscosity for wet lay-up

- **Biresin® CR131:**
  - Suitable for high TG system up to 162 °C. e.g. suitable for high TG system for wind blade moldings.

- **Biresin® CR172:**
  - With extremely low mixed viscosity
  - Especially designed for vacuum infusion processes at lower temperatures (15–18 °C)
  - GL-approved system with all 3 hardeners
  - Very low tendency to crystallize
  - Suitable for marine industry or for very big and/or complex parts

### Infusion systems with optimized viscosity and wetting properties guarantee a fast and proper fibre wet out.

- **Epolam 2092:**
  - System with extremely low mixed viscosity
  - Especially designed for vacuum infusion processes at lower temperatures (15–18 °C)
  - GL-approved system with all 3 hardeners
  - Very low tendency to crystallize
  - Suitable for marine industry or for very big and/or complex parts

### COMPOSITE SYSTEMS FOR VACUUM INFUSION

- **Epolam 2092:**
  - System with extremely low mixed viscosity
  - Especially designed for vacuum infusion processes at lower temperatures (15–18 °C)
  - GL-approved system with all 3 hardeners
  - Very low tendency to crystallize
  - Suitable for marine industry or for very big and/or complex parts

### COMPOSITE SYSTEMS FOR INFUSION

- **Epolam 2092:**
  - System with extremely low mixed viscosity
  - Especially designed for vacuum infusion processes at lower temperatures (15–18 °C)
  - GL-approved system with all 3 hardeners
  - Very low tendency to crystallize
  - Suitable for marine industry or for very big and/or complex parts
VACUUM CASTING SYSTEMS

SOFT TO SEMI-RIGID SYSTEMS

<table>
<thead>
<tr>
<th>Component</th>
<th>ISO/CANARIE</th>
<th>PX 761</th>
<th>UPX 8400-1</th>
<th>PX 201</th>
<th>PX 212 / 225</th>
<th>PX 1000 / 215</th>
</tr>
</thead>
<tbody>
<tr>
<td>POLYOL</td>
<td>PX 761</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>EXTENDER</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Mixing ratio</td>
<td>g</td>
<td>45</td>
<td>50</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Colour</td>
<td>amber</td>
<td>off-white</td>
<td>amber to dark amber</td>
<td>translucent</td>
<td>off-white</td>
<td>–</td>
</tr>
<tr>
<td>Characteristics</td>
<td>fast demoulding; high reproduction accuracy; emulsion/rubber aspect; abrasion resistance; max. peak temperature: 110 °C</td>
<td>3 components for variable hardness; fixed mix ratio between polyol B and isocyanate; easy to tint; low silicone moulds aggressiveness</td>
<td>very good impact resistance; quick hardening; thermoplastic aspect; easy processing</td>
<td>low viscosity for easy casting; excellent impact resistance; fast demoulding</td>
<td>low viscosity; long potlife; good mechanical properties; can be painted</td>
<td>–</td>
</tr>
<tr>
<td>Applications</td>
<td>soft technical parts under vacuum process; prototype and short series of soft parts to cover all A Shore range. Fully compatible with EGGIL 251 silicone moulds.</td>
<td>parts with high impact and abrasion resistance; range effect</td>
<td>Thermoplastic-like parts with a flexural modulus of elasticity close to filled PP</td>
<td>Fast by hand or vacuum machine to achieve ABS type large parts</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

VACUUM CASTING SYSTEMS

TOUGH-HARD TO STIFF SYSTEMS

<table>
<thead>
<tr>
<th>Component</th>
<th>ISO/CANARIE</th>
<th>PX 221</th>
<th>PX 212 / 225</th>
<th>PX 226-245</th>
<th>PX 226L-245</th>
<th>Bio Ins® VC280</th>
<th>PX 245</th>
</tr>
</thead>
<tbody>
<tr>
<td>POLYOL</td>
<td>PX 761</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
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<tr>
<td>EXTENDER</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Mixing ratio</td>
<td>g</td>
<td>45</td>
<td>80</td>
<td>50</td>
<td>80</td>
<td>50</td>
<td>80</td>
</tr>
<tr>
<td>Colour</td>
<td>off-white</td>
<td>sparsent</td>
<td>white</td>
<td>yellowish-translucent</td>
<td>off-white</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Characteristics</td>
<td>high reproduction accuracy can be easily pigmented with colouring L/D high impact resistance</td>
<td>good impact and flexural resistance, very easy coloring with all kind of pigments (non water-based) like AX/SO/C range</td>
<td>good impact and flexural resistance; Available in two reaction; High thermal resistance. Can be easily coloured with LP pigments</td>
<td>very stiff, high flexural strength, impact resistant, simulates ABS, PVC</td>
<td>very high modulus of elasticity, high reproduction accuracy; Available in two reactivity: can be easily coloured with LP pigments</td>
<td>Fast demoulding</td>
<td></td>
</tr>
<tr>
<td>Applications</td>
<td>prototype parts and mock-ups with mechanical properties similar to thermoplastics such as ABS</td>
<td>thermoplastic-like parts with a flexural modulus of elasticity close to 2,500 MPa (e.g. polycarbonate, ABS)</td>
<td>prototype parts and mock-ups with mechanical properties similar to thermoplastics like filled ABS</td>
<td>parts with high impact and flexural modulus of elasticity close to 2,500 MPa (e.g. polycarbonate, ABS)</td>
<td>prototype parts with mechanical properties similar to thermoplastics like polyoxymethylene and polyamide</td>
<td>–</td>
<td></td>
</tr>
</tbody>
</table>

PROCESSING data (approx. values)

- Mixed viscosity [mPas]: 350 – 600
- Potlife [min]: 4 – 45
- Demoulding time [min]: 30 – 40
- Physical Data (approx. values)
  - Density [g/cm³]: 1.20 – 1.20
  - Shore hardness: 80 – 85
  - E-Modulus [MPa]: 2,100 – 2,500
  - Tensile strength [MPa]: 60 – 70
  - Flexural strength [MPa]: 105 – 130
  - Elongation at break [%]: 7 – 10
  - Impact strength [kJ/m²]: 71 – 50
  - HDT [°C]: 85
  - Tc [°C]: 95 – 100

PX 226:
- Filled ABS or Nylon similarity
- Excellent ratio cost life/demoulding time
- Two reactivity available

PX 245:
- Stiffer product on the market
- Filled polyamide similarity
- High rigidity parts like electronic devices casings

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

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

Prototype stiff housing part.
### SILICONES

#### PX 5218:
- New transparent casting resin
- All parts with optical properties
- UV and weather resistant
- Casting up to 100 mm

#### PX 223 HT:
- Leader on the market
- Low aggressiveness on silicone moulds
- Temperature and thermal resistance

### Physical Data (approx. values)

<table>
<thead>
<tr>
<th>Component</th>
<th>POLYOL B</th>
<th>Component</th>
<th>RESIN A</th>
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<td>Mixing ratio</td>
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<td>Colour</td>
<td>transparent</td>
</tr>
<tr>
<td>Characteristics</td>
<td>high transparency; easy finishing; high reproduction accuracy; good UV resistance; easy processing; high stability under temperature</td>
<td>Characteristics</td>
<td>high transparency; easy finishing; high reproduction accuracy; good UV resistance; easy processing; high stability under temperature</td>
</tr>
<tr>
<td>Applications</td>
<td>transparent parts until 10 mm (thickness)</td>
<td>Applications</td>
<td>transparent parts until 10 mm (thickness)</td>
</tr>
<tr>
<td>Thermal stability</td>
<td>temperature resistance up to 190 °C</td>
<td>thermal stability</td>
<td>temperature resistance up to 190 °C</td>
</tr>
<tr>
<td>Flowability</td>
<td>self bleeding silicone</td>
<td>Flowability</td>
<td>self bleeding silicone</td>
</tr>
<tr>
<td>Processing data</td>
<td>-</td>
<td>Processing data</td>
<td>-</td>
</tr>
<tr>
<td>Viscosity</td>
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<td>Viscosity</td>
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<tr>
<td>Setting time</td>
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</tr>
<tr>
<td>Demoulding time</td>
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<td>1</td>
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<tr>
<td>Physical Data (approx. values)</td>
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<td>Physical Data (approx. values)</td>
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</tr>
<tr>
<td>Shore hardness</td>
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<tr>
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<td>Density</td>
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<tr>
<td>E-Modulus</td>
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<td>E-Modulus</td>
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</tr>
<tr>
<td>Tear strength</td>
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<td>Tear strength</td>
<td>400</td>
</tr>
<tr>
<td>Elongation at break</td>
<td>100</td>
<td>Elongation at break</td>
<td>100</td>
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</table>

### Transparent or Specific Use Systems

<table>
<thead>
<tr>
<th>Component</th>
<th>POLYOL A</th>
<th>Component</th>
<th>POLYOL B</th>
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<tbody>
<tr>
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<td>Mixing ratio</td>
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<td>Colour</td>
<td>transparent</td>
</tr>
<tr>
<td>Characteristics</td>
<td>high transparency; easy finishing; high reproduction accuracy; good UV resistance; easy processing; high stability under temperature</td>
<td>Characteristics</td>
<td>high transparency; easy finishing; high reproduction accuracy; good UV resistance; easy processing; high stability under temperature</td>
</tr>
<tr>
<td>Applications</td>
<td>transparent parts until 10 mm (thickness)</td>
<td>Applications</td>
<td>transparent parts until 10 mm (thickness)</td>
</tr>
<tr>
<td>Thermal stability</td>
<td>temperature resistance up to 190 °C</td>
<td>thermal stability</td>
<td>temperature resistance up to 190 °C</td>
</tr>
<tr>
<td>Flowability</td>
<td>self bleeding silicone</td>
<td>Flowability</td>
<td>self bleeding silicone</td>
</tr>
<tr>
<td>Processing data</td>
<td>-</td>
<td>Processing data</td>
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</tr>
<tr>
<td>Viscosity</td>
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<td>Setting time</td>
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<td>Demoulding time</td>
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<td>Physical Data (approx. values)</td>
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<td>Physical Data (approx. values)</td>
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<tr>
<td>Shore hardness</td>
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<tr>
<td>Density</td>
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<td>Density</td>
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<td>E-Modulus</td>
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<td>E-Modulus</td>
<td>40,000</td>
</tr>
<tr>
<td>Tear strength</td>
<td>400</td>
<td>Tear strength</td>
<td>400</td>
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<tr>
<td>Elongation at break</td>
<td>100</td>
<td>Elongation at break</td>
<td>100</td>
</tr>
</tbody>
</table>

### 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

### ESSIL 292:
- Self bleeding silicone
- Improve moulds ageing; oily surface for better releasing and demoulding

### ESSIL 125

#### Resin

<table>
<thead>
<tr>
<th>Component</th>
<th>ESSIL 291</th>
<th>ESSIL 292</th>
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<tbody>
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<td>Catalyst</td>
<td>B</td>
<td>ESSIL 291</td>
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<tr>
<td>Colour</td>
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<td>Colour</td>
</tr>
<tr>
<td>Characteristics</td>
<td>high transparency; easy finishing; high reproduction accuracy; good UV resistance; easy processing; high stability under temperature</td>
<td>Characteristics</td>
</tr>
<tr>
<td>Applications</td>
<td>soft negatives; flexible moulds for prototypes; thixotropic additive (ESSIL 126 THIXO)</td>
<td>Applications</td>
</tr>
<tr>
<td>Processing data (approx. values)</td>
<td>-</td>
<td>Processing data (approx. values)</td>
</tr>
<tr>
<td>Viscosity</td>
<td>38,000</td>
<td>Viscosity</td>
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<tr>
<td>Shore hardness</td>
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<td>Shore hardness</td>
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<td>Density</td>
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<td>Density</td>
</tr>
<tr>
<td>E-Modulus</td>
<td>-</td>
<td>E-Modulus</td>
</tr>
<tr>
<td>Tear strength</td>
<td>-</td>
<td>Tear strength</td>
</tr>
<tr>
<td>Elongation at break</td>
<td>-</td>
<td>Elongation at break</td>
</tr>
</tbody>
</table>
## LOW PRESSURE RIM-SYSTEMS

### Components

**POLYOL A**
- RIM 631
- Biresin® RG51 HS
- RIM 826
- RIM 836
- RIM 975
- Biresin® RG53
- Biresin® RG56
- RIM 976
- Biresin® RG53 Fibre
- RIM 631
- Biresin® RG53 FR
- RIM 900
- Biresin® RG57 FR

**ISOCYANATE B**
- RIM 631
- Biresin® G53
- RIM 902
- RIM 974
- RIM 900
- Biresin® U5
- Biresin® U5
- RIM 900
- Biresin® U5
- Biresin® U5

**Mixing ratio [g]**
- A: 100 100 100 100 100 100 100 100 100 100 100
- B: 100 50 100 60 75 75 80 80 60 100 54 44

**[ltr.]**
- B: 92 43 88 60 67 62 66 – – 89 52 –

### Characteristics

- Colour: black black / beige black beige black black / beige / grey black black black black / beige dark grey / beige
- Characteristics: flexible, rapid setting product, rubber aspect, weather resistant
- Under-the-hood parts, air cleaner ducting, heater system, instrument housings, and covers with high mechanical properties
- Happy, thermal resistant, high temperature and stiffness
- Flame retardant, thermal resistant, high strength and stiffness

### Applications

- Flexible parts, overmoulding of glass panels for peripheral seals
- Shock-resistant housings and covers
- Prototype parts requiring high impact resistance, automobile face panels, coings and interior panels
- Hollow decorative parts, impact resistant massive parts, rotor moulded or cast
- Under-the-hood parts, air cleaner ducting, heater system, instrument housings, and covers with medium stiffness
- Housings and covers with high mechanical properties
- Stiff housings and covers
- Stiff housings and covers with UL 94 V-0
- Stiff housings and covers with DIN EN 45545-2

### Processing data (approx. values)

- **Viscosity (Resin) [mPas]**: 900 – 1,500 1,300 2,000 2,000 2,000 2,200 2,900 6,000 1,500 3,500 3,800
- **Putlife [s]**: 50 – 70 60 80 – 100 9 – 11 (minutes) 35 – 40 50 50 48 35 – 40 75 55
- **Demoulding time [min]**: 15 – 20 10 – 20 25 2 – 4 (hours) 10 > 10 > 10 > 10 > 10 > 10
- **Physical data (approx. values)**
  - **Density [g/cm³]**: 1.05 – 1.09 1.35 1.12 1.25 1.18 1.01 1.18 1.2 1.18 1.18 1.27 1.30
  - **Shore hardness [A]**: 73 65 73 0.75 0.75 0.75 0.78 0.80 0.82 0.81 0.80 0.80*
  - **E-Modulus [MPa]**: – 450 850 850 1,000 1,300 1,400 1,650 1,750 3,000 3,200 3,350
  - **Flexural strength [MPa]**: – 20 95 75 54 58 67 55 – – – –
  - **Impact strength [kJ/m²]**: – no break 100 > 50 > 50 95 90 60 48 40 35 20* 20*
  - **HVT [°C]**: – 65 – – – – – 63 / 120° 60 / 140° 100 / 125° 63 / 125° – –
  - **Tf [°C]**: – 95 95 150 – – – – – – – –

* for appropriate treatment
FASTCAST RESINS

FASTCAST RESINS - FILLED

<table>
<thead>
<tr>
<th>POLYOL A</th>
<th>ISOYCYANATE B</th>
<th>F 60-1</th>
<th>F 40-1</th>
<th>F 10</th>
<th>Biresin® G21</th>
<th>Biresin® G23</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixing ratio [%]</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Colour</td>
<td>white</td>
<td>blue</td>
<td>ivory, green, black</td>
<td>white</td>
<td>blue</td>
<td>ivory, green, black</td>
</tr>
<tr>
<td>Characteristics</td>
<td>very good surface aspect for machining; easy to carve, to sand, to polish</td>
<td>high abrasion resistance; low viscosity; quick setting; short potlife</td>
<td>0.3 mix ratio; short potlife; low viscosity; quick setting; good temperature resistance; low shrinkage</td>
<td>100 % admixtures; easy to mix by hand; very good flowability, very fine structure; very good mechanically workable</td>
<td>almost odourless, low viscosity; quick setting; good temperature resistance; low shrinkage</td>
<td>very good odour, low miscible by hand, very good flowability, very low shrinkage, very good adhesion to wooden materials, very good mechanically workable</td>
</tr>
<tr>
<td>Applications</td>
<td>tools and parts; thermoforming tools; checking fixtures, positioning fixtures, decorative applications when marble aspect is needed</td>
<td>tools as foundry tools; checking fixtures, positioning fixtures, prototype parts; casting of master and core models, negatives and mouldings of medium size</td>
<td>casting of master and core models, negatives and mouldings of large dimensions</td>
<td>casting of master and core models, negatives and mouldings of large dimensions; for high surface quality and mould precision</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Processing data (approx. values)

| Mixed viscosity | [mPas] | 500 | 2,000 | 2,500 | 2,100 | 1,500 |
| Demolding time | [min] | 4.25 – 5.25 | 5.25 – 6.30 | 4.45 | 5.6 | 7.8 |
| Physical data (approx. values) |
| Density [g/cm³] | 1.58 | 1.78 | 1.64 | 1.7 | 1.7 |
| Shore hardness | 60 | 65 | 66 | 67 | 68 |
| Flexural strength [MPa] | 47 | 61 | 35 | 35 | 45 |
| Compressive strength [MPa] | 63 | 57 | 33 | 75 | 60 |
| T | [°C] | 60 | 69 | 71 | 80 | 70 |

FASTCAST RESINS - UNFILLED

<table>
<thead>
<tr>
<th>POLYOL A</th>
<th>Biresin® G27</th>
<th>Biresin® G27 LV</th>
<th>Biresin® G26</th>
<th>POLYOL A</th>
<th>Biresin® G26</th>
<th>Biresin® G27 LV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixing ratio [%]</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Colour</td>
<td>beige</td>
<td>off white</td>
<td>beige</td>
<td>off white</td>
<td>beige</td>
<td>off white</td>
</tr>
<tr>
<td>Characteristics</td>
<td>quick setting system; viscosity; low temperature resistance after heat curing (easy-to-use mix ratio 1:1 by weight); adjustable filler content</td>
<td>quick setting system; reduced viscosity; low shrinkage; adequate viscosity even with high rate of filler</td>
<td>very low shrinkage; viscosity even filled; easy to use mix ratio (1:1 by weight); high filler content possible</td>
<td>very low shrinkage; viscosity even filled; easy to use mix ratio (1:1 by weight); high filler content possible</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Applications</td>
<td>mainly used with filler for tools; moulds, masters, negatives with ISO 22395 to get easy machining; thermoforming tools with ISO 22395 aluminium powder in order to increase thermal conductivity</td>
<td>models, core models, negatives, patterns, small and medium size art and craft articles; with detailed shapes</td>
<td>mainly used for mock-ups and decorative parts using the unfilled product or filled with ISO 30150 to get low shrinkage and easy machining</td>
<td>same as F 160 but able to cast up to 50 mm in one shot</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Processing data (approx. values)

| Mixed viscosity | [mPas] | 90 | 50 | 130 | 65 | 80 | 125 |
| Potlife | [min] | 2.20 | 2.15 | 2.15 | 2.30 | 2.20 | 3.25 | 3.6 | 7 | 9 |
| Demolding time | [min] | 30 | 20 | 20 | 20 | 15 | 15 | 15 | 15 | 15 |
| Physical data (approx. values) |
| Density [g/cm³] | 1.08 | 1.1 | 1.1 | 1.1 | 1.08 | 1.07 |
| Shore hardness | 0.75 | 0.70 | 0.70 | 0.75 | 0.70 | 0.68 |
| Flexural strength [MPa] | 60 | 55 | 42 | 60 | 45 | 38 | 40 |
| Impact resistance [kJ/m²] | 14 | 25 | 60 | 50 | 23 | 18 | 20 |
| HDT | [°C] | 80 | 75 | 75 | 75 | 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.

PUR CASTING SYSTEMS WITH LONG PONTLIFE

- 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.

Biresin® C46
- Prefilled casting resin can be cast in thick sections (e.g. backfilling)
- Results in durable core models with high dimensional accuracy

Biresin® C48 and 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

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EP CASTING RESINS FOR TOOLING

**EP 5019:**
- Black allrounder resin with good workability
- Offers good compressive strength and abrasion resistance (e.g. foundry patterns)

**Biresin® G32:**
- Green filled casting resin for backfilling
- With Biresin® F4 hardener for additional filler loading to reduce shrinkage

**Biresin® G33:**
- Black filled casting resin offers highest abrasion resistance and dimensional accuracy

**Applications**
- production moulds, metal sheet forming tools, backfilling in foundry pattern / mould making
- very low viscosity, high filler loading for higher casting thickness
- backfilling in foundry pattern / mould making

**Processing data (approx. values)**
- **Mixing ratio** [g]: 100 (A) 7 (B)
- **Density** [g/cm³]: 2.25 (A) 1.6 (B)
- **Shore hardness** [D]: 90 (A) 90 (B)
- **Compressive strength** [MPa]: 110 (A) 112 (B)
- **HDT** [°C]: 48 - 72* (A) 4 - 5 (B)

**Characteristics**
- High transparency and high hardness; variable hardness by playing with mix ratio
- Multipurpose transparent epoxy system
- Good UV resistance
- Variable workability; high heat resistance, use as gelcoat with P7 hardener

**Applications**
- transparent embadding of decorative arts and transparent parts.
- Transparent system for coatings
- Quick setting in thin layers
- Can be cast in thick sections, high heat resistance, use as gelcoat with P7 hardener
- Can be used as gelcoat with P7 hardener

**Processing data (approx. values)**
- **Mixing ratio** [g]: 100 (A) 90 (B)
- **Density** [g/cm³]: 1.05 (A) 1.15 (B)
- **Shore hardness** [D]: 87 (A) 87 (B)
- **Compressive strength** [MPa]: 55 (A) 64 (B)

**Characteristics**
- Very low viscosity and self-degassing; high transparency and very good UV resistance; variable shore hardness and pot life adjustable with mixing ratio
- Can be applied on any material (wood, ceramic, plastic, paper)
- High transparency and high hardness; thinner coating with doming effect; can be cast up to 40 mm

**Applications**
- Transparent embedding of decorative arts (floral decorations) also in thick layers. Large transparent parts
- Glass casting for art and decoration applications in thinner layers of 1 to 3 mm
- Transparent embadding of decorative arts and transparent parts.
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.

**Biresin® U1419:**
- The low shore hardness of around A 97 offers highest abrasion resistance of core boxes as well as the shooting nozzles due to the high rebound elasticity.
- Favourite product for match plates

**Biresin® U1320 NT:**
- Proven market leader of nontoxic foundry resins for series core boxes.
- Standard hardener Biresin® U1320 L (B) works also for big castings up to 100 kg.
- Sika Cleaner 205 increases bonding on prepared aluminium substrates.

**Applications**
- Used in manifold application areas.
- Recommended for use in ceramic industry, flexible moulds and components.
- Soft shift gaiter made by UR 3450.
- Friendly use 1:1 ratio and low viscosity.
- New technology giving high properties.
- High abrasion resistant core boxes and match plates.
- Ceramic industry, flexible moulds and components.
- Production of parts requiring good abrasion resistance and tear resistance properties.
- Wear resistant coating, electronics encapsulation.
- Flexible fixture for parts for ultrasonic welding, elastic, flexible moulds.

**ELASTOMERIC 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.

**Biresin® U1404:**
- New technology giving high properties.
- New technology giving high properties.
- Friendly use 1:1 ratio and low viscosity.
- High frequency vibrations resistance.

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**Processing data (approx. values):**

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### ELASTOMERIC CASTING RESINS FOR CERAMICS

**ISOCYANATE A**  
Biresin® U1303  
Biresin® U1304  
Biresin® U1404  
Biresin® U1406  
Biresin® U1419  
Biresin® U7801

**POLYOL / AMINE B**  
Biresin® U1302  
Biresin® U1402  
Biresin® U1419  
UR 7863

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<td>40</td>
<td>35</td>
<td>10</td>
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**Colour**  
- coloured-transparent pink

**Characteristics**  
- rubber-like, insensitive to moisture; good tensile strength and elasticity;  
- choice of polyols for different hardness levels; very low shrinkage;  
- easy sanding after curing; homogenous material; low moisture sensitivity; chemical resistance to release agents

**Applications**  
- casting of fluvial moulds for ceramic industry; moulds for concrete mouldings, flexible mouldings; ceramic case moulds by hand-casting

### Processing data (approx. values)

**Mixed viscosity** [mPas]  
- 3,800  
- 4,000  
- 8,000  
- 3,000

**Potlife** [min]  
- 25  
- 25  
- 15  
- 20

**Demoulding time [h]**  
- > 16  
- > 16  
- > 16  
- 16

**Physical data (approx. values)**

**Density** [g/cm³]  
- 1.03  
- 1.05  
- 1.05  
- 1.34

**Shore hardness**  
- A 73  
- A 81  
- A 90  
- A 63

**Tear strength [N/mm]**  
- 15  
- 18  
- 30  
- 16

**Elongation at break [%]**  
- 550  
- 400  
- 400  
- 850

### ELASTOMERIC CASTING RESINS FOR CONCRETE AND BUILDING INDUSTRY

**ISOCYANATE A**  
Biresin® U1404  
Biresin® U1406  
UR 7810  
UR 7845  
UR 58403  
UR 58630  
UR 58720  
UR 5895  
UR 5898 F

**POLYOL / AMINE B**  
Biresin® RF 620  
Biresin® RF 625  
UR 7803  
UR 7820  
UR 5803  
UR 5805  
UR 5898 F

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**Colour**  
- reddish-transparent amber beige beige ochre grey or beige beige coloured beige

**Characteristics**  
- low shrinkage after hardening; high elongation at break; low moisture sensitivity; good chemical resistance  
- high elongation at break; low viscosity; good mechanical resistance  
- high chemical resistance; good mechanical properties; 2 pot life available; easy processing; good tear strength; good chemical resistance  
- high chemical resistance; good mechanical properties; 2 pot life available; easy processing; good tear strength; good chemical resistance  
- easy processing; good tear strength; good chemical resistance; semi-rigid system; quick setting; high tear strength

**Applications**  
- production of moulds or flexible parts; hand-casting or with help of 2K machine.  
- Large volumes possible in one shot with UR 7845  
- production of intricate moulds for concrete industry  
- production of moulds or flexible parts, by hand-casting or with 2K machine.  
- production of semi-flexible parts or moulds. Pot life adapted to process (hand or 2K machine).  
- production of semi-rigid parts or moulds. Exists with short pot life for 2K machines applications

### Processing data (approx. values)

**Mixed viscosity** [mPas]  
- 6,500  
- 4,000  
- 2,300  
- 2,450  
- 4,000  
- 2,000  
- 3,500  
- 2,500  
- 2,500  
- 1,000

**Potlife** [min]  
- 10  
- 20  
- 25  
- 40  
- 50  
- 15  
- 20  
- 40  
- 60  
- 40  
- 15  
- 20

**Demoulding time [h]**  
- > 16  
- > 16  
- > 16  
- 16  
- 16  
- 24  
- 16  
- 24  
- 16  
- 24  
- 24  
- 16

**Physical data (approx. values)**

**Density** [g/cm³]  
- 1.1  
- 1.1  
- 1.1  
- 1.1  
- 1.35  
- 1.35  
- 1.31  
- 1.31  
- 1.25  
- 1.25  
- 1.25

**Shore hardness**  
- A 60  
- A 60  
- A 60  
- A 60  
- A 85  
- A 70  
- A 90  
- A 65  
- D 65  
- D 65  
- D 65

**Tear strength [N/mm]**  
- 13  
- 14  
- 8.5  
- 18  
- 6  
- 14  
- 16.5  
- 31  
- 66  
- 110

**Elongation at break [%]**  
- 300  
- 800  
- 1,500  
- 1,200  
- 900  
- 550  
- 670  
- 700  
- 400  
- 140

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**Release of UR 58405 soft moulds for stone facing**

**Casting of Biresin® U1404**

**Mould cast of UR 58630 for concrete casting**

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ADHESIVE AND PUTTY FILLER SYSTEMS FOR BOARDS AND PASTES

ADHESIVES 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 similar 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.

PUTTY FILLERS

The creamy-soft consistency 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.

<table>
<thead>
<tr>
<th>A</th>
<th>Labelite Glue</th>
<th>Biresin® Power Adhesive Thix</th>
<th>Biresin® Power</th>
<th>Easymax</th>
<th>M175 / M180 / M380 / M390</th>
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Mixing ratio [g]

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<thead>
<tr>
<th>A</th>
<th>Biresin® Kleber grau / blau</th>
<th>Biresin® Kleber orange / braun</th>
<th>Biresin® Kleber orange / braun</th>
<th>Biresin® Kleber orange / braun</th>
<th>XT010-1</th>
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Colour

- dark amber
- amber
- green / blue
- orange / brown
- light brown
- light amber
- amber
- blue

Basis

- PUR
- Epoxy
- polyester
- grey, brown, beige
- grey

Characteristics

- dedicated 1K PUR adhesive for bonding of tooling boards and high mechanical stress
- dedicated glue for bonding of boards with good balance open-time and setting time
- dedicated glue for bonding of brown boards with good balance open-time and setting time
- 2K quick setting epoxy adhesive for easy application and long setting time for large bonding works or for applications requiring heat resistance
- 2K thermoset epoxy adhesive for bonding of LAB975 or LAB975 NEW to each other

Suitable for boards

- all Labelite and M blocks from M80 till M450
- bonding of tooling boards Lab 35OE and 45PK, all Prolabs and M blocks from M440 till M700
- all medium to high density boards of LAB 975 NEW and LAB 975

Processing data (approx. values)

- Consumption [kg/m²]: 0.12 - 0.15, 0.1, 0.07, 0.9, 0.75 - 0.85, 0.60 - 0.65, 0.65 - 0.70, 0.53
- Open time: 10 min, 15 min, 20 min, 30 min, 40 min, 60 min
- Setting time: 2 h, 6 - 8 h, 10 h, 14 h, 18 h
- Physical data (approx. values):
  - Density [g/cm³]: 1.15, 1.10 - 0.15, 0.8, 0.85 - 0.9, 0.8, 1.17, 1.15, 1.16, 0.78
  - Shore hardness [°C]: D 58, D 70, D 75, D 57, D 57 / D 63, D 64 / D 70

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<th>Biresin® Power</th>
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Mixing ratio [g]

<table>
<thead>
<tr>
<th>A</th>
<th>Biresin® Spachtel orange</th>
<th>Biresin® Spachtel braun neu</th>
<th>Biresin® Spachtel weiß</th>
<th>Easymax</th>
<th>M175 / M180 / M380 / M390</th>
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Colour

- orange
- brown
- white
- grey
- brown
- beige
- grey

Basis

- PUR
- Epoxy
- polyester
- grey, brown, beige
- grey

Characteristics

- good adhesion, fast curing and non-tacky, easily sanded
- quick setting low density 2K PUR putty for medium density brown boards; odor-free
- epoxy mastic with same cured properties as extrudable paste
- 2K quick setting epoxy adhesive for bonding of LAB975 or LAB975 NEW to each other

Suitable for boards

- all Labelite and M blocks from M80 till M450
- bonding of tooling boards Lab 35OE and 45PK, all Prolabs and M blocks from M440 till M700
- all medium to high density boards of LAB 975 NEW and LAB 975

Processing data (approx. values)

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  - Density [g/cm³]: 1.15, 1.10 - 0.15, 0.8, 0.85 - 0.9, 0.8, 1.17, 1.15, 1.16, 0.78
  - Shore hardness [°C]: D 58, D 70, D 75, D 57, D 57 / D 63, D 64 / D 70

Easymax perfect match repair putty to medium density boards having the same PUR chemistry with quick setting and colour less.
These materials in powder and granulate form can modify 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  
Mostly the chart shows systems from both previous sources (Sika and Axson) which are reasonably comparable. Before change we recommend tests.
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.sikaadvancedresins.com