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PRC 120

References

Polyol : PRC 120 P - SD 123 000
Isocyanate : PRC 120 I - SD 000 031

Definition

Clear transparent polyurethane resin for vacuum casting of soft optical prototyping parts.
Mercury free product suitable with European directive: 2011/65/EC (RoHS), 2002/96/EC, 2000/53/EC and 2000/11/EC.
Properties similar to PMMA/PC.
Very high UV stability.

Average physical properties of the components

	PRC 120 P SD123000	PRC 120 I SD000031	PRC 120 SD123031
Aspect – Colour	Liquid transparent Colourless	Liquid transparent Colourless	Liquid transparent Colourless
Brookfield Viscosity LVT (mPa.s) According to MO-051	**500**	**550**	**535**
Density at 25°C According to MO-032	**1,03**	**1,05**	**1,04**

Process data

Mixing ratio by weight	**100**	**102**	
Mixing ratio by volume	**100**	**100**	
Pot life on 100g at 25°C (min.) According to MO-062			**20**

Average mechanical and thermal properties of the polymer

		Test Method	
Hardness Shore D0 after 24h at RT		ISO 868 - 2003	**30**
Hardness Shore D1 after 24h at RT		ISO 868 - 2003	**25**
Hardness Shore D15 after 4 weeks at RT		ISO 868- 2003	**25**
Elongation at break (1)	(%)	ISO 527 : 1993	**170**
Maximal tensile strength(1)	(MPa)	ISO 527 : 1993	**5**
Refraction index at 20°C		ISO 489 : 1999	**1,50**
Hazen coloration on 50mm thickness		ISO 2211 : 1973	**< 20**
Tear resistance	($kN.m^{-1}$)	ISO 34 : 2004	**10**
Accelerated Weatherability QUV-B Test ΔE after 1000 hours (2)			**< 4**

(1)Average values measured after post curing: 2 h at 70°C + 48 h at RT
(2)Average values measured on stabilised specimens after post curing: 2 h at 70°C + 1 week at RT.

This document can not be, in any case, used as specification data sheet .The values mentioned on this document are based on tests and researches carried on in our laboratories in precise conditions.
It's the responsibility of the user to check the convenience of the product in his own conditions defined and tried by himself. The Synthene Company disclaims all responsibility for any consequence occurred by the use of this product.

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Safety for using

Better wear safety clothes and accessories (gloves and glasses)
For more information, read the medical and safety data sheet of the product.

Instructions for use

In order to get the best result, it could be better to work with moulds in polyaddition silicone preheated, depending on the size of the part. For simple shapes and/or big volumes, moulds can be made of thermoplastics like polypropylene or other types, which will allow a good release from the moulds of the polymerised parts.
In case of casting directly on the final support, the part can polymerise at room temperature.

Process with vacuum casting machine

Weigh the Isocyanate part in the upper cup (don't forget the residual product)
Weigh the Polyol part in the mixing cup
After 10 min of vacuum, pour the Isocyanate part in the mixing cup and mix until total clearness of the mixing.
Pour in the mould.
Put the mould in an oven at 70°C for approximately 1 h according to the thickness of the part.
If case of casting directly on the final support, the part can polymerise at room temperature.

Process with manual casting

Weigh the two parts in a clean mixing cup
Mix manually until total clearness of the mixing
Pour the mixing in a second clean cup without scraping the cliffs and bottom of the first cup (to prevent from non-mixing area), mix again with clean spatula.
Degas in a vacuum chamber.
Pour in the mould in one step
Put the mould in an oven at 70°C for approximately 1 h according to the thickness of the part.

Packaging

Parcel of: 2 kits (5, 0 + 5, 0) kg

Storage

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

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