

PRF100

References :

Polyol : **SL 140 000 - PRF100 Polyol**
Isocyanate : **SL 000 140 - PRF100 Isocyanate**

Definition :

Unfilled two-component polyurethane resin dedicated to the realization of parts that can be placed in contact with food products.

This material complies with the European Directives : 10/2011 and 1935/2004 article 3, decree 2007/766 for a long contact with dry, humid and greasy (meat, fish) food, clear and cloudy drinks, alcoholic beverages of an alcoholic strength below 20%.

This material complies with the requirements of the European Directives : 2002/96/EC, 2000/53/EC, 2000/11/EC, 2017/2102/UE (RoHS).

Average physical properties of the components :

	PRF100 Polyol SL 140 000	PRF100 Isocyanate SL 000 140	PRF100 Mix
Aspect – Color	Colorless transparent liquid	Colorless transparent liquid	Colorless transparent solid
Brookfield viscosity LVT (mPa.s) According to MO-051	450	390	
Density at 25°C According to MO-032	1.02	1.07	1.05

Application properties :

Mixing ratio by weight	100	130	
Mixing time at 25°C (sec.)			120
Potlife on 230g at 25°C (min.) According to MO-062			14
Demoulding time at 70°C on 4 mm (hours) According to MO-116			16
Curing cycle for fast demoulding			2h at 70°C + 2h at 100°C
Maximum casting thickness (mm)			10

The values mentioned on this document are based on tests and researches carried out in our laboratories, under precise conditions. This document cannot be, in any case, considered as a specification data sheet.

It is the responsibility of the user to check the suitability of the product to his application in his own conditions, defined and tried by himself. SYNTHENE company disclaims any responsibility for any consequence occurred by the use of this product.

Average mechanical and thermal properties of the cured material :

- **Average data obtained after stabilization 16h at 70°C + 24h at room temperature**

Shore D1 Hardness		ISO 868-2003	82
Heat Deflection Temperature (HdT)	(°C)	ISO 75-2 : 2013	69
Glass transition temperature (Tg)	(°C)	ISO 6721-10 : 2015	75
Flexural modulus	(MPa)	ISO178 : 2011	2000
Maximum flexural strength	(MPa)	ISO178 : 2011	71
Tensile modulus	(MPa)	ISO 527-1 : 2012	2160
Maximum tensile strength	(MPa)	ISO 527-1 : 2012	47
Elongation at break	(%)	ISO 527-1 : 2012	14
Tensile strength at break	(MPa)	ISO 527-1 : 2012	38
Impact resistance – Charpy	(kJ.m ⁻²)	ISO 179-1/1eU^b: 2010	102

- **Average data obtained after stabilization 2h at 70°C + 2h at 100°C + 24t at room temp.**

Shore D1 Hardness		ISO 868-2003	83
Heat Deflection Temperature (HdT)	(°C)	ISO 75-2 : 2013	71
Glass transition temperature (Tg)	(°C)	ISO 6721-10 : 2015	75
Flexural modulus	(MPa)	ISO178 : 2011	2100
Maximum flexural strength	(MPa)	ISO178 : 2011	75

Hygiene and safety for using :

Wearing appropriate safety clothes and accessories (gloves, glasses) is advised.
Work in a ventilated room.
For more information, please read the Medical and Safety Data Sheet of the material.

Comment : The PRF100 polymerized resin complies with the requirements of the European Directives : 10/2011 and 1935/2004 article 3 for a long contact of dry, humid and greasy (meat, fish) food, clear drinks (water, fruit juice,...), cloudy drinks (juices, nectars containing pulp,...), and alcoholic beverages of an alcoholic strength below 20%.

This validation has been obtained under precise conditions, on completely polymerized specimens. It is the responsibility of the user to make sure that all the used equipment (containers, moulds, ovens...), and the using conditions for the realization of the parts, respect the basic criteria of these Directives in order to obtain the certification of the final part.

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Application process with vacuum casting machine :

Depending on storage conditions, the isocyanate component can have a thick and cloudy aspect. In this case, please make sure to place the product in an oven at 70°C to get back to a clear and fluid product. Wait until the product is back at room temperature before using.

Pre-heat the moulds at 70°C.

The use of silicone moulds is possible, however they have to be food-contact compliant.

If metal moulds are used, requiring a release agent, the releasing treatment has to be food-contact compliant.

Weigh the polyol component in the upper cup (without forgetting the casting residual quantity).

Weigh the isocyanate component in the lower cup (mixing cup).

After 10 minutes of vacuum, pour the polyol component into the isocyanate component and mix, during at least 2 minutes, for products that are casted at a 25°C temperature.

Slightly cut the vacuum level (approximately 50 mbar) and cast in the mould.

Once the mould is filled, cut the vacuum level to go back to atmospheric pressure.

Place the moulds in an oven at 70°C.

Demoulding is possible after 16h (1 night) at 70°C (depending on the thickness of the part).

It is possible to reduce the demoulding time by applying a short cycle of 2h at 70°C + 2h at 100°C.

In this case, it is necessary to cool the part with pressurized air in order to make the demoulding possible, as the HdT is still insufficient.

Application process with hand mixing :

Depending on storage conditions, the isocyanate component can have a thick and cloudy aspect. In this case, please make sure to place the product in an oven at 70°C to get back to a clear and fluid product. Wait until the product is back at room temperature before using.

Pre-heat the moulds at 70°C.

The use of silicone moulds is possible, however they have to be food-contact compliant.

If metal moulds are used, requiring a release agent, the releasing treatment has to be food-contact compliant.

Weigh the polyol component and the isocyanate component in a clean mixing cup.

Duly mix, making sure that the mixture is homogeneous (approx. 2 min.).

Pour the mixture in a second clean cup, without trying to get the residues back from the cup walls, neither scrapping the bottom of the cup (in order to avoid problems linked to bad mixing), mix again with a clean spatula, during approximately 30 seconds.

Use a vacuum pump to degas the second cup.

Cast in the mould at once to avoid the incorporation of air into the mould while casting (if possible, cast from a low point).

Place in an oven at 70°C.

Demoulding is possible after 16h (1 night) at 70°C (depending on the thickness of the part).

It is possible to reduce the demoulding time by applying a short cycle of 2h at 70°C + 2h at 100°C.

In this case, it is necessary to cool the part with pressurized air in order to make the demoulding possible, as the HdT is still insufficient.

Packaging :

Parcel of 6 x (0.85 + 1.1) kg

Parcel of 2 x (3.85 + 5) kg

Storage :

9 months in original and unopened containers and stored between 15 and 25°C.

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