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PR408 + SYNFILL G

References:

Polyol: PR408-POLYOL-SL 408 000	Isocyanate: PR408-ISO-SL 000 408	Fiber glass filler: SynFill G

Definition:

➔ **PR408 + SynFill G :**

Polyurethane vacuum casting resin for the prototyping of ABS or PC countertypes. Colourable and fast curing material. The product shows a good flowability in silicone moulds.

REACH compatible product meeting the requirements of the 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

« **SynFill G** » fiberglass filler allows one to increase the rigidity of the parts and some mechanical and thermal characteristics. High modulus of elasticity up to 3500 MPa with 25% of filler. Improvement of the maximum stress in traction and flexion.

Average physical properties of the components :

	PR408 Polyol SL 408 000	PR408 Iso SL 000 408	Mix + 25% Synfill G SL 408 408 + Synfill G
Aspect - Colour	Opalescent liquid	Translucent liquid	Yellow liquid Milky solid
Brookfield Viscosity LVT (mPa.s) According to MO-051	600	55	450
Density at 25°C According to MO-032	1,05	1,16	1,40

Application properties :

	PR408 Polyol SL 408 000	PR408 Iso SL 000 408	Mix + 25% Synfill G SL 408 408 + Synfill G
Mixing ratio by weight	50	100	37,5
Mixing ratio by volume	55	100	-
Mixing time at 25°C Milkytime			2 min. 20s
Potlife on 100g at 25°C According to MO-062			6 min.
Demoulding time at 70°C on 3mm According to MO-116			1h
Optimal curing time	1h at 70°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.

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Average mechanical and thermal properties of the cured material :

- **Average values obtained after curing: 1h at 70°C + 24h at room temperature**

	Test standard	Unit	Values PR408 + 25% Synfill G
Hardness	ISO 868 : 2003	Shore D1	77
Flexural modulus	ISO 178 : 2011	MPa	3350
Maximum flexural strength	ISO 178 : 2011	MPa	80
Tensile modulus	ISO 527-1 : 2012	MPa	3500
Elongation at break	ISO 527-1 : 2012	%	3
Maximum tensile strength	ISO 527-1 : 2012	MPa	50
Charpy impact resistance	ISO 179-1 : 2010 unnotched-1eU[b]	KJ/m^2	20
Heat deflection temperature (HDT)	ISO 75-2 : 2013 Method B	°C	70
Transition glass temperature (Tg)	ISO 6721-10 : 2003	°C	79

Hygiene and safety instructions for using :

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

Application process with vacuum casting machine :

1. Pre-heat the polyaddition silicone mould at 70°C
2. Weigh the separated components (Upper cup: Polyol / Lower cup: Iso), with addition of the necessary residual quantity in the upper cup. If Synfill G filler is added, weigh the needed quantity in the lower cup. Then, put the cups and the mould inside the vacuum casting machine.
3. Degas for 10 minutes, with agitation in the lower cup (Iso).
4. Stop the agitation and pour the content of the upper cup (Polyol) into the lower cup (Iso).
5. Start the agitation and mix for at least 2 minutes and 20 sec.
6. 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 mould in an oven at 70°C.
10. Demoulding is possible after :
    - 1 hour 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 + + 24 h at room temperature

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Packaging :

- PR408: box of 1 kit of (5,0 kg polyol + 2 x 5,0 kg isocyanate) = 15 kg

Synfill G :

- Box of 30 kg
- Pail of 10 kg

Storage :

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

Comments :

The cured product colour may vary depending on its exposure to UV, without changing the other characteristics. Depending on the storage and transport conditions, a slight crystallization of the isocyanate component can be observed. In that case, place the product in an oven at 70 °C until the isocyanate is homogeneous again.

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