

PRODUCT DATA SHEET

SikaBiresin® PX523

Vacuum casting polyurethane for transparent prototypes in large volume

TYPICAL PRODUCT DATA (FURTHER VALUES SEE SAFETY DATA SHEET)

Properties	Component A SikaBiresin® PX521	Component B SikaBiresin® PX523
Chemical base	Isocyanate	Polyol
Color	Transparent	Transparent bluish
	mixed	Transparent
Density	1.07 kg/l	1.02 kg/l
	mixed	1.06 kg/l
Mixing ratio	by weight	100 : 62
Viscosity (CQP538-2 / BROOKFIELD LVT)	200 mPa·s	1000 mPa·s
	mixed	500 mPa·s
Pot life (CQP021-3 / Gel Timer TECAM)	162 g at 23 °C	20 minutes
Demolding time	100 mm at 70 °C	45 minutes
	< 5 mm at 70 °C	3 hours
Maximum casting thickness	100 mm	
Shore D hardness (CQP023-1 / ISO 868)	86 ^A	
Flexural modulus (CQP027-2 / ISO 178)	2100 MPa ^A	
Flexural strength (CQP027-2 / ISO 178)	100 MPa ^A	
Tensile modulus (CQP036-2 / ISO 527)	2600 MPa ^A	
Tensile strength (CQP036-2 / ISO 527)	68 MPa ^A	
Elongation at break (CQP036-2 / ISO 527)	6 % ^A	
Impact resistance (CQP038-2 / ISO 179)	42 kJ/m ² ^A	
Heat deflection temperature (CQP030-1 / ISO 75A)	85 °C ^A	
Glass transition temperature (CQP053-1 / ISO 11359)	100 °C ^A	
Refractive index (LNE)	1.511	
Dielectric strength (IEC 60243-1 E2)	50 Hz – 1 mm	37 kV/mm ^B
Dielectric constant (IEC 60250) OUTDATED	ε 100 Hz	3.18 ^B
Dissipation factor (IEC 60250) OUTDATED	tan δ (100 Hz)	0.015 ^B
Volume resistivity (IEC 60093 E2)	2.97 x 10 ¹⁵ Ω·cm ^B	
Tracking resistance (IEC 60112 E3)	600 V ^B	
Shelf life	12 months	

CQP = Corporate Quality Procedure

^A) post curing: 100 °C for 16 hours^B) post curing: 80 °C for 16 hours + 23 °C for 24 hours

DESCRIPTION

SikaBiresin® PX523 is a 2-component vacuum casting polyurethane system for manufacturing of transparent prototypes in large volume.

PRODUCT BENEFITS

- High transparency (crystal clear)
- Easy polishing
- High reproduction accuracy
- Good UV resistance
- Easy processing

AREAS OF APPLICATION

SikaBiresin® PX523 is designed for manufacturing of transparent prototype parts until 100 mm thickness by vacuum casting in silicone molds.

The Product is suitable for production of crystal glass-like parts as well as art and decoration parts.

This product is suitable for experienced professional users only.

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Tests under actual processing conditions and with additional materials such as coatings and release agents must be performed to proof material compatibility.

METHOD OF APPLICATION

The material and processing temperature shall be between 18 °C and 25 °C. Temperature of a silicone mold shall be 70 °C. The material can either be used manually or in a vacuum casting machine.

Mixing process

Prior to use check the material for homogeneity and crystallization. After prolonged storage at low temperature, crystallization of components may occur. This process can be easily reversed by heating the affected component to a maximum of 70 °C until the crystals have disappeared. Allow to cool down to requested processing temperature before use.

Machine casting: Weigh the polyol into the upper mixing cup according to the mixing ratio. Take into account the material residues that remain in the upper cup when it is emptied into the lower cup.

Weigh the isocyanate into the lower mixing cup according to the mixing ratio.

Both components shall be evacuated separately for 10 minutes.

After evacuation, both components shall be mixed in vacuum chamber for 2 – 3 minutes, considering the pot life.

Manual processing: Both components must be mixed thoroughly respecting the defined mixing ratio. The mixing can be performed with a spatula or a machine stirrer at ≤ 300 rpm.

To secure homogeneous and complete mixing, pour the mixed product into another container and mix again shortly.

After mixing the mixture shall be evacuated until air bubbles disappeared, considering the pot life.

Note: Both containers must be closed tightly immediately after use to prevent moisture ingress.

Once opened the Product shall be used as soon as possible.

Application

Immediately after mixing pour the Product into the preheated silicone mold. After casting, place the mold in a preheated oven (70 °C) for 45 minutes – 3 hours, depending on the wall thickness of the parts.

Further post curing of the demolded part can improve the final mechanical properties.

Depending on the geometry and weight of the part, it is recommended to use a conformer while post curing.

To prevent any yellowing of the casted part, do not exceed the following curing time: 7 days at 70 °C or 48 hours at 80 °C or 16 hours at 100 °C.

STORAGE CONDITIONS

Both components must be stored at temperature between 15 °C and 25 °C in original unopened containers.

FURTHER INFORMATION

The information herein is offered for general guidance only. Advice on specific applications is available on request from the Technical Department of Sika Industry.

Copies of the following publications are available on request:

- Safety Data Sheets

PACKAGING INFORMATION

SikaBiresin® PX521 (A)

Box with bottles	6 x 1 kg
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SikaBiresin® PX523 (B)

Box with bottles	6 x 0.62 kg
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BASIS OF PRODUCT DATA

All technical data stated in this document are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

HEALTH AND SAFETY INFORMATION

For information and advice regarding transportation, handling, storage and disposal of chemical products, users shall refer to the actual Safety Data Sheets containing physical, ecological, toxicological and other safety-related data.

DISCLAIMER

The information, and, in particular, the recommendations relating to the application and end-use of Sika products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with Sika's recommendations. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The user of the product must test the product's suitability for the intended application and purpose. Sika reserves the right to change the properties of its products. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request.

