

# PRC1810

## References

**Polyol** : PRC 1710 P - SL 120000  
**Isocyanate** : PRC 1810 I - SL 000221

## Definition

Clear transparent polyurethane resin for vacuum casting.

Mercury free product in accordance with the European Directives: 2002/96/EC, 2000/53/EC, 2000/11/EC, 2011/65/UE and 2017/2102/UE (RoHS)

Suitable for optical prototyping parts simulating PMMA or PC. Very high UV stability.

Easy to polish and to colour. Limited aggressiveness to silicon moulds

## Average physical properties of the components

	<b>PRC 1710 P SL 120 000</b>	<b>PRC1810 I SL 000 221</b>	<b>PRC 1810</b>
Aspect – Color	Liquid transparent Colorless	Liquid transparent Colorless	Liquid transparent Colorless
Brookfield Viscosity LVT (mPa.s) According to MO-051	<b>450</b>	<b>450</b>	<b>450</b>
Density at 25°C According to MO-032	<b>1.08</b>	<b>1.10</b>	<b>1.10</b>

## Process data

	<b>PRC 1710 P SL 120 000</b>	<b>PRC1810 I SL 000 221</b>	<b>Mix PRC 1810</b>
Mixing ratio in weight	<b>56</b>	<b>100</b>	
Mixing time at 25°C (sec.)			<b>120</b>
Pot-life on 160g at 25°C (min.) Test method MO-062			<b>9</b>
Demoulding time at 70°C (min.) Test method MO-116			<b>120</b>

## Average mechanical and thermal properties of the polymer

*Average values measured on specimens after post curing 2 h at 70°C + 16 h at 100°C+ 24 h at RT*

	<b>Test method</b>	
Hardness / Shore D1	<b>ISO 868</b>	<b>85</b>
Glass transition temperature (1) (°C)	<b>ISO 6721-10 : 2015</b>	<b>91</b>
Heat Deflection Temperature (1) (°C)	<b>ISO 75-2 : 2013</b>	<b>84</b>
Flexural modulus of elasticity (1) (MPa)	<b>ISO 178 : 2011</b>	<b>2200</b>
Maximal flexural strength (1) (MPa)	<b>ISO 178 : 2011</b>	<b>88</b>
Tensile modulus of elasticity (1) (MPa)	<b>ISO 527-1 : 2012</b>	<b>2350</b>
Elongation at maximal tensile strength (1) (%)	<b>ISO 527-1 : 2012</b>	<b>6,5</b>
Maximal tensile strength (1) (MPa)	<b>ISO 527-1 : 2012</b>	<b>65</b>
Charpy Impact Strength (1) (kJ.m <sup>2</sup> )	<b>ISO 179-1/1eU<sup>b</sup>: 2010</b>	<b>84</b>
Hazen Coloration - 50 mm in thickness	<b>ISO2211 : 1973</b>	<b>&lt; 30</b>
Refractive index at 20°C	<b>ISO 489 : 1999</b>	<b>1,51</b>
QUV- B Accelerated ageing. ΔE after 1000 hours		<b>&lt; 3</b>

*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.*

**Safety for using :**

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

**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  
After 10 min of vacuum, pour the isocyanate part in mixing cup and mix until total clearness of the mixing (at least 2 min for a process at 25°C)  
Pour in the silicone mould  
Put the mould in an oven at 70°C for approximately 120 min according to the thickness of the part.  
Cold the mould with air pressure before to pull the part.  
Whenever twist occurs, replace the part in an oven at 70°C to return to the original shape.  
Then post curing is necessary to reach maximal characteristics.

**Process with manual casting :**

Pre-heat polyaddition silicone moulds at 70°C  
Weigh the two parts in a clean mixing cup  
Mix manually until total clearness of the mixing (at least 1 min 30 sec. for a process at 25°C)  
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 120 min according to the thickness of the part.  
Cold the mould with air pressure before to pull the part.  
Whenever twist occurs, replace the part in an oven at 70°C to return to the original shape.  
Then post curing is necessary to reach maximal characteristics.

**PACKAGING :**

Parcel of :      6 x (0,6 + 1,07) kg  
                      2 x (3.0 + 5.4) kg

If any other packaging needed, please contact us.

**STORAGE :**    12 months in original unopened containers and stored between 15 and 25 °C.