45 Ferme de L'Evêché - CS 20308
60723 Pont-Sainte-Maxence CEDEX - FRANCE
Tel : + 33 3 44 31 72 00
Fax : + 33 1 57 67 44 58
E-mail : contact@synthene.com
http://www.synthene.com

PR700

References :

Polyol: PR700-POLYOL-ST109000 | **Isocyanate: PR7SERIES-ISO-ST000401** | **Fiber glass filler: SynFill G**

Definition :

➔ **PR700 :**

Polyurethane resin for the production of ABS-like parts in vacuum casting, requiring good thermal and chemical properties.
Easy to cast, low aggressiveness to silicone moulds.
Good chemical resistance.
REACH compatible product meeting the requirements of 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

➔ **PR700 + SynFill G :**

- « **SynFill G** » fiberglass filler allows one to increase the rigidity of the parts and some mechanical and thermal characteristics.
- Three filler rates are available in order to guarantee the best compromise between the flowability and the product performances.
- High modulus of elasticity up to 3500 MPa in traction with 25% of filler.
- Improvement of the maximum stresses in traction and flexion.

Average physical properties of the components :

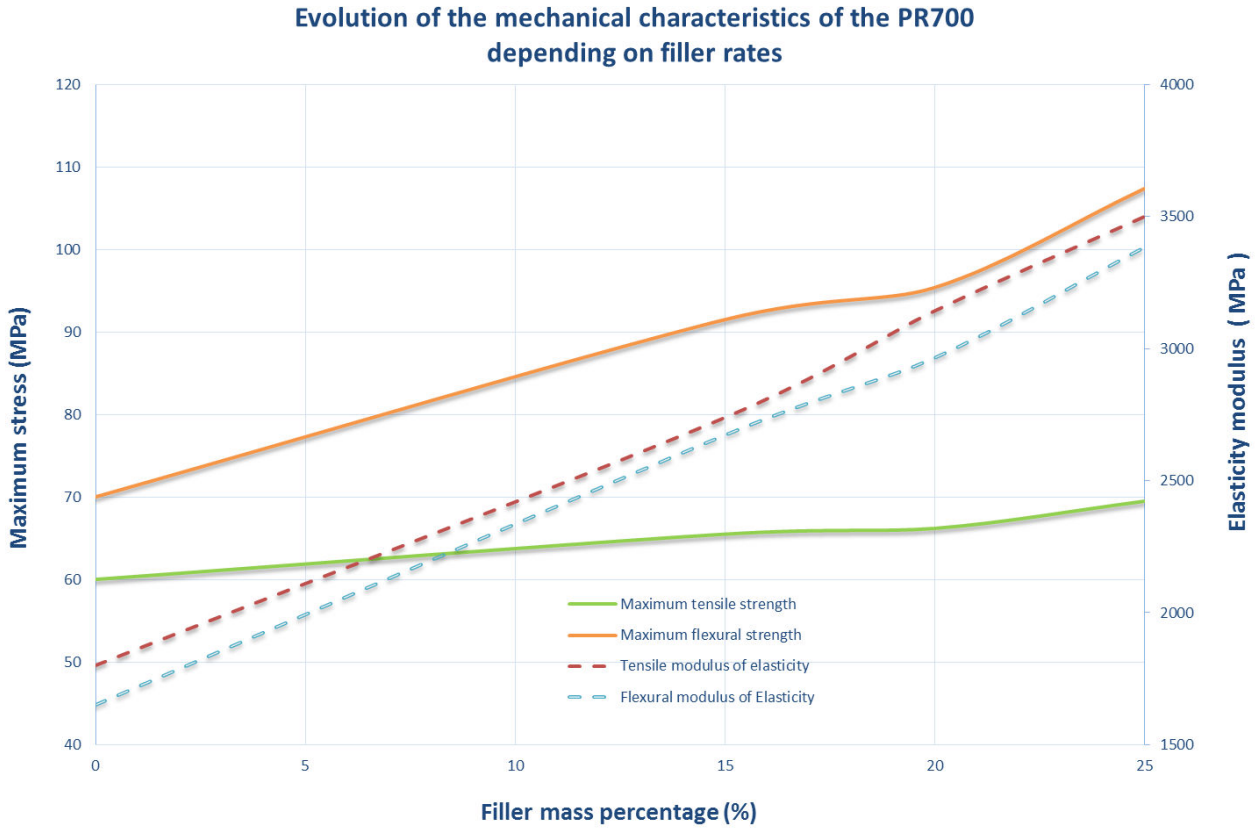
	PR700 Polyol ST 109 000	PR 7 series Iso ST 000 401	Mix ST 109 401	Mix +15% SynFill G	Mix + 20% SynFill G	Mix +25% SynFill G
Aspect - Colour	Black liquid	Transparent colourless liquid	Black liquid Black solid	Black liquid Black solid	Black liquid Black solid	Black liquid Black solid
Brookfield LVT Viscosity (mPa.s) According to MO-051	130	1200	600	1000	1100	1300
Density at 25°C According to MO-032	1,13	1,15	1,14	1,23	1,26	1,29

Application properties :

	PR700 Polyol ST 109 000	PR 7 Series Iso ST 000 401	Mix ST 109 401	Mix + 15% SynFill G	Mix + 20% SynFill G	Mix + 25% SynFill G
Mixing ratio by weight	80	100		27	36	45
Mixing ratio by volume	81,5	100		-	-	-
Pot life on 200g at 25°C According to MO-062			6-7 min.	6-7 min.	7-8 min.	7-8 min.
Demoulding time at 70°C According to MO-116			Approx.45 min.	Approx.45 min.	Approx.45 min.	Approx.45 min.
Optimal curing time	1h at 70°C + 1h at 100°C + 2h at 120°C + 24h at room temperature					

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Average mechanical and thermal properties of the cured material :

- **Average values obtained after curing : 1h at 70°C + 2h at 120°C + 24h at room temperature**

	Test standard	Unit	Values without filler	15% SynFill G	20% SynFill G	25% SynFill G
Hardness	ISO 868 : 2003	Shore D1	82	85	85	86
Flexural modulus	ISO 178 : 2011	MPa	1700	2700	3000	3400
Maximum flexural strength	ISO 178 : 2011	MPa	70	92	95	105
Tensile modulus	ISO 527-1 : 2012	MPa	1800	2800	3100	3500
Maximum tensile strength	ISO 527-1 : 2012	MPa	60	66	66	70
Elongation at break	ISO 527-1 : 2012	%	16	8	5	4
Charpy impact resistance	ISO 179-1 : 2010 unnotched -1eU^{b}	KJ/m^2	60	34	32	30
Heat deflection temperature (HDT)	ISO 75-2 : 2013 Method A	°C	-	118	136	142
	ISO 75-2 : 2013 Method B	°C	130	-	-	-
Transition glass Temperature (Tg)	ISO 6721-10 : 2003	°C	> 130	-	-	-

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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 approximately 60 seconds.
6. Release the vacuum in the chamber to a pressure of about 100 hPa (0.1 bar).
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 :
    - 45 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 + 1h at 100°C + 2h at 120°C + 24 h at room temperature

Packaging :

PR700 :
- Box of 2 kits of (4,0 polyol + 5,0 isocyanate) kg = 18 kg
- Box of 6 kits of (0,8 polyol + 1,0 isocyanate) kg = 10,8 kg

Synfill G :
- Box of 30 kg
- Pail of 10 kg

Storage :

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

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