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PR 2000

References :

Polyol : PR2000 Polyol SH100000
Isocyanate : PR2000 Isocyanate SH000200

Definition :

Polyurethane prototyping resin designed to cast rigid parts.
Colourable product. Good heat resistance.
Mercury free product in accordance with the European Directives: 2011/65/UE (RoHS), 2002/96/EC, 2000/53/EC, 2000/11/EC.

Average physical properties of the components:

	PR2000 Polyol SH100000	PR2000 Isocyanate SH000200	PR2000 SH100200
Aspect – Color	Opalescent liquid	Translucid liquid Light yellow	Yellow liquid White solid
Brookfield viscosity LVT (mPa.s) Accoding to MO-051	**800**	**60**	
Density at 25°C According to MO-032	**1,09**	**1,15**	**1,13**

Process data :

Mixing ratio by weight	**50**	**100**	
Mixing time at 25°C (*) (sec.)			**180**
Pot life on 150g at 25°C (min.) According to MO-062			**6**
Demoulding time at 70°C (min.) According to MO-116			**45**

(*) The product is not immediately miscible.

Average mechanical and thermal properties of the polymerized product:

Hardness Shore D1		ISO 868-2003	**80**
Heat deflection Temperature (HdT) (1)	(°C)	ISO 75 Ae :2001	**70**
Glass transition Temperature (Tg) (1)	(°C)	ASTM D 4065 : 2001	**77**
Flexural modulus (1)	(MPa)	ISO178 : 2001	**2050**
Maximal flexural stress (1)	(MPa)	ISO178 : 2001	**68**
Heat deflection Temperature (HdT) (2)	(°C)	ISO 75 Ae:2001	**101**
Glass transition Temperature (Tg) (2)	(°C)	ASTM D 4065 : 2001	**113**
Flexural modulus (2)	(MPa)	ISO 178 : 2001	**2000**
Maximal flexural stress (2)	(MPa)	ISO 178 : 2001	**80**
Tensile modulus (2)	(MPa)	ISO 527 : 1993	**1850**
Elongation at maximum stress (2)	(%)	ISO 527 : 1993	**5**
Maximum tensile stress (2)	(MPa)	ISO 527 : 1993	**57**
Elongation at break (2)	(%)	ISO 527 : 1993	**5**
Tensile stress at break (2)	(MPa)	ISO 527 : 1993	**56**
Shock resistance – Charpy (2)	($kJ.m^{-2}$)	ISO 179/1D : 2001	In progress

Data are obtained after stabilization: (1) ½ H at 70°C + 24 H at RT
(2) 2 H 70°C + 1 night at 100°C + 24 H at RT

The results given in this document are based on studies and tests made in our laboratory, in defined specific conditions. This document shall not, in any case, be taken as a list of specifications.
It is the user's responsibility to check with his own tests that PR2000 is suitable for the targeted application and the conditions under which it is achieved. SYNTHENE company disclaims all responsibility for any consequence occurred by the use of this product.

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Hygiene and safety instructions 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.

Application process with a vacuum casting machine:

Preheat the polyaddition silicone moulds at 70°C.
Weight the isocyanate component in the upper cup (without forgetting the casting residues)
Weight the polyol component in the lower cup (mixing cup).

After 10 minutes of vacuum, pour the isocyanate part in the polyol part and mix them for at least 2 minutes if the product temperature is 25°C.
Pour in the silicone mould.
Place in an oven at 70°C.
Demoulding is possible after 60 minutes, depending on the thickness of the casted part.

Application process with manual casting:

Preheat the polyaddition silicone moulds at 70°C.
Weight the polyol and isocyanate components in a clean mixing cup.
Duly mix the two components, making sure that the mix is homogeneous (approximately 1 minute).
Pour the mix in a second clean cup, without trying to get the residues back from the first cup walls, neither scrapping the bottom of the cup (in order to avoid problems linked to bad mixing), mix again with a clean spatula for one minute.
Use a vacuum pump to degas the second cup.
Pour in the mould at once to avoid the incorporation of air in the mould while casting (if possible, cast from a low point).
Place in an oven at 70°C.
Demoulding is possible after 60 minutes, depending on the thickness of the casted part.

Packaging :

- Parcel of (4 X 1,0 + 8 X 1,0) kg
- Parcel of (1 X 5,0 + 2 X 5,0) kg

For any other packaging, please consult us.

Storage :

12 months in original and unopened packing, stored between 15 and 25°C.

Depending on the transport and storage conditions, the isocyanate component can get slightly crystallized.

In such a case, place this isocyanate part in an oven at 70°C until it gets an homogeneous aspect.