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PR408 / PR1508

References:

Polyol PR408: PR408-POLYOL-SL 408 000 **Isocyanate: PR408-PR1508-ISO-SL 000 408**
Polyol PR1508: PR1508-POLYOL-SL 415 000

Definition:

➔ **PR408 / PR1508:**

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

Average physical properties of the components:

	PR408 Polyol SL 408 000	PR1508 Polyol SL 415 000	PR408/1508 Iso SL 000 408	PR408 Mix SL 408 408	PR1508 Mix SL 415 408
Aspect - Colour	Opalescent liquid	Opalescent liquid	Light yellow translucent liquid	Yellow liquid White solid	Yellow liquid White solid
Brookfield LVT viscosity (mPa.s) According to MO-051	600	600	55		
Density at 25°C According to MO-032	1,05	1,05	1,16	1,12	1,12

Mixing Ratio:

	PR408 Polyol SL 408 000	PR1508 Polyol SL 415 000	PR408/1508 Iso SL 000 408
PR408	50		100
PR1508		50	100

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Application properties:

	PR408 Mix SL 408 408	PR1508 Mix SL 415 408
Mixing time at 25°C (sec.)	2 min.	2 min.
Potlife on 100g at 25°C According to MO-062	5 min.	12 min.
Demoulding time at 70°C on 3mm According to MO-116	1h	2h
Optimal curing time	2 h at 70°C + 24 h at room temperature	3 h at 70°C + 24 h at room temperature

Average mechanical and thermal properties of the cured material:

	Standard	Unit	PR408 Values After 2h 70°C + 24h RT	PR1508 Values after 3h 70°C + 24h RT
Hardness	ISO 868 : 2003	Shore D1	77	77
Flexural modulus	ISO 178 : 2011	MPa	1600	1700
Maximum flexural strength	ISO 178 : 2011	MPa	60	60
Tensile modulus	ISO 527-1 : 2012	MPa	1700	1800
Elongation at break	ISO 527-1 : 2012	%	10	13
Maximum tensile strength	ISO 527-1 : 2012	MPa	39	39
Tensile strength at break	ISO 527-1 : 2012	MPa	35	34
Charpy impact resistance	ISO 179-1 : 2010 unnotched-1eUb	KJ/m²	28	32
Heat Deflection Temperature (HDT)	ISO 75-2 : 2013 Method B	°C	70	71
Transition Glass Temperature (Tg)	ISO 6721-10 : 2015	°C	78	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.

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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 2 minutes.
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.
10. Demoulding is possible after :
    - PR408 : 1 hour at 70°C, depending on the thickness of the part.
    - PR1508 : 2 hours 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 :
- PR408 Optimal curing time : 2h at 70°C + 24h at room temperature
- PR1508 Optimal curing time : 3h at 70°C + 24h at room temperature

➔ Application process with 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 2 minutes, 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 :
    - PR408 : 1 hour at 70°C, depending on the thickness of the part.
    - PR1508 : 2 hours 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 :
- PR408 Optimal curing time : 2h at 70°C + 24h at room temperature
- PR1508 Optimal curing time : 3h at 70°C + 24h at room temperature

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Packaging:

- Box of 1 kit of (5,0 kg polyol + 2 x 5,0 kg isocyanate) = 15 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 its 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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