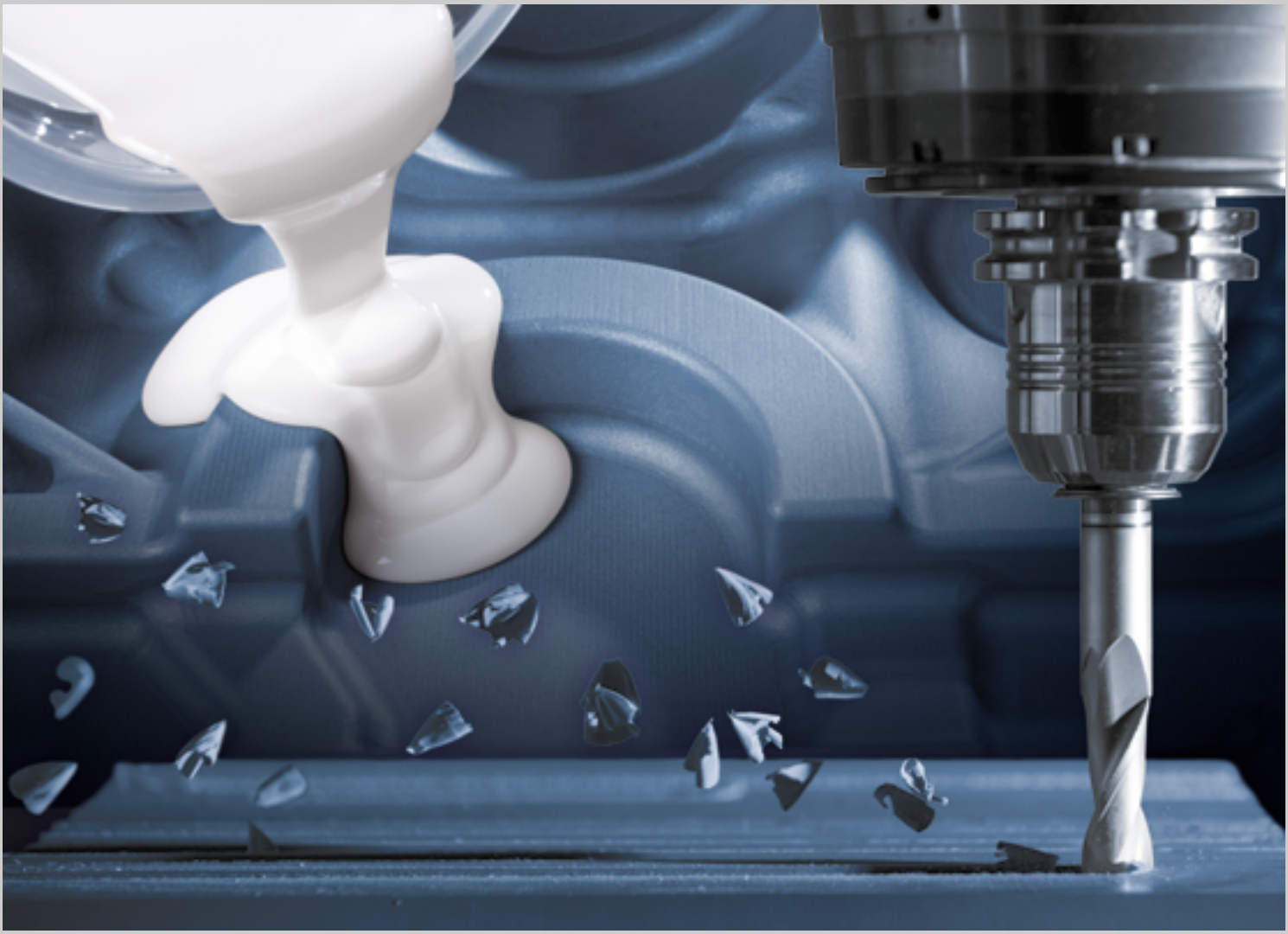


High Performance EP and PUR Systems for TOOLING AND COMPOSITES

- 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

BUILDING TRUST

CREATING A STRONG FUTURE

YOUR ADDED VALUE

Reliability and Safety
Sika Advanced Resins is on 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.

"Sika Advanced Resins IS A STRONG GLOBAL PLAYER IN THE TOOLING AND COMPOSITES INDUSTRY, WHICH ALLOWS US TO PROVIDE THE MARKET WITH AN EVEN MORE COMPREHENSIVE AND INTEGRATED OFFER. WITH OUR STRONG INTERNATIONAL PRESENCE, Sika Advanced Resins EXPERTS PROVIDE A WORLDWIDE SUPPORT TO OUR CUSTOMERS DIRECTLY ON-SITE. WE ARE LOOKING FORWARD TO THE OPPORTUNITIES OFFERED BY THE Sika Avanced Resins ORGANIZATION GOING FORWARD, BUT ALSO TO CREATE THE FUTURE TOGETHER WITH OUR CLIENTS."

MORTEN MUSCHAK
Head Sika Avanced Resins

CUSTOMIZED SOLUTIONS FOR ...

- Foundry model making
- Automotive industry
- Transportation industry
- Sports and leisure
- Industrial applications
- Boat and yacht building industry
- Aviation industry
- Renewable energies (wind energy, solar energy)
- Dielectrics

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 € 130 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. 18,000 employees, who generated an annual turnover of CHF 6.25 billion in 2017.

Sika Advanced Resins
PRODUCT GROUPS

BLOCK MATERIALS AND MODEL PASTES

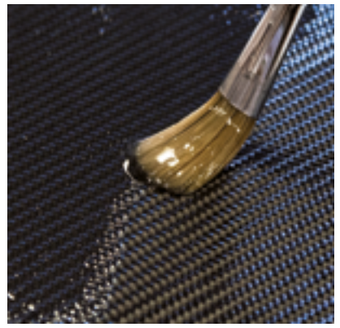
CNC milling 3D models and moulds

- 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.

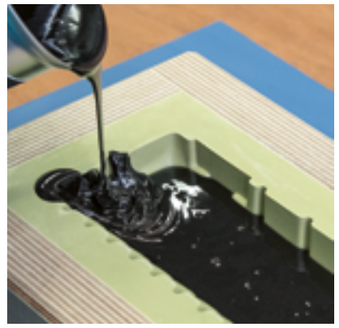
VACUUM CASTING RESINS AND RIM-SYSTEMS

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, 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.

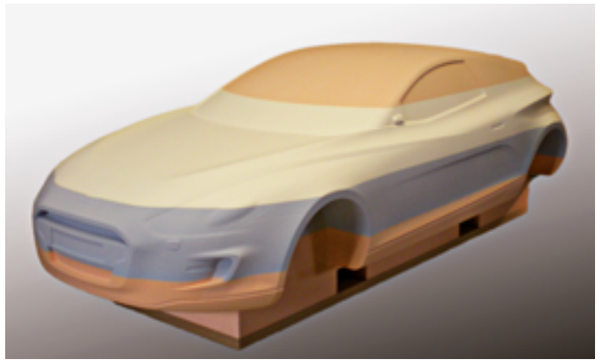
The tough elastic and tough hard types are suitable for impact resistant parts and abrasion resistant liners in foundry pattern making and special mechanical engineering.

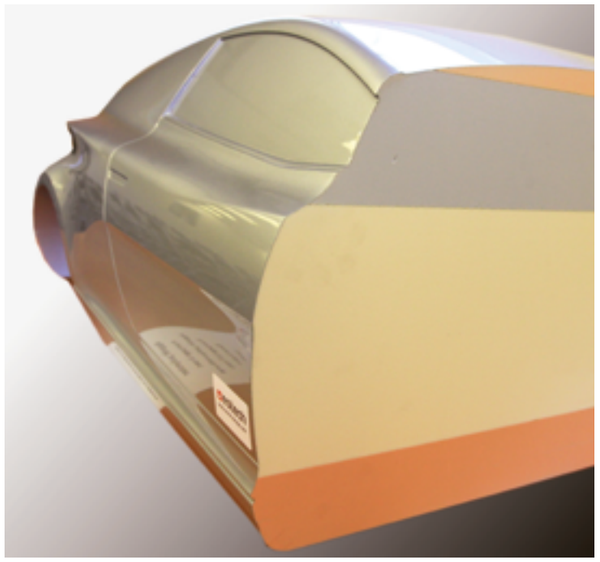
CONTENT

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/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.





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® M150	Labelite 15 IY	SikaBlock® M330	Labelite 25YW	SikaBlock® M440	Labelite 35 OE
Density [g/cm³]	0.08		0.15		0.24	0.25	0.35	0.35
Colour	yellowish	grey	light green	ivory	siena	peach yellow	apricot	orange
Characteristics	fine and non-powdery surface; easily workable; low dust formation when milled				excellent surface quality; very good milling behaviour; with low dust formation			
Physical data (approx. values)								
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
Thermal resistance [°C]	130	115	80	80	60	75	60	70
CTE, α_T [1/K]	60 x 10^{-6}	40 x 10^{-6}	65 x 10^{-6}	65 x 10^{-6}	65 x 10^{-6}	60 x 10^{-6}	65 x 10^{-6}	60 x 10^{-6}
Processing data (approx. values)								
Dimensions [mm] other dimensions on request	2000 x 1000 x thickness: 100/200/300/400/450	2000 x 1000 x thickness: 100/200	2000 x 1000 x thickness: 100/150/200/250/300/350/400	2000 x 1000 x thickness: 100/150/200	1500 x 500 x thickness: 50/100/200	1500 x 500 x thickness: 50/100/200	1500 x 500 x thickness: 50/75/100/150/200	1500 x 500 x thickness: 50/100/150/200
	2400 x 1300 x thickness: 100/200/400				2000 x 1000 x thickness: 50/100/150/200/250	2000 x 1000 x thickness: 100/150/200	2000 x 1000 x thickness: 50/100/150/200	2000 x 1000 x thickness: 50/100/150/200
Adhesive	Biresin® Foam Adhesive / Labelite Glue				Biresin® Foam Adhesive / Labelite Glue / Biresin® Kleber Orange			
Filler	Biresin® Spachtel orange							

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/cm³ 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® are thermally the most resistant and stable.

Full scale car model made of SikaBlock® M330 boards bonded with Biresin® Kleber Orange

Models milled out of Prolab 65/70 fulfil highest demands of surface quality

High quality master models made of SikaBlock® M680/ M700 provides highest dimensional accuracy

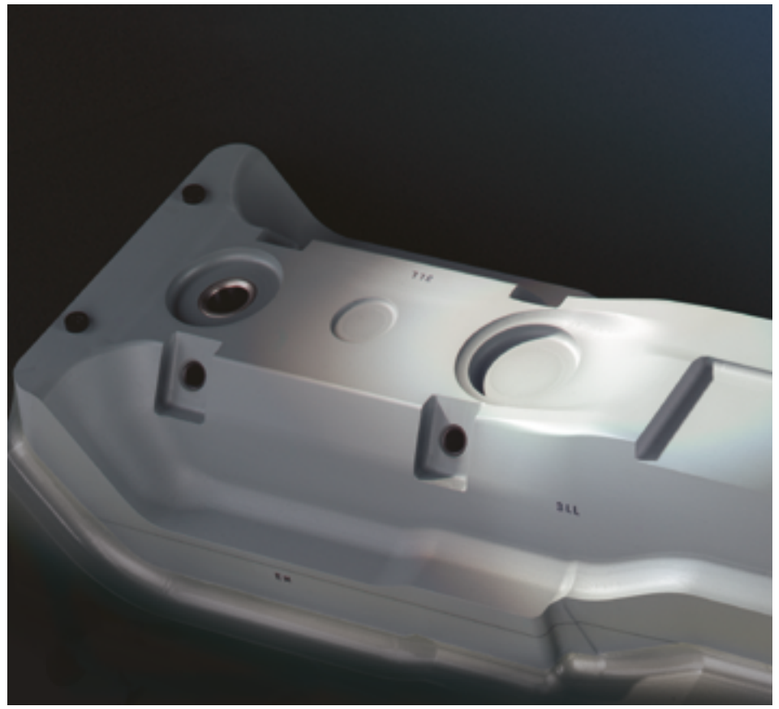
MODEL AND TOOLING BOARDS

	SikaBlock® M450	Labelite 45 PK	SikaBlock® M600	Prolab 65 (XL)	SikaBlock® M680	SikaBlock® M700
Density [g/cm³]	0.45		0.60	0.65 (0.73)	0.68	0.70
Colour	orange	pink	light brown	brown	light brown	light brown
Characteristics	good economical grade	superior surface quality; good edge stability	easily workable; fine, dense surface; good compressive strength and edge stability; good heat distortion temperature;			
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_T [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 [mm]	1500 x 500 x thickness: 50/75/100/150/200 2000 x 1000 x thickness: 50/100/150/200	1500 x 500 x thickness: 50/75/100/150	1500 x 500 x thickness: 30/50/75/100/150/200	1500 x 500 x thickness: 30/50/75/100 (XL):150/ 200	1500 x 500 x thickness: 30/50/75/100/150/200	1500 x 500 x thickness: 30/50/75/100/150
Adhesive	Biresin® Kleber orange	Labelite Glue / Biresin® Kleber orange	Biresin® Kleber braun / Prolab Glue			
Filler	Biresin® Spachtel orange		Biresin® Spachtel braun Neu			

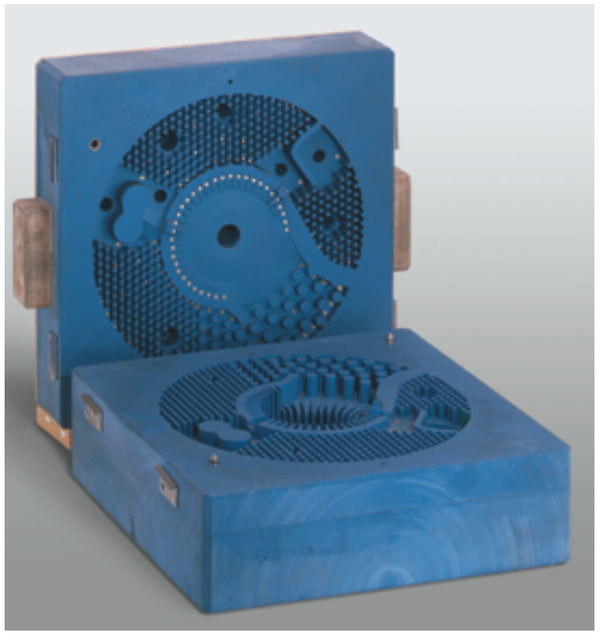
TOOLING BOARDS

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/m³ 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 Prolab 75



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

FOUNDRY TOOLING BOARDS

Sika Avanced 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.

SikaBlock® M945 provides excellent milling behaviour with low dust formation

BOARDS FOR HIGHEST DIMENSIONAL STABILITY

	LAB 975 NEW	LAB 973	Prolab 75	SikaBlock® M1000	LAB 1000
Density [g/cm³]	0.70	0.75	0.78	1.0	1.67
Colour	light green	blue	light grey	white	grey
Characteristics	new low density epoxy board with high dimensional stability under pressure and heat up to 130C; excellent performance/ price ratio	low density epoxy board with high dimensional stability under pressure and heat up to 125C; superior machinability and surface aspect	medium density, good compressive strength and edge stability; low thermal expansion and high dimensional stability		heavy-duty high density tooling board
Physical data (approx. values)					
Shore hardness	D 75 (D 68 @ 130 °C)	D 73 (D 63 @ 130 °C)	D 73	D 75	D 89
Flex. strength [MPa]	37	30	43	48	100
Compressive strength [MPa]	50	50	54	47	110
Thermal resistance [°C]	130	125	85	85	100
CTE, α_T [1/K]	35–42 x 10^{-6}	35–45 x 10^{-6}	50 x 10^{-6}	55 x 10^{-6}	45 x 10^{-6}
Processing data (approx. values)					
Dimensions [mm] 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	1500 x 500 x thickness: 50/75/100	830 x 500 x thickness: 50/75/100
Adhesive	H 8973 / GC 15		Prolab Glue / Biresin® Kleber Braun	H9930 / Biresin® Power Adhesive Thix	

BOARDS FOR TOOLS AND FOUNDRY

	SikaBlock® M930	SikaBlock® M945	SikaBlock® M960	LAB 920	LAB 850	SikaBlock® M980	SikaBlock® M990
Density [g/cm³]	1.0	1.3	1.2	1.30	1.18	1.35	1.2
Colour	mint green	green	blue	green	dark blue	blue	orange
Characteristics	high dimensional stability, very easy to mill and smooth surface aspect	good abrasion resistance, easy to mill, high strength	good abrasion resistance, easy to mill, good impact resistance		high abrasion resistance, excellent milling behavior, very high strength	excellent combination between good abrasion resistance and dimensional stability; very high strength	high abrasion resistance, excellent milling behavior, very high strength
Physical data (approx. values)							
Shore hardness	D 78	D 83	D 78	D 85	D 80	D 86	D 80
Flex. strength [MPa]	52	100	80	75	57	145	60
Compressive strength [MPa]	50	95	70	68	41	120	56
Impact resistance	12	25	30	30	72	35	without break
Thermal resistance [°C]	90	80	80	90	80	85	80
CTE, α_T [1/K]	55 x 10^{-6}	65 x 10^{-6}	85 x 10^{-6}	85 x 10^{-6}	95 x 10^{-6}	60 x 10^{-6}	105 x 10^{-6}
Abrasion resistance	+	++	++	++	+++	++	+++
Processing data (approx. values)							
Dimensions [mm] other dimensions on request	1500 x 500 x thickness: 50/75/100	1000 x 500 x thickness: 30/50/75/100	1000 x 500 x thickness: 30/50/75/100	1000 x 500 x thickness: 27/50/75/100	1000 x 500 x thickness: 50/75/100	1000 x 495 x thickness: 30/50/75/100	1000 x 495 x thickness: 30/50/75/100
Adhesive	Biresin® Kleber grün / Biresin® Power Adhesive Thix		Biresin® Kleber blau / Biresin® Power Adhesive Thix	H9930 / Biresin® Power Adhesive Thix		Biresin® Kleber blau / Biresin® Power Adhesive Thix	UR3490 / Biresin® Power Adhesive Thix

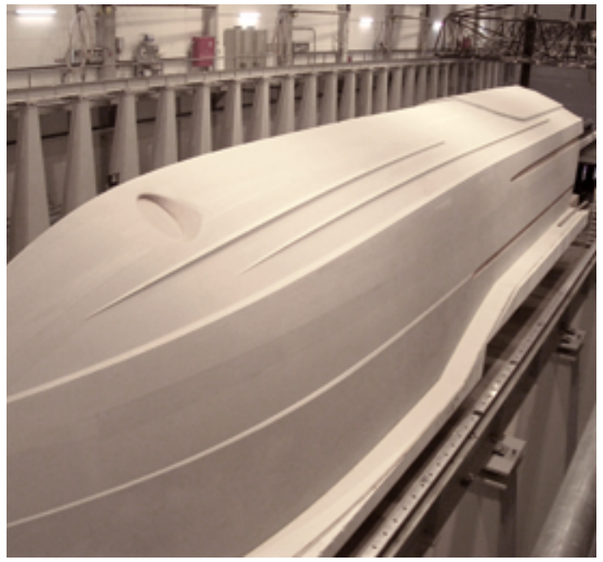
MODEL AND MOULD MAKING PASTES

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.

Biresin® M72 paste can be milled easily with low dust formation

SC175 thixotropy enables vertical application in single layer and without sagging



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

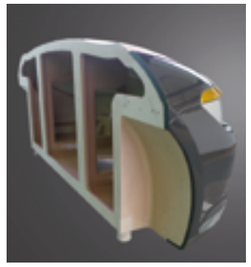
MODEL AND MOULD MAKING PASTES

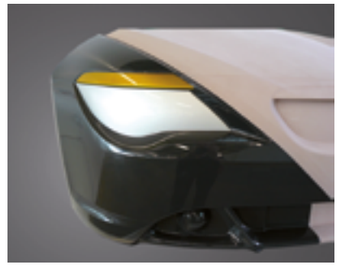
Component	A	Biresin® M72	SC 175	SC 180	SC 380	SC 390	SC 258
Component	B	Biresin® M70	SC 175	SC 180	SC 380	SC 390	SC 258
Mixing ratio [g]	A	100	100	100	100	100	100
	B	45	100	100	100	100	100
Colour		brown	light grey	brown	grey	grey	light brown
Characteristics		PUR paste, fast curing, easily workable, fine, dense surface, easy to varnish	epoxy paste, very good surface aspect, good behaviour on vertical support up to 30 mm, high thermal resistance	medium density epoxy paste and hardness with short time before machining for epoxy; good thermal resistance	multi-purpose epoxy paste with good strength and heat resistance for high quality models and moulds	medium density epoxy paste with high strength and heat resistance ideal for direct tooling	manual epoxy paste (hand or planetary mixer) applicable until 40 mm; quick hardening in thin coat and good adhesion on various supports (wood, PS/PUR foams, boards and on itself)
Processing data (approx. values)							
Viscosity [mPas]	A	15,000	800	1,000	900	800	–
	B	175	800	900	800	800	
Mixture		pasty	800	1,000	800	800	light paste
Potlife [min]		10 – 15 (after machine application)	–	–	–	–	60
Workable after [h]		8	24 – 48	16 – 18	24	12 – 16	12 – 18
Physical Data (approx. values)							
Density [g/cm³]		0.9	0.63	0.81	0.82	1.08	0.60
Shore hardness		D 65	D 53	D 58	D 67	D 75	D 60
Flexural strength [MPa]		20	16	17	22	36	15
Compressive strength [MPa]		–	15	20	23	36	23
Thermal resistance [°C]		47	85	84	83	91	51
CTE, α_T [1/K]		–	75	80	65	58	48
Putty filler		Spachtel braun Neu	M175/M10	M180/M10	M380/M10	M390/M10	Spachtel braun Neu

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 Avanced 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 Avanced Resins offers service on project-basis but also regular partnerships are welcomed. Consult and make Sika Avanced 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® 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, light weight laminating moulds	
Processing Data (approx. values)		
Dimensions	customized casting up to more than 1 m³, realization by specialized Sika partner, please contact our regional provider	
Filler	Spachtel braun Neu	SC 258
Mixing ratio	100 : 2	100 : 100
Potlife	5 min	55 min
Setting time	> 20 min	> 24 h
Physical Data (approx. values)		
Density [g/cm³]	0.86	
Shore hardness	D 67	
Flexural strength [MPa]	30	
CTE, α_T [1/K]	78 x 10^{-6}	

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

GELCOATS

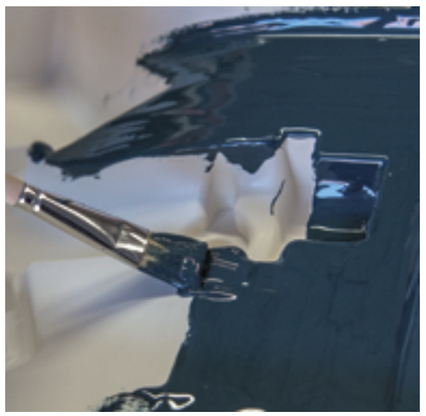
GELCOATS

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)

Tool for making reinforcements of bonnets made of GC1 080



Easy application of GC2 070

GELCOATS OF EASY WORKABILITY

	A	GC1 050		GC1 080		Biresin® S8
	B	GC 11	GC 14	GC 11	GC 14	Biresin® S8
Mixing ratio [g]	A	100	100	100	100	100
	B	10	10	10	10	20
Colour		white	white	blue / white	blue / white	black
Characteristics		good spreading and covering properties, easily workable		can be applied on wet plaster (previously treated), sandable and polishable	high resistance to chemicals, easy to apply	polishable to high gloss, heat resistant, good styrene resistance
Applications		master models, negatives, gauges		ceramic moulds, applicable on plaster models (previously treated)	ceramic moulds, RTM moulds (polyester)	vacuumforming moulds, master models, moulds for composite production
Processing data (approx. values)						
Potlife [min]		19	35	12	25	30
Geltime [min]		60	120	40	60	60
Demoulding time [h]		16	24	16	24	16 – 24
Physical data (approx. values)						
Density [g/cm³]		1,57	1.45	1,73	1,72	1.22
Shore hardness		D 88	D 88	D 91	D 90	D 86*
Flexural strength [MPa]		72	66	74	82	90*
HDT [°C]		–	–	–	–	136*
T_G [°C]		85*	53	100*	104*	–

* after appropriate treatment

GELCOATS OF HIGH ABRASION OR HEAT RESISTANCE

	A	GC2 070		Biresin® S12	GC2 120	Biresin® S19
	B	GC 11	GC 14	Biresin® S12	GC 20	Biresin® S19
Mixing ratio [g]	A	100	100	100	100	100
	B	10	10	8	15	12
Colour		blue	blue	grey	light green	black
Characteristics		very good abrasion resistance	good abrasion resistance	heat resistant, abrasion resistant, good solvent and styrene resistance	abrasion resistant, high heat resistance	high heat resistance
Applications		foundry patterns, match plates, diverse moulds	foundry and copying models, core boxes	vacuumforming moulds, foundry patterns, moulds for composite production	foundry patterns, moulds for low pressure SMC and RTM (polyester, EP)	vacuumforming moulds, prototype / test injection moulds, moulds for composite production
Processing data (approx. values)						
Potlife [min]		16	37	30	14	45 – 60
Geltime [min]		50	90	45	30	150 – 180
Demoulding time [h]		16	90 – 180	16 – 24	–	24
Physical data (approx. values)						
Density [g/cm³]		1,72	1.65	2.1	1.50	1.65
Shore hardness		D 89	D 89	D 92	D 90	D 89*
Flexural strength [MPa]		85	81	78	110	85*
HDT [°C]		–	–	> 100*	–	145*
T_G [°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 hardener for heat resistant moulds (e.g. vacuumforming)

High-grade laminates with excellent strength can be reached with Sika Avanced Resinslaminating resins

STANDARD LAMINATING RESINS AND LAMINATING PASTES

	A	Biresin® LS				Epolam 2002	Biresin® L80			Epopast 400		Epopast 402		Biresin® L90
	B	Biresin® LS	Biresin® F4	GC 11	Biresin® S12	Epolam 2002	Biresin® CH80-1	Biresin® CH80-2	Biresin® S12	Epopast 400	Epopast 401	Epopast 400	Epopast 401	Biresin® L90
Mixing ratio [g]	A	100				100	100			100		100		100
	B	12	18	19	16	12	16	16	12	14		14		14
Colour		yellowish-transparent				clear transparent	yellowish-transparent		amber	green		green		blue
Characteristics		all-purpose, variable potlife and viscosity				low odour, low exothermic temperature – good dimensional stability	white colour, filled, high dimensional accuracy			standard laminating paste, very easy to mix, very low shrinkage		low density laminating paste, very easy to mix, very low shrinkage		high dimensional accuracy, very smooth and with good adhesion, very easy to mix, high thickness in one operation
Applications		ordinary laminates, coupling layers and backfillings				big moulds and negatives in ceramic industry	true-to-size laminates for gauges and models			for reinforcement of large negatives, models and moulds of low weight (e.g. foundry and ceramic industry)				for reinforcement of big negatives, models, moulds and tools, true-to-size laminate for difficult reinforcement layers
Processing data (approx. values)														
Mixed viscosity [mPas]		580	350	2,150	1,230	950	1,600	1,100	2,000	pasty	pasty	pasty	pasty	pasty
Potlife [min]		55	80	16	60	45	45	90	60	120	90 – 110	120	90 – 110	60
Demoulding time [h]		12	16	8	12	–	20 – 24	20 – 24	16 – 20	24	12	24	12	24
Physical data (approx. values)														
Density [g/cm³]		1.2				1.17	1.35			0.91		0.72		1.0
Shore hardness		D 83	D 80	D 84	D 82	D 86	D 86	D 86	D 85	D 81		D 80	D 77	D 73
Flexural strength [MPa]		95	88	95	96	90	71	72	78	48	43	42	43	50
HDT [°C]		51 / 70*	46 / 53*	50 / 61*	72*	–	53 / 78*	52 / 69*	54 / 80*	–	–	–	–	60
T_G [°C]		–	–	–	–	65	–	–	–	70	60	70	60	-

* after appropriate treatment

LAMINATING SYSTEMS OF HIGHER HEAT RESISTANCE

	A	Biresin® L84			Biresin® CR172	Epolam 2080	
	B	Biresin® L84	Biresin® S12	Biresin® L84 T	Biresin® CH170-3	Epolam 2080	Epolam 2025
Mixing ratio [g]	A	100			100	100	100
	B	25	20	24	17	41	35
Colour		yellowish-transparent			colourless to brownish	amber	dark green
Characteristics		all-purpose, high mechanical strength and heat resistance			high heat resistance after post curing	MDA free, very good temperature resistance	
Applications		laminating moulds, vacuumforming moulds, heat resistant backfillings			injection moulds and other heat resistant moulds, prototype injection	heat resistant moulds, backfillings and composite structures	
Processing data (approx. values)							
Mixed viscosity [mPas]		390	1,090	590	800	2,000	650
Potlife [min]		40	20	60	110	150	300
Demoulding time [h]		24	24	24+ post curing	24 + post curing	24/RT + 24 h 60 °C	24/RT + 24 h 60 °C
Physical data (approx. values)							
Density [g/cm³]			1.1		0.94	1.12	1.09
Shore hardness		D 82	D 84	D 86	D 85	D 90	
Flexural strength [MPa]		76	130	131*	140	62	105
HDT [°C]		100*	91*	110*	162	–	–
T_G [°C]		104*	-	123*	170	190*	185

* after appropriate treatment

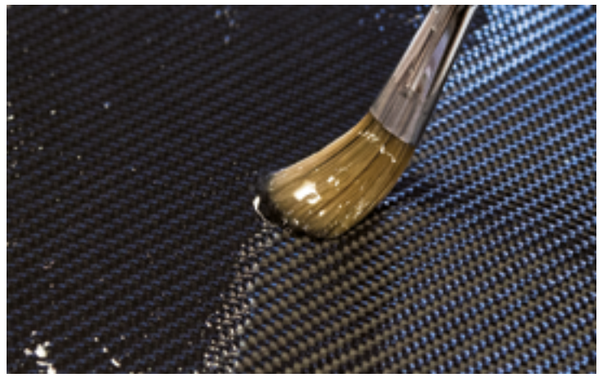
COMPOSITE SYSTEMS FOR WET LAY-UP

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

Biresin® 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

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

Motorglider produced by Schempp-Hirth with Biresin® CR122



Biresin® CR82 with optimized viscosity for wet lay-up

COMPOSITE SYSTEMS FOR WET LAY-UP

	A	Biresin® CR82				Biresin® CR122				Biresin® CR132				Biresin® CR172		EPOLAM 2080
	B	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	EPOLAM 2080
Mixing ratio [g]	A	100				100			100	100		100	100	100	100	100
	B	27				30			40	28		32	38	17	19	41
Characteristics		modular 80 °C System with GL-approval. 4 hardeners provide a wide range of processing times and applications				modular 120 °C System with GL-approval and excellent properties. Additionaly approved by LBA/RHV to build gliders, motor gliders and ultralights				system with T_G up to 162 °C. e. g. suitable for high performance moulds for wind blades				nontoxic high T_G system up to 174 °C		high T_G system e.g. suitable for moulds in aviation market or prepregtools
T_G [°C]		83	90	83	85	103	114	119	120	130	135	135	162	170	174	190
Potlife, 100 g/RT [min]		50	80	220	330	30	90	150	330	60	150	210	480	110	260	150*
Mixed viscosity, RT [mPas]		740	600	400	390	310	370	380	680	360	550	550	940	800	810	2.000*
Impact resistance [kJ/m²]		68	70	55	56	58	47	34	44	47	32	33	25	28	26	–
Tensile E-Modulus [GPa]		2.9	2.9	2.9	2.9	2.9	2.8	2.8	2.6	2.6	2.7	2.4	2.4	2.9	2.8	2.8***
Tensile strength [MPa]		78	78	84	82	86	84	84	87	79	88	78	68	70	76	40
Elongation at break [%]		6.1	6.5	6.4	6.2	6.3	5.4	5.6	6.9	5.3	6.2	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 Biresin® CR131

Biresin® 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

Epolam 2092:
- High T_G System up to 225 °C
- Suitable for high heat resistant moulds e.g. in the aviation industry or for prepregtools

Lightweight transporter by Carbon Truck & Trailer

Biresin® CR80 offers ideal flowing properties and good wetting behaviour

COMPOSITE SYSTEMS FOR INFUSION

	A	Biresin® CR80				Biresin® CR83				Biresin® CR120		Biresin® CR131				EPOLAM 2092
	B	CH80-1	CH80-2	CH80-6	CH80-10	CH93-2	CH83-2	CH83-6	CH83-10	CH120-3	CH120-6	CH135-4	CH132-5	CH132-7	CH135-8	EPOLAM 2092
Mixing ratio [g]	A	100				100				100		100				100
	B	30				24	30			30		26	28	32	21	50
Characteristics		modular 80 °C system with GL-approval. 4 hardeners provide a wide range of processing times and applications				modular 80 °C system with GL-approval with an extremely low viscosity and a low tendency to crystallize. Especially for processing at lower temperatures or for big and/or complex parts				system with GL-approval with 2 hardeners and a T_G potential up to 115 °C.		system with 4 hardeners for a wide range of processing times and a T_G potential up to 140 °C. (e.g. suitable for wind blade moulds)				system with a very high T_G potential of 225 °C
T_G [°C]		88	92	85	85	93	84	80	81	113	115	138	136	127	138	225
Potlife, 100 g / RT [min]		45	80	190	330	65	60	180	300	130	180	160	140	260	260	400*
Mixed viscosity, RT [mPas]		400	350	230	210	400	155	170	155	240	250	540	410	540	360	550*
Impact resistance [kJ/m²]		84	75	68	76	–	93	84	83	55	50	27	46	37	29	–
Tensile E-Modulus [GPa]		2.9	2.9	3.0	3.0	2.9	3.0	3.2	3.1	2.8	2.7	2.8	2.7	2.7	2.8	4.6***
Tensile strength [MPa]		78	81	83	80	72	84	91	86	80	80	89	86	84	89	26
Elongation at break [%]		7.1	6.1	6.3	6.5	3.9	4.7	8.4	7.9	5.8	6.1	5.7	5.9	6.7	6.3	1.0

* 500g, RT
** Brookfield LVT, RT
*** Flexural E-Modulus [GPa]

VACUUM CASTING SYSTEMS

VACUUM CASTING SYSTEMS

UPX 8400-1:
- 3 components to cover all A shore range
- Low viscosity
- Easy to tint

PX 212:
- Filled PP similarity
- Perfectly suitable for automotive parts
- High impact resistance
- Two reactivity available

Front light lens made by PX 5212

PX 226:
- Filled ABS or Nylon similarity
- Household appliances; electrical components production
- Excellent ratio pot life/demoulding time
- Two reactivity available

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

Pigmented stiff housing part

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

SOFT TO SEMI-RIGID SYSTEMS

Component	ISOCYANATE	A	PX 761	UPX 8400-1	PX 205	PX 212 / 225	PX 1000 / 215
Component	POLYOL	B	PX 761	UPX 8400-1	PX 205	PX 212	PX 1000
Component	EXTENDER	C	–	UPX 8400-1	–	–	–
Mixing ratio [g]		A	100	100	100	100	100
		B	45	100	50	100	100
		C	–	0 – 500	–	–	–
Colour			amber	off-white	amber to dark amber	translucent	off-white
Characteristics			fast demoulding; high reproduction accuracy; «moulded rubber» aspect; abrasion resistance; max. peak temperature: 100 °C	3 components for variable hardness; fixed mix ratio in between polyol & Isocyanate; easy to tint; low silicone moulds agressiveness	very good impact resistance; quick hardening; thermoplastic aspect; easy processing	low viscosity for easy casting; excellent impact resistance; fast demoulding	low viscosity; long potlife; good mechanical properties; can be painted
Applications			soft technical parts under vacuum process	prototype and short series of soft parts to cover all A shore range. Fully compatible with ESSIL 291 silicone moulds	parts with high impact and abrasion resistance. Hinge effect	thermoplastic-like parts with a flexural modulus of elasticity close to filled PP	cast by hand or vacuum machine to achieve ABS type large parts
Processing data (approx. values)							
Mixed viscosity	[mPas]		1,500	-	1,600	800	100
Potlife	[min]		8 – 12	13 – 15	12 – 15	4 – 6	15 – 20
Demoulding time	[min]		60 – 90	120	60	60 – 75	240
Physical Data (approx. values)							
Density	[g/cm³]		1.02	1.14	1.08	1.15	1.06
Shore hardness			A 63	A 95	D 70	D 76	D 78
E-Modulus	[MPa]		–	–	500	1,200	1,700
Tensile strength	[MPa]		–	19.6	25	40	38
Flexural strength	[MPa]		–	–	30	80	67
Elongation at break	[%]		1,000	660	100	25	4
Impact strength	[kJ/m²]		–	–	Unbreakable	> 50	25
HDT	[°C]		–	–	55	78	–
T_G	[°C]		–	–	90 – 100	90	75

TOUGH-HARD TO STIFF SYSTEMS

Component	ISOCYANATE	A	PX 221	PX 212 / 225	PX 226		Biresin® VG280	PX 245	
Component	POLYOL	B	PX 221	PX 225 OP	PX 226 – PX 245	PX 226L – PX 245L	Biresin® G55	PX 226 – PX 245	PX 226L – PX245L
Mixing ratio [g]		A	100	100	100		100	100	
		B	45	80	50		80	40	
Colour			off-white	opalescent	white		yellowish-translucent	off-white	
Characteristics			high reproduction accuracy; can be easily pigmented with colouring CP; high impact resistance	good impact and flexural resistance; very easy coloring with all kind of pigments (non water based) like AXSON CP range	good impact and flexural resistance; Available in two reactivity; High thermal resistance; Can be easily coloured with CP pigments		very stiff, high flexural strength, impact resist., simulates ABS, PVC	high flexural modulus of elasticity; high reproduction accuracy; available in two reactivity; can be easily coloured with CP pigments; fast demoulding	
Applications			prototype parts and mock-ups with mechanical properties similar to thermoplastics such as HiPS	thermoplastic-like parts with a flexural modulus of elasticity close to 2,500 MPa (ex: polycarbonate, ABS).	prototype parts and mock-ups with mechanical properties similar to thermoplastics like filled ABS		very stiff housings with high strength and impact resistance	prototype parts with mechanical properties similar to thermoplastics like polyoxymethylene and polyamide	
Processing data (approx. values)									
Mixed viscosity	[mPas]		350	600	2,000		600	2,200	
Potlife	[min]		7	4 – 5	4	7.5	4	4	8
Demoulding time	[min]		30 – 40	45	25	60	60 – 90	45	60
Physical Data (approx. values)									
Density	[g/cm³]		1.20	1.20	1.20		1.1	1.22	
Shore hardness			D 81	D 85	D 82		D 84	D 85	
E-Modulus	[MPa]		2,100	2,500	2,500		2,800	4,500	
Tensile strength	[MPa]		60	70	70		75	85	
Flexural strength	[MPa]		105	110	105		120	150	
Elongation at break	[%]		7.5	9	15		7	3	
Impact strength	[kJ/m²]		71	50	70		> 100	30	
HDT	[°C]		–	–	92		80	92	
T_G	[°C]		95	100	105		–	95	

SILICONES

PX 5213:
- 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

Jewelry articles made of transparently pigmented PX 5213

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

Elastic mould made of addition curing silicone Essil 291 for optical parts

Art & Deco cats in PX

TRANSPARENT OR SPECIFIC USE SYSTEMS

Component	ISOCYANATE	A	PX 5210		PX 223 HT	PX 234 HT		PX 280	PX 331
Component	POLYOL	B	PX 5212	PX 5213	PX 223 HT	PX 234 HT		PX 280	PX 331
Mixing ratio [g]		A	100	100	100	100		100	100
		B	50	62	80	50		80	100
Colour			transparent	transparent	black	light amber		off-white	off-white
Characteristics			high transparency (water clear); easy polishing; high reproduction accuracy; good U.V. resistance; easy processing; high stability under temperature		low viscosity for easy casting; good impact and flexural resistance; temperature resistance above 120 °C	good thermal resistance up to 190 °C; low viscosity; fast demoulding; good impact resistance; two pot lifes available; colourable		compliance with directive 2002/72/CE; compliance with directive 2007/19/CE regarding food contact; compliance with FDA 21 CFR 177.2600 regulation for repeated use; good mechanical properties	fast demoulding; good thermal properties; self-extinguishing FAR 25 certified, UL 94 V0 in 3 mm according NF EN 60695-11-10; ; can be easily coloured with CP pigments
Applications			transparent parts until a 10 mm thickness: crystal glass like parts, fashion, jewellery, art and decoration parts, lenses for lights	transparent parts until 100 mm thickness: crystal glass like parts, art and decoration parts	universal system to match ABS type thermoplastic when temperature resistance is required. Good chemical resistance.	all parts with very good thermal resistance such as: PA6.6, PPS, PEEK		could be cast by hand, 2K or vacuum machine to achieve ABS type parts. Could be used for parts in contact with aqueous, acid and greasy foods None homologated for liquid contact	all parts in general industry or aeronautic when requiring a fire classification
Processing data (approx. values)									
Mixed viscosity	[mPas]		500	500	850	250		450	700
Potlife	[min]		8	20	6 – 7	5	8	20	5 – 7
Demoulding time	[min]		60	45	45 – 75	60	90	120	45
Physical Data (approx. values)									
Density	[g/cm³]		1.06	1.06	1.14	1.19		1.19	1.35
Shore hardness			D 85	D 86	D 80	D 80		D 85	D 86
E-Modulus	[MPa]		2,400	2,100	2,300	1,850		2,800	3,700
Tensile strength	[MPa]		66	68	60	61		75	55
Flexural strength	[MPa]		110	100	80	80		117	133
Elongation at break	[%]		7.5	6	11	13		5	4
Impact strength	[kJ/m²]		48	42	> 60	41		25	26
HDT	[°C]		80	85	110	190 – 195		–	90
T_c	[°C]		95	100	> 120	220		80	100

SILICONES

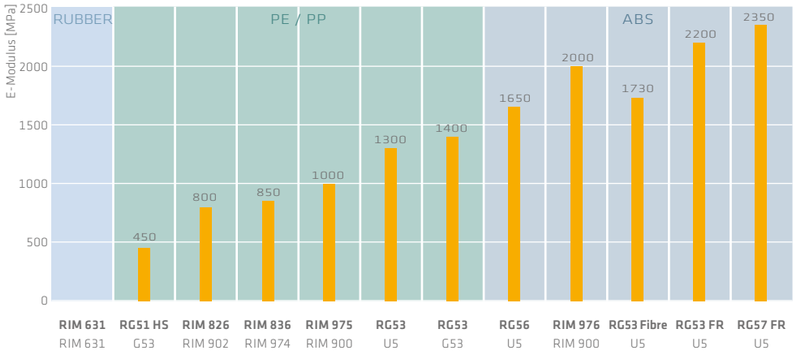
Resin	A	ESSIL 291		ESSIL 125		ESSIL 222
Catalyst	B	ESSIL 291	ESSIL 292	ESSIL 125	ESSIL 124	ESSIL 222
Mixing ratio [g]	A	100		100		100
	B	10		5		100
Colour		transparent		white		light blue
Characteristics		high transparency; good chemical resistance towards polyurethanes; vulcanized by polyaddition; very easy to mix and to cast; very low shrinkage when hardening at room temperature; dry surface	self bleeding silicone. Improve moulds ageing; oily surface for better releasing and demoulding	vulcanized by polycondensation; high tear strength; available in slow and fast versions; high value for elongation at break; temperature resistance; thixotropic additive (ESSIL 126 THIXO)		vulcanized by polyaddition; very good temperature resistance; high tear strength; very low viscosity; quick setting time
Applications		soft negatives, flexible moulds for the prototype industry. ESSIL 291 silicone is particularly suitable for casting resins (PX range) in a vacuum casting machine. Essil 292 Catalyst is advised to increase the number of parts in a same mould		achievement of soft negatives by casting process and soft skin moulds dedicated to detailed shapes with undercuts; prototyping applications or small-scale serial production for Art & Deco parts		flexible moulds for prototypes industry (gravity casting or under vacuum); self-demoulding moulds for decorative concrete parts
Processing data (approx. values)						
Mixed viscosity [mPas]		40,000	38,000	–	–	4.000
Potlife [min]		60		80	40	10
Demoulding time [h]		16		24	12	1
Physical Data (approx. values)						
Density [g/cm3]		–		1	1	1.13
Shore hardness (A)		38		24	25	A22
Tear strength [N/mm]		24		17	19	20
Elongation at break [%]		350		–	550	380

LOW PRESSURE RIM-SYSTEMS

INNOVATIVE SOLUTIONS FOR HIGH-CLASS PROTOTYPES AND SHORT RUNS

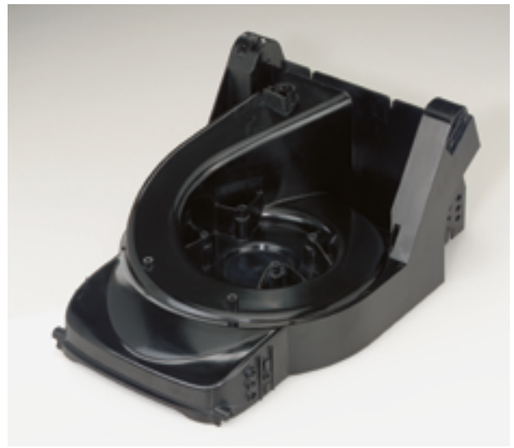
Biresin® RG53:
- Proven allrounder system with very easy processing
- Offers high impact resistance for PE/PP aspect housings
- With U5 hardener for housings with good heat coverings

RIM 975 and RIM 976:
- Black RIM system for impact and heat resistant parts in the motor compartment
- RIM 975 for PP aspect parts, RIM 976 for stiffer ABS aspect parts
- Both can be mixed to reach E-modulus in between 1,000 and 2,000 MPa



Biresin® RG53 FR and RG57 FR:
- Flame retardant RIM systems for stiff ABS aspect housings and coverings with good heat resistance
- Biresin® RG53 FR with UL94 V-0 offers longer potlife for bigger parts
- Biresin® RG57 FR tested according to DIN EN 45545-2

Automotive RIM part with a complex geometry



Housing of a lawn-mower with high mechanical properties

LOW PRESSURE RIM-SYSTEMS

Component	POLYOL	A	RIM 631	Biresin® RG51 HS	RIM 826	RIM 836		RIM 975	Biresin® RG53		Biresin® RG56	Biresin® RG53 Fibre	RIM 976	Biresin® RG53 FR	Biresin® RG57 FR
Component	ISOCYANATE	B	RIM 631	Biresin® G53	RIM 902	RIM 974		RIM 900	Biresin® U5	G53	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	–
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	high impact resistant, wear resistant	very high impact resistance, easy to use in low pressure machines (mixing ratio: 100 : 100)	semi rigid, impact resistant, long potlife for large parts, also for rotational technique, mixing by hand or with 2K machine		good temperature resistance; very easy processing; good impact resistance; easy to paint or bond	allrounder system, very easy processing, high impact and good heat resistance		stiff, high flexural and impact strength, thermal resistant	stiff, low shrinkage, good heat resistance	good temperature resistance, good impact resistance, good workability	flame retardant, thermal resistant, high strength 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, cowlings and interior panels	hollow decorative parts, impact resistant massive parts, rotomoulded or cast		under-the-hood parts; air cleaner ducting; heater system ducting; instrument housings	housings and covers of medium stiffness		housings and covers with high mechanical properties	stiff housings and covers	prototype parts and small series: housings, coverings, face panels	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
Potlife	[sec]		50 – 70	60	80 – 100	9 – 11 (minutes)		35 – 40	60		50	50	35 – 40	75	55
Demoulding time	[min]		15 – 20	10 – 20	25	2 – 4 (hours)		10	> 10		> 10	> 10	10	> 10	> 10
Physical data (approx. values)															
Density	[g/cm3]		1.05 – 1.09	1.15	1.12	1.25		1.18	1.2		1.18	1.2	1.18	1.27	1.30
Shore hardness			A 73	D 65	D 73	D 75		D 75	D 78	D 80	D 82	D 81	D 80	D 84	D 80*
E-Modulus	[MPa]		–	450	800	850		1,000	1,300	1,400	1,650	1,730	2,000	2,200	2,350
Flexural strength	[MPa]		–	20	35	–		–	54	58	67	55	–	70	70*
Impact strength	[kJ/m²]		–	no break	100	> 50		> 50	95	90	60	48	40	35	20*
HDT	[°C]		–	65	–	–		–	63 / 120*	60 / 110*	100 / 125*	63 / 125*	–	110*	90*
T_G	[°C]		–	–	95	95		150	–	–	–	–	150	–	–

* after appropriate treatment

FASTCAST RESINS

FASTCAST RESINS – FILLED

POLYOL	A	F 23-1	F 40-1	F10	Biresin® G21	Biresin® G23
ISOCYANATE	B	F 23	F 40	F1	Biresin® G21	Biresin® G23
Mixing ratio [g]	A	100	100	100	100	100
	B	20	20	100	15	15
Colour		white	blue	ivory, green, black	Light grey or black	lightblue
Characteristics		very good surface aspect after machining; easy to carve, to sand, to polish	high abrasion resistance; low shrinkage; low viscosity; quick setting; short potlife	1:1 mix ratio; short pot life; low viscosity; quick setting; good temperature resistance; low shrinkage	almost odourless, easy to mix by hand, very good flowability, very fine structure, very good mechanically workable	almost odourless, good mixable by hand, very good flowability, very low shrinkage, good adhesion to wooden materials, very good mechanically workable
Applications		tools and parts: thermoforming tools, checking fixtures, positioning fixtures, decorative applications when marble aspect is needed	tools as foundry patterns,core boxes, model plates and any type of castings requiring a good abrasion resistance	multipurpose system for tools: thermoforming tools, checking fixtures, positioning fixtures, prototype parts, foundry negatives	casting of master and core models, negatives and mouldings of medium size	casting of master and core models, negatives and mouldings of larger dimensions. For high surface quality and mould precision
Processing data (approx. values)						
Mixed viscosity [mPas]		900	2.000	2.500	2.100	1.500
Potlife [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 (approx. values)						
Density [g/cm³]		1.58	1.70	1.64	1.7	1.7
Shore hardness		D 80	D 84	D 73	D 80	D 80
Flexural strength [MPa]		47	61	35	35	45
Compressive strength [MPa]		63	57	33	75	60
T_G [°C]		60	69	71	80	70

FASTCAST RESINS – UNFILLED

POLYOL	A	F160-1	Biresin® G27			Biresin® G27 LV	F180-1	F190-1
ISOCYANATE	B	F160	Biresin® G27	Biresin® G27 w.	Biresin® G55	Biresin® G26	F180	F190
Mixing ratio [g]	A	100	100			100	100	100
	B	100	100	100	80	100	100	100
Colour		beige	beige	white		beige	off white	beige
Characteristics		quick setting system; low viscosity; good temperature resistance after heat curing; easy-to-use mix ratio (1:1 by weight); adjustable filler content	easily workable, short demoulding time, very fine structure, high filler loading				quick setting system; reduced viscosity; low shrinkage; adequate viscosity even with high rate of filler	very low shrinkage; low viscosity even filled; easy to use mix ratio (1:1 by weight); high filler content possible
Applications		mainly used with filler for tools: Moulds, masters, negatives with RZ 30150 to get easy machining. Thermoforming tools with RZ 209/6 aluminium powder in order to increase thermal conductivity	models, core models, negatives, pattern, small and medium size art and craft articles with detailed shapes				mainly used for mock-ups and decorative parts using the unfilled product or filled with RZ 30150 to get low shrinkage and easy machining	same as F 160 but able to cast up to 50 mm in one shot
Processing data (approx. values)								
Mixed viscosity [mPas]		90	50	30	140	35	80	125
Potlife [min]		2´20´´	2´15´´	2´15´´	1´30´´	2´20´´	3´25´´	7 – 9
Demoulding time [min]		30	> 20	> 20	> 15	> 15	45	90
Physical data (approx. values)								
Density [g/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 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	–	–
T_G [°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.

F160-1 with additional fillers for casting of models with thicker sections

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 potlife

Biresin® G46
- Prefilled casting resin can be cast in thick sections (e.g. backfilling)
- Results in durable core models with high dimensional accuracy

Biresin® G48 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

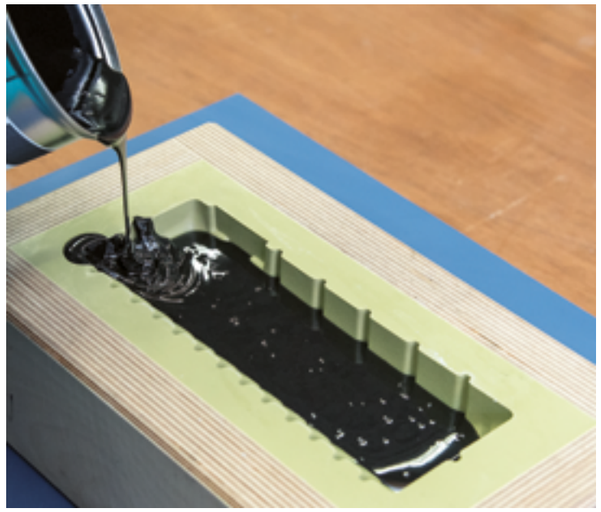
PUR CASTING SYSTEMS WITH LONG POTLIFE

POLYOL	A	Biresin® G46	Biresin® G48			F50	
ISOCYANATE	B	Biresin® G46	Biresin® G55			F50	
FILLER	C	–	–	TE-Füller	Al-Pulver	–	RZ 30150
Mixing ratio [g]	A	100	100	100	100	100	100
	B	25	100	100	100	50	50
	C	–	–	350	250	–	180 – 240
Colour		beige	opaque	beige	grey	beige	
Characteristics		easily workable, can be cast in thick sections, high dimensional accuracy	easily workable, high filler loading, abrasion and impact resistant	very low shrinkage, easily workable, can be cast in thick sections, high compressive strength		very low shrinkage; low exothermic reaction; casting in high thickness (400 mm) when filled	
Applications		master and core models, negatives, foundry patterns	facecasting layer for metal sheet forming tools and foundry patterns	backfilling for metal sheet forming tools and foundry patterns		unfilled for negatives, moulds and masters; filled version for higher volume casting, with RZ 209/6 for stamping tools with better surface gliding	
Processing data (approx. values)							
Mixed viscosity [mPas]		3,000	1,500	castable		350	7,500
Potlife [min]		40	45 – 60			35 – 50	–
Demoulding time [h]		16 – 24	16 – 24			6 – 12	
Physical data (approx. values)							
Density [g/cm³]		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 strength [MPa]		110	94	104	90	85	90
HDT [°C]		80	75	–	–	–	–
T_G [°C]		–	–	–	–	–	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.



Casting of foundry pattern out of EPO 5019

EP CASTING RESINS FOR TOOLING

EPO 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

Vacuum forming mould for blister packaging out of Biresin® G38

HEAT RESISTANT EP CASTING SYSTEMS

Biresin® 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)

Biresin® G38:
- With good flowing behaviour can be cast up to 40 mm
- Don't need to be post cured before demoulding

TRANSPARENT EP CASTING SYSTEMS

The transparent EP systems offers high transparency and are mainly used for glass clear embedding; coating of decorative arts and transparent parts.

Translux D150:
- Multipurpose transparent epoxy system
- Good UV resistance
- Variable hardness by playing with mix ratio

Translux D155-1:
- Transparent system for coatings
- Quick setting in thin layers

HEAT RESISTANT EP CASTING RESINS

	A	Biresin® G36			Biresin® G38
	B	G36	CH170-3	P7	Biresin® G38
Mixing ratio [g]	A	100			100
	B	10	6	8	7
Colour		grey			grey
Characteristics		low shrinkage, good workability, can be cast in thick sections, very high heat resistance, use as gelcoat with P7 (B)			good flowing and degassing properties, high heat resistance, demoulding possible before post curing
Applications		vacuumforming moulds and other heat resistant tools			heat resistant moulds, e.g. vaccumforming moulds (blister pack)
Processing data (approx. values)					
Mixed viscosity [mPas]		18,000	6,700	pasty	10,500
Potlife [min]		60 – 120	60 – 120	30	120
Demoulding time [h]		24*	24/RT* + 3 h 60 °C	16 – 24*	16 – 24
Physical data (approx. values)					
Density [g/cm³]		1.7			1.8
Shore hardness		D 89			D 90*
Compressive strength [MPa]		130*	135*	130*	112*
HDT [°C]		141*	> 220*	141*	> 130*

* after appropriate treatment

EP CASTING RESINS FOR TOOLING

	A	EPO 5019	Biresin® G32		Biresin® G33
	B	EPO 5019	Biresin® F4	Biresin® F2	Biresin® S15
Mixing ratio [g]	A	100	100		100
	B	10	7	17	6
Colour		black	green		black
Characteristics		multi-purpose with good workability, low shrinkage, good compressive strength and abrasion resistance	low viscosity, high filler loading for higher casting thickness		very low shrinkage, high abrasion resistance and compressive strength
Applications		production moulds, metal sheet forming tools, foundry patterns	backfilling in foundry pattern / mould making		abrasion resistant guiding rails and supports for engineering
Processing data (approx. values)					
Mixed viscosity [mPas]		19,000	1,700	2,600	6,000
Potlife [min]		100	70	180	45 – 60
Demoulding time [h]		24	24	48	16
Physical data (approx. values)					
Density [g/cm³]		2.25	1.6		1.9
Shore hardness		D 90	D 90	D 86	D 90
Compressive strength [MPa]		110	112	71	120
HDT [°C]		–	51	48	60 / 95*
T_G [°C]		74	–	–	–

* after appropriate treatment

TRANSPARENT EP CASTING RESINS

	A	Translux D 150	Translux D 155-1
	B	Translux D 150	Translux D 155-1
Mixing ratio [g]	A	100	100
	B	90	43
Colour		transparent	transparent
Characteristics		very low viscosity and self-degassing; high transparency and very good UV resistance; variable shore hardness and pot life adjustable with mixing ratio	high transparency and high hardness; thinner coating with doming effect; can be applied on any material (wood, ceramic, plastic, paper)
Applications		transparent embadding of decorative arts (floral decorations) also in thick layers. Large transparent parts	glass clear coating for art and decoration applications in thinner layers of 1 to 3 mm
Processing data (approx. values)			
Mixed viscosity [mPas]		220	1,500
Potlife [min]		360	42
Demoulding time [h]		48 – 72*	4 – 5
Physical data (approx. values)			
Density [g/cm³]		1.05	1.15
Shore hardness		A 77	D 87
T_G [°C]		14 – 36	64

* 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.

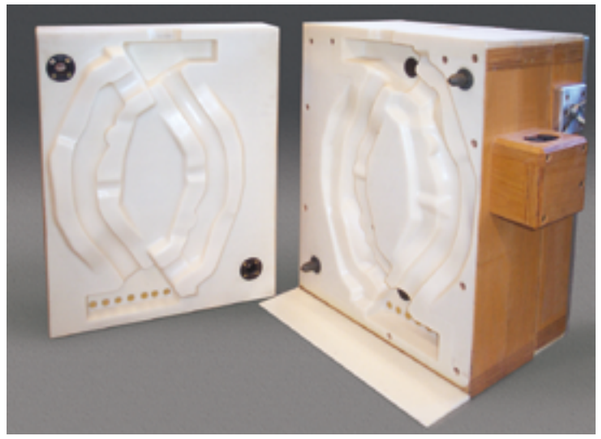
ELASTOMERIC CASTING RESINS FOR FOUNDRY PATTERN MAKING

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.

Biresin® U1419:
- 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
- Biresin® U1419 with 6–7 min potlife for small core boxes and short demoulding time

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 substructures

UR 3490:
- Provides higher shore hardness (D 67) and good heat resistance besides its good abrasion resistance
- Favourite product for match plates



Core box made of Biresin® U1320 NT

ELASTOMERIC CASTING RESINS FOR FOUNDRY PATTERN MAKING

ISOCYANATE	A	Biresin® U1419		Biresin® U1320 NT	UR 3490
POLYOL / AMINE	B	Biresin® U1419	Biresin® U1458	Biresin® U1320 L Neu	UR 3490
Mixing ratio [g]	A	100		100	100
	B	16	18	40	50
Colour		coloured-transparent		beige	beige to dark beige
Characteristics		very high abrasion and impact resistance, high rebound elasticity, good flowability, fast demoulding		very high abrasion resistance, both components without toxic classifictation, simple hand casting without postcuring	good abrasion resistance and impact resistance; higher shore hardness and better heat resistance; low toxicity
Applications		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_c ~100 °C)
Processing data (approx. values)					
Mixed viscosity [mPas]		2,800	4,000	8,000	1,500
Potlife [min]		6 – 7	20	16	14
Demoulding time [h]		1 – 3	16	> 16	16
Physical data (approx. values)					
Density [g/cm³]		1.1	1.1	1.15	1.08
Shore hardness		A 98 (D 54)	A 97 (D 45)	D 62	D 67
Elongation at break [%]		375	700	330	120
Abrasion resistance [mm³]		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.

UR 3450:
- Rubber like elastomer; black color
- High mechanical properties
- Chemical resistance
- Exists in Shore A 80 & 85 (UR 3460)

Biresin® U1409:
- New technology giving high properties
- Friendly use 1:1 ratio and low viscosity
- High frequency vibrations resistance

Soft shift gaiter made by UR 3450

ELASTOMERIC CASTING RESINS FOR MOULD MAKING

ISOCYANATE	A	Biresin® U1404						UR 3440	UR 3450		Biresin® U1305	Biresin® U1409
POLYOL / AMINE	B	Biresin® U1404	Biresin® U1434	Biresin® U1404 + U1419 L				UR 3440	UR 3450	UR 3460	Biresin® U1305	Biresin® U1409
Mixing ratio [g]	A	80	50	100				100	100	100	100	100
	B	100	100	54	32	10	–	50	35	40	60	100
				6	8	10	11					
Colour		reddish-transparent	light-beige	reddish-transparent				light amber	black	black	cream-white / black	beige
Characteristics		very soft,high elongation, low shrinkage		shore A 47–A 80, with hardener (B) mixing				low viscosity; low moisture sensitivity; good abrasion resistance; good dimensional stability	good tear resistance; very good hydrolysis and chemical resistance; high abrasion resistance; good elongation at break		high abrasion resistance, can be accelerated by HC 586	insensitive to moisture, good tear strength and elasticity
Applications		ceramic industry, flexible moulds and components		ceramic industry, flexible moulds and components				production of parts requiring high properties (seals, soft moulds, sanding mask etc).	production of semi flexible moulds, forming tools or parts requiring good abrasion resistance and tear resistance properties		wear resistant coating, electronic, encapsulation	flexible fixtures for parts for ultra sonic welding; elastic, flexible moulds
Processing data (approx. values)												
Mixed viscosity [mPas]		3,000	3,700	3,000 – 5,800				1,500	3,000	3,600	2,300	2,500
Potlife [min]		25	20	60	90	100	110	17	18	20	15 – 20	30
Demoulding time [h]		24	> 16	24				24	24	24	10 – 16	> 16
Physical data (approx. values)												
Density [g/cm³]		1.05	1.3	1.05				1.02	1.08	1.09	1.2	1.10
Shore hardness		A 40	A 55	A 47	A 60	A 74	A 80	A 63	A 80	A 85	A 89	A 92
Tear strength [N/mm]		7	9	12	16	25	40	24	67	83	27	12
Elongation at break [%]		> 600	> 600	1,000	1,000	1,000	800	1,000	620	810	300	650

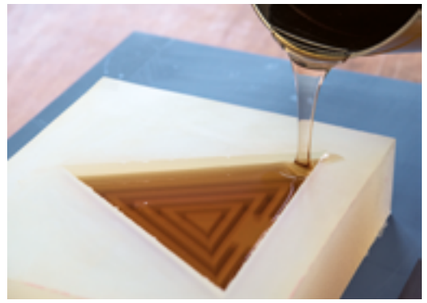
UR 7863:
- Special filled elastomer for ceramic case moulds
- No moisture sensitivity
- No shrinkage in volume

Release of UR 58480 soft mould for stone facing

ELASTOMERIC CASTING RESINS FOR CERAMICS

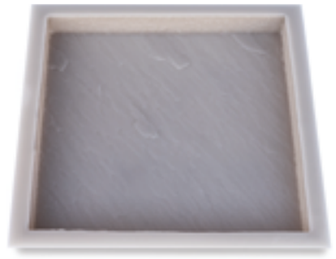
ISOCYANATE	A	Biresin® U1303			UR 7801
POLYOL / AMINE	B	Biresin® U 1302	Biresin® U 1402	Biresin® U1419	UR 7863
Mixing ratio [g]	A	100	100	100	50
	B	40	35	10	100
Colour		coloured-transparent			pink
Characteristics		rubbery, insensitive to moisture; good tensile strength and elasticity; choice of polyols for different hardness levels; very low shrinkage			easy sanding after curing; homogeneous material; low moisture sensitivity; chemical resistance to release agents
Applications		casting of flexural 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

UR 58630:
- Soft filled elastomer for concrete moulds
- High chemical resistance
- Dimensional stability



Casting of Biresin® U1404

UR 5895:
- 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 UR58630 for concrete casting

ELASTOMERIC CASTING RESINS FOR CONCRETE AND BUILDING INDUSTRY

ISOCYANATE	A	U1404	U1404	UR 7803	UR 7803	UR 5803			UR 5805		
POLYOL / AMINE	B	Biresin® BF 620	Biresin® BF 625	UR 7830	UR 7845	UR 58300	UR 58480	UR 58630	UR 58720	UR 5895	UR 5898 F
Mixing ratio [g]	A	100	100	100	70	10	30	35	30	55	65
	B	40	54	40	100	100	100	100	100	100	100
Colour		reddish-transparent	amber	beige	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 hardness; chemical stability	high elongation at break; low viscosity; good mechanical resistance	high chemical resistance; good mechanical properties; 2 pot lifes available	easy processing; excellent tear strength; good chemical resistance	easy processing; good tear strength; high impact resistance; quick setting; available in 8 colours	semi-rigid system; quick setting; high tear strength
Applications		production of moulds or flexible parts, by hand casting or with help of 2K machine. Large volumes possible in one shot with UR 7845				production of intricated moulds for concrete industry	production of moulds for concrete industry by hand casting or with a 2K machine	production of moulds and tools for the concrete industry . Especially dedicated to make soft moulds to cast concrete part in mass production	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	1.300	2,300	2,450	4,000	2,000	2,500	1,000	1,000	1,000
Potlife [min]		10	20 – 25	40 – 60	40 – 50	15 – 20	15 – 20	15 – 20 (30 with UR 58630 S)	15 – 20	various	1 (7 with UR 5898)
Demoulding time [h]		> 16	16 – 24	24	18	24	16	16 – 24	24	12	–
Physical data (approx. values)											
Density [g/cm³]		1.1	1.1	1,16	1.14	1.35	1.31	1.31	1.25	1.25	1.25
Shore hardness		A 63	A 60	A 30	A 50	A 30	A 50	A 65	A 75	A 94	D 65
Tear strength [N/mm]		13	14	8.5	18	6	14	16.5	31	64	110
Elongation at break [%]		300	800	1,500	1,200	900	550	670	700	400	140

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.

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

ADHESIVE FOR BOARDS

	A	Labelite Glue	Biresin® Foam Adhesive	Biresin® Kleber grün / blau	Biresin® Kleber orange / braun	Prolab Glue	Adekit A130 / H9930	Biresin® Power Adhesive Thix	H 8973
	B	–	–	Biresin® Kleber grün / blau	Biresin® G53	Prolab Glue	–	Biresin® Power Adhesive Thix	XT0010-1
Mixing ratio [g]	A	–	–	100	100	100	100	100	100
	B	–	–	50	65	50	100	33	14
Colour		dark amber	amber	green / blue	orange / brown	light brown	light amber	amber	blue
Basis		–	–	PUR			Epoxy		
Characteristics		dedicated 1K glue with no mixing, easy to apply and fast setting while giving same aspect as light density foams		dedicated 2K PUR adhesive for bonding of tooling boards and good resistance against high mechanical stress	dedicated glue for orange/brown colored medium density boards with good balance open-time and setting time	dedicated glue for medium density brown boards with good balance open-time and setting time	2K quick setting epoxy adhesive for bonding small pieces together and alllowing to mill within 30 min	2K thixotropic epoxy adhesive for easy application and long open time for large bonding works or for applications requiring heat resistance	dedicated adhesive system for bonding of LAB973 or LAB975 NEW boards to each other
Suitable for boards references		all Labelite and M blocks from M80 till M450		bonding of tooling boards	Labelite 350E and 45PK, all Prolabs and M blocks from M440 till M700	Prolabs and M600, M680, M700	all medium to high density boards		LAB 975 NEW and LAB 973
Processing data (approx. values)									
Consumption [kg/m²]		0.12 – 0.15	0.1	0.7	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	10 min	30 min	60 min
Setting time		2 h	6 – 8 h	10 h	6 h	5 h	30 min	16 h	16 h
Physical data (approx. values)									
Density [g/cm³]		1.15	0.1 – 0.2	1.3	0.8	1.12	1.15	1.16	0.78
Shore hardness		–	–	D 86	D 63	D 65 – 70	D 80	D 80	D 74
Thermal resistance [°C]		80	–	–	80	80	60	100	125

PUTTY FILLERS FOR BOARDS AND PASTES

	A	Biresin® Spachtel orange	Biresin® Spachtel braun Neu	Biresin® Spachtel weiß	Easymax	M175 / M180 / M380 / M390
	B	BPO-Paste	BPO-Paste	BPO-Paste	–	M10
Mixing ratio [g]	A	100	100	100	100	100
	B	2	2	2	100	50 / 40 / 40 / 33
Colour		orange	brown	white	grey, brown, beige	grey
Basis		polyester			PUR	Epoxy
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
Suitable for boards references		All Labelite and M blocks until M450 included	Prolabs and M600, M680, M700	All medium to high density boards	Prolabs and M600, M680, M700	SC175 / SC180 / SC380 / SC390
Processing data (approx. values)						
Potlife [min]		5	5	5	5	25 – 35
Setting time [min]		> 20	> 20	> 20	20	4 h
Physical data (approx. values)						
Density [g/cm³]		1.3	1.6	1.9	0.68	0.62 / 0.75 / 0.75 / 0.90
Shore hardness		D 58	D 70	D 75	D 57	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

Mostly the chart shows systems from both previous sources (Sika and Axson) which are reasonably comparable. Before change we recommend tests.

FILLING MATERIALS

Sika		Aluminiumgrieß	Aluminiumpulver (AL-Sprühgrieß)	–	LF-Füller	TE-Füller	PVC-Brandgranulat
Axson		**RZ 1021**	**RZ 209/6**	**RZ 1476**	**RZ 30002**	**RZ 30150**	**–**
Colour		silver to matt-grey	silver to matt-grey	white	grey	white	grey
Delivery unit	**Sika**	25 kg paper bag	25 kg paper bag	–	20 kg paper bag	20 kg paper bag	30 kg paper bag
	Axson	40 kg paper bag	5 + 50 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	hard PVC, milled
Applications		backfill castings with good thermal conductivity and good machinability	backfill castings and parts with good thermal conductivity and good machinability	syntactic foam	backfill casting with low density, light concrete mixes	backfill casting with good workability	backfill casting with good workability
Processing data (approx. values)							
Bulk density [g/cm³]		1 – 1.5	1.0	0.15	0.4	1.2	–
Mixture for example		G32 Resin : Filler (100 : 100)	G27 Resin : Filler (100 : 300)	G46 Resin : Filler (100 : 100)	F180-1 Resin : Filler (100 : 100)	F160-1 Resin : Filler (100 : 250)	G48 Resin : Filler (100 : 150)
Physical data (approx. values)							
Density	**[g/cm³]**	2.7	2.7	0.25	0.6 – 0.7	2.4	1.4
Grain	**[mm] Sika**	0.6 – 1.2	0 – 0.07	–	0.01 – 0.25	0 – 0.032	0 – 6
	Axson	0.5 – 2.0	< 0.063	0.1	0.3	0.07	–

SURFACE PRE-TREATMENT

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

SURFACE PRE-TREATMENT

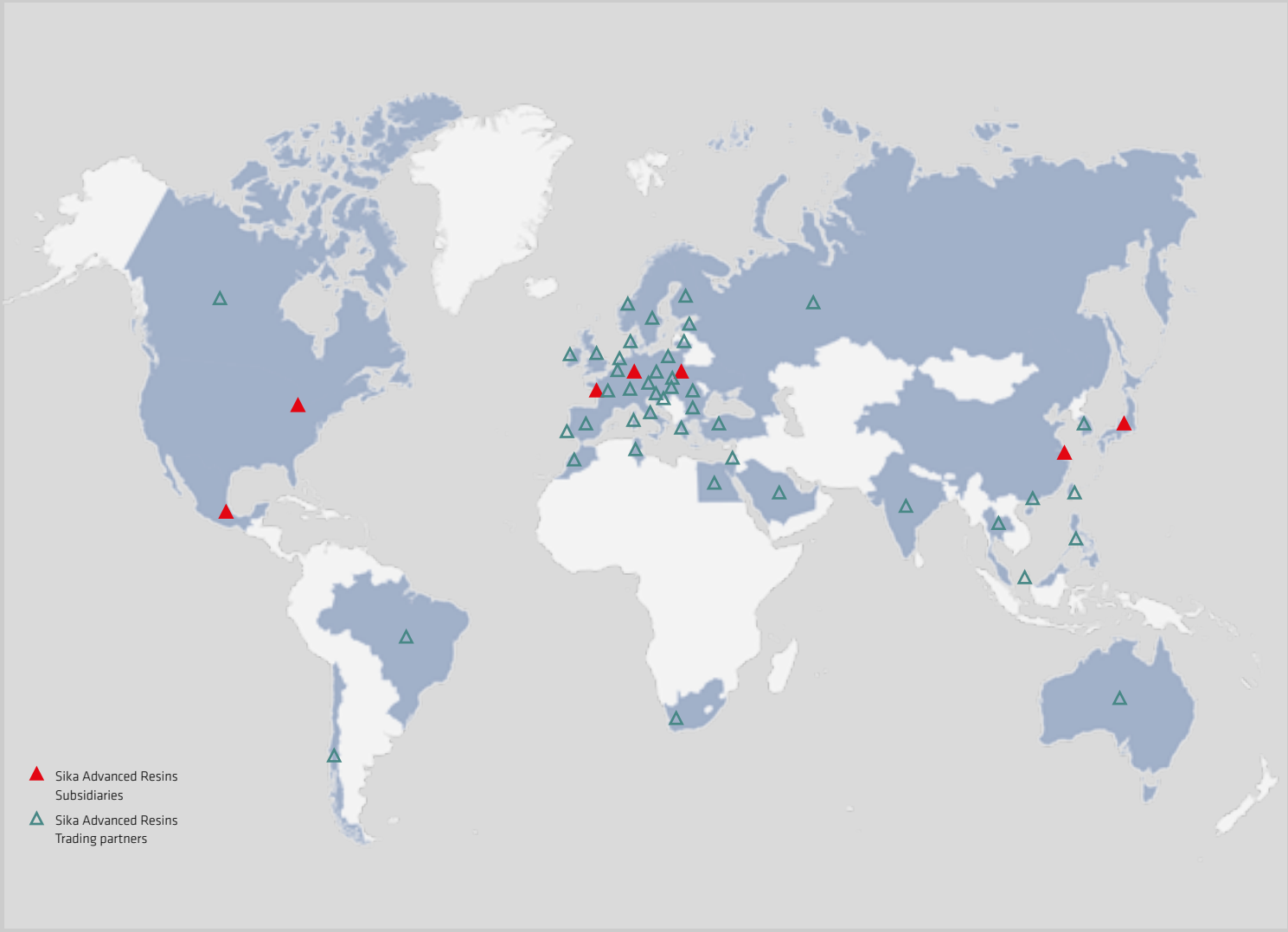
Sika	Sika® Liquid Wax-815	Sika® Pasty Wax-818	Sika® Liquid Wax-852	Sika® Liquid Spray-872	Sika® Handclean	Sika® Reinigungsmittel 5	Sika® Coating Activator	Sika® Activator 205
Colour	milky	whitish	whitish	transparent	orange/white	clear transparent	clear transparent	colourless
Delivery unit	3.55 kg; 0.71 kg	8 x 0.45 kg; 2 x 0.45 kg	0.73 kg; 7.3 kg	6 x 400 ml in Spray	70 pieces	1 l, 5 l, 10 l	0.25 l	1 l, 0.25 l
Description	low viscosity wax dispersion, fast drying	pasty wax dispersion, fast drying	liquid greasy wax, fast drying	greasy wax in spray, silicone free formula	impregnated cloths with hand cleaning	mild solvent blend	solvent containing bonding activator	primer with low viscosity for nonporous surfaces
Applications	for EP and PUR gelcoats and casting resins, for models and tooling boards	for EP and PUR gelcoats and casting resins, for models and tooling boards	all types of casting resin up to 100 °C	all types of casting; EP & PUR; match vacuum casting applications	time saving fast cleaning of machines, tools and accessories	cleaning of tools and surfaces	cleaning + better bonding of PUR Tooling boards with PUR adhesive (especially for SikaBlock® M960)	increasing of bonding of elastomeric PUR-system (Biresin® U1320 NT) on prepared aluminium substructures
Processing data (approx. values)								
Material consumption [g/m²] brushed coats	70	50 – 100	70	–	–	–	20 – 40	30 – 60
Material consumption [g/m²] sprayed coats	30	–	30	30	–	–	–	–
Drying time [min]	5 – 10	5 – 10	5 – 10	5 – 10	–	–	30	10
Physical data (approx. values)								
Density [g/cm³]	0.71	0.84	0.76	0.72	–	0.8	0.7	0.8

ADDITIVES

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

ADDITIVES (thixotroping, thinning, acceleration, colouring)

Sika	Stellmittel T	Sikamoll®	Biresin® Colour Paste	Biresin® HC 586 (catalyst)
Axson	**RZ 55**	**–**	**CP COLOR, COLORKIT**	**RZ 498**
Colour	white	clear-transparent	white, black; green, red, blue, yellow	light yellow
Delivery unit	1.0 kg	10 kg	0.5 kg 6 x 0.025 kg	1.0 kg
Applications	light weight, non dusty powder for thixotroping of EP- and PUR-systems	non-volatile softener for flexibilisation of PUR-systems	colouring of EP- and PUR-systems; specific for colouring of the PX range	acceleration of polyurethane systems base on MDI technology (UR 5800, RIM, RE (Electrical Resin)) ranges, in order to obtain a shorter demolding time



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www.sikaadvancedresins.com

Sika Deutschland GmbH
Sika Advanced Resins
Stuttgarter Strasse 139
D-72574 Bad Urach

Phone: + 49 (0) 7125 94 04 92
Fax: + 49 (0) 7125 94 04 01
Email: tooling@de.sika.com
www.sikaadvancedresins.de

Sika Automotive France SAS
Sika Advanced Resins
Z.I. des Béthunes - 15 rue de l´Equerre
CS 40444 Saint Ouen l´Aumône
95005 Cergy Pontoise Cedex - France
Phone: +33 (0) 134 40 34 60
Fax: +33 (0) 134 21 97 87
Email: advanced.resins@fr.sika.com
www.sikaadvancedresins.fr

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