

prototyping resin

PR 700

Black polyurethane resin dedicated to the production of prototypes and/or limited series.

Process in vacuum casting machines with silicone moulds.

Its properties allow the realisation of functional pieces.

APPLICATIONS :

Any need for technical parts requiring an outstanding heat resistance and/or mechanical properties, such as:

- Household appliances, electronics, toys
- Automotive industry: lid, heading block, electric wire holder, head light back piece
- Industrial parts with functions of holding, clamping or modelling under variable heat conditions

ADVANTAGES :

- **Mechanical characteristics** such as flexural modulus (2300 Mpa) or thermal resistance (Hdt 130°C) allow, after post curing, the realisation of **resistant parts**, even with **low thickness**
- **Low aggressivity** toward the moulds
- **Low shrinkage** (2mm/m)
- **Easy processing:** the relatively low viscosity of the mix combined with an **adjustable pot life** allow the realisation of thin parts that may require precise details



PR 700

Mercury free product, RoHS suitable.

References

Polyol : PR 700 P - ST 109 000
Isocyanate : PR 700/ PR 751/ PRA 794 I - SH 000 401

Definition

Polyurethane resin for vacuum casting.

High thermal resistance (HdT : 130 °C).

Easy to cast.

Low aggressivity on silicon moulds.

Good chemical resistance.

Average physical properties of the components

	PR700 Polyol ST 109000	PR700 Isocyanate SH 000401	PR 700 ST 109401
Aspect – Color	Black liquid	Transparent liquid colorless	Black liquid
Viscosity Brookfield LVT (mPa.s) According to MO-051	130	1200	600
Density at 25 °C According to MO-032	1.13	1.15	1.14

Process data

	PR700 Polyol ST 109000	PR700 Isocyanate SH 000401	Mixing ST 109401
Mixing ratio by weight	80	100	
Mixing ratio by volume	81,5	100	
Pot life 200g at 25 °C (min.) According to MO-062			6 - 7
Demoulding time at 70 °C (min.) According to MO-116			Approx. 45

Average mechanical and thermal properties of the solid piece

	Test methode	
Hardness Shore D1 (1)	ISO 868-2003	87
Transition glass (Tg) (1) (°C)	DSC Perkin Elmer	> 130
Heat deflection temperature (HdT) (1) (°C)	ISO 75 Ae:2001	130
Flexural modulus (1) (MPa)	ISO 178 : 2001	2300
Maximal flexural strength (1) (MPa)	ISO 178 : 2001	80
Tensile modulus of elasticity (1) (MPa)	ISO 527 : 1993	1800
Elongation at break (1) (%)	ISO 527 : 1993	13
Tensile strength (1) (MPa)	ISO 527 : 1993	60
Charpy impact (without slight cut) (1) (KJ.m ⁻²)	ISO 179/1D : 1994	60
Linear shrinkage (3 mm thickness) (mm/m)	-	2

(1) All results are obtained after curing 1 h at 70 °C + 1 h at 100 °C + 2 h at 120 °C + 24 h 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.

Process with vacuum casting machine :

Pre-heat polyaddition silicone moulds at 70°C.

Weigh isocyanate part in the upper cup (don't forget the residual product).

Weigh polyol part in the mixing cup (stir well the polyol part before use).

After 10 min of vacuum, pour isocyanate part in polyol part and mix to reach total and perfect homogeneity (approx 50 to 60 sec.)

Pour in the silicone mould.

Put the mould in an oven at 70°C.

Demoulding is possible after 50 mn according to thickness, then post curing is necessary to reach maximal characteristics.

Packaging :

Parcel of 2 kits of (4,0 + 5,0) kg

Storage : 18 months in original and unopened cans stored between 15 and 25 °C.

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