

# PR752

## References :

**Polyol: PR752-POLYOL-ST152000**

**Isocyanate: PR7SERIES-ISO-ST000401**

## Definition :

→ **PR752 :**

Polyurethane resin for the realisation of ABS-like parts with the vacuum casting process. The product has high thermal properties and an excellent chemical resistance. Amber and colourable material, with a low aggressiveness to silicone moulds.

REACH-compatible material complying with the following European Directives:

- 2011/65/EU – 2015/863 – 2017/2102/EU (RoHS 1 and 2)
- 2002/96/EC (WEEE)
- 2000/53/EC (ELVs)
- 2000/11/EC

## Average physical properties of the components :

	PR752 Polyol ST 152 000	PR 7 Series Iso ST 000 401	PR 752 Mix ST 152 401
<b>Aspect - Colour</b>	Amber liquid	Colourless transparent liquid	Amber liquid Amber solid
<b>Brookfield LVT viscosity (mPa.s)</b> According to MO-051	600	1200	1000
<b>Density at 25°C</b> According to MO-032	1,15	1,16	1,16

## Application properties :

	PR752 Polyol ST 152 000	PR 7 Series Iso ST 000 401	PR 752 Mix ST 152 401
<b>Mixing ratio by weight</b>	60	100	
<b>Mixing ratio by volume</b>	60,5	100	
<b>Mixing time at 25°C</b>			1 min.
<b>Potlife on 160g at 25°C</b> According to MO-062			7 min.
<b>Demoulding time at 70°C</b> (on 3mm) According to MO-116			50 min.
<b>Optimal curing time</b>	1h at 70°C + 2h at 130°C + 24h at room temperature		

*The values mentioned on this document are based on tests and researches carried out in SYNTHENE's laboratory, in precise conditions. This document cannot be, in any case, considered as a specification data sheet. It is the responsibility of the users to check the suitability of the product in their own conditions, defined and tried by themselves. 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 values obtained after post-curing : 1h at 70°C + 2h at 130°C + 24h at room temperature**

	Standard	Unit	Values PR752
Hardness	ISO 868 : 2003	Shore D1	87
Flexural modulus	ISO 178 : 2011	MPa	2200
Maximum flexural strength	ISO 178 : 2011	MPa	96
Tensile modulus	ISO 527-1 : 2012	MPa	2300
Elongation at maximum strength	ISO 527-1 : 2012	%	11
Elongation at break	ISO 527-1 : 2012	%	13
Maximum tensile strength	ISO 527-1 : 2012	MPa	76
Tensile strength at break	ISO 527-1 : 2012	MPa	75
Charpy impact resistance	ISO 179-1 : 2010 unnotched-1eU <sup>b</sup>	KJ/m <sup>2</sup>	30
Heat Deflection Temperature (HDT)	ISO 75-2 : 2013 method B	°C	150

**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.

**Operating conditions :**

➔ **Application process in a vacuum casting machine :**

1. Preheat the polyaddition silicone mould at 70°C.
2. Rehomogenise and weigh the separated components (upper cup : Iso / lower cup : Polyol), with addition of the necessary residual quantity in the upper cup. Then, put the cups inside the vacuum casting machine.  
If a pigment is added, it should imperatively be mixed to the polyol component. A 1 to 3% rate of the total product quantity (polyol + isocyanate) is recommended.
3. Degas the products during 10 minutes, with agitation in the lower cup (Polyol).
4. Stop the agitation and pour the content of the upper cup (Iso) into the lower cup (Polyol).
5. Start the agitation and mix for at least 1 minute.
6. Slightly release the vacuum in the chamber to a pressure of about 100 hPa (0,1bar).
7. Cast the mixture into the silicone mould until complete filling.
8. Break the vacuum back to atmospheric pressure.
9. Place the mould in an oven at 70°C.

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10. Demoulding is possible after :

- 40 minutes at 70°C, depending on the thickness of the part.

In order to obtain the mechanical properties of the material, it is necessary to realise a complete curing, demoulding time included, of :

- Optimal curing time : 1h at 70°C + 2h at 130°C + 24h at room temperature

→ **Application process for hand casting :**

1. Preheat the polyaddition silicone mould at 70°C.
2. Rehomogenise the polyol and the isocyanate, weigh them in a clean mixing cup.
3. Duly mix both components together for at least 1 minute, making sure that the mixture is homogeneous.
4. Pour the mix in a second cup without scrapping the bottom neither trying to get the residues back from the first mixing cup walls (in order to avoid problems linked to an inhomogeneous mix). Mix again with in the second cup for around 30 seconds.
5. Degas the mixture in a vacuum chamber.
6. Cast in the mould at once, to avoid the incorporation of air in the mould while casting (if possible, cast from a low point).
7. Put the mould in an oven at 70°C.
8. Demoulding is possible after :

- 40 minutes at 70°C, depending on the thickness of the part.

In order to obtain the mechanical properties of the material, it is necessary to realize a complete curing, demoulding time included, of :

- Optimal curing time : 1h at 70°C + 2h at 130°C + 24h at room temperature

**Packaging :**

- Box of 2 kits of (3,0 kg polyol + 5,0 kg isocyanate) = 16 kg

**Storage :**

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

**Comment :**

The final product colour can vary depending on its exposure to UV light, without altering its mechanical properties.