

# RAPID PROTOTYPING RESINS



INNOVATION AND QUALITY IN VACUUM CASTING





# PR7 SERIES

Reference	PR740	PR777	PR 700	PR752
Hardness	70 Shore D	75 Shore D	87 Shore D	87 Shore D
Countertype of <sup>1</sup>	HDPE/PP	rigid HDPE/PP	ABS	ABS/PEEK
Colour of the cured material	amber	milky/white	black	amber
Fire rated type			UL 94 HB	
Heat deflection Temperature (C°), ISO 75 Ae <sup>2</sup>	96	110	130	150
Flexural modulus (Mpa) ISO 178	590	930	2300	2200
Maximal flexural strength (MPa) ISO 178	24.8	36	80	95
Tensile modulus (MPa) ISO 527	650	1000	1800	2000
Maximum tensile stress (MPa) ISO 527	>20	32		
Tensile strength at break (MPa) ISO 527		31.6	60	75
Elongation at break (%) ISO 527	>50	35	13	5
Impact resistance (kJ.m <sup>-2</sup> )	21	91	60	11.4
Density (g/cm <sup>3</sup> )	1.11	1.13	1.14	1.16
Mixing ratio (Weight/P:Iso)	120 : 100	100 : 100	80:100	60 : 100
Mix viscosity at 25°C (mPa.s)	955	715	600	975
Pot life (25°C/min)	7'30	10	7	6 – 8
Demoulding time (70°C/min)	40	45	45-60	50
App. maximal wallthickness (mm)				
Mold life/nb of castings in Silicone <sup>3</sup>	30-50	30-50	30-60	
Standard Packaging/ Kg	13.2	20	18	16
Alternative Packaging on request/ Kg	2 parcels of 20 kg each	12	10,8	
Shelf life in months/ minimum <sup>4</sup>	18	18	18	18
Comments	For the prototyping of rigid and semi-rigid parts Colourable.	Very strong material, colourable, intermediary rigidity Long mould life	Best-seller Very good Allround-Properties Extremely long mould life	Very high thermal and mechanical properties, Colorable



The exact data are available in our TDS. The thermal and mechanical properties have been tested under specific conditions of curing and post-curing.



# PR2000 / PR2900

Reference	PR2000	PR2900
Hardness	80 Shore D	86 Shore D
Countertype of <sup>1</sup>	ABS	PA / PC
Colour of the cured material	milky/white	amber
Heat deflection Temperature (C°), ISO 75 Ae <sup>2</sup>	113	92
Flexural modulus (Mpa) ISO 178	2000	2900
Maximal flexural strength (MPa) ISO 178	80	119
Tensile modulus (MPa) ISO 527	1850	2900
Maximum tensile stress (MPa) ISO 527	57	78
Tensile strength at break (MPa) ISO 527	56	78
Elongation at break (%) ISO 527	5	7
Impact resistance (kJ.m <sup>-2</sup> )	30	70
Density (g/cm <sup>3</sup> )	1.13	1.17
Mixing ratio (Weight/P:Iso)	50 : 100	50 : 100
Mix viscosity at 25°C (mPa.s)	350	400
Pot life (25°C/min)	6	6'30
Demoulding time (70°C/min)	45	45
Mold life/nb of castings in Silicone <sup>3</sup>	20	15-20
Standard Packaging/ Kg	12	12
Alternative Packaging on request/ Kg	15	15
Shelf life in months/ minimum <sup>4</sup>	12	12
Comments	ABS like all-round Material, Good mechanical properties Colourable	Very rigid material, high modulus





# Flame retardant products

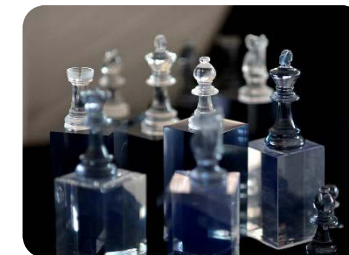
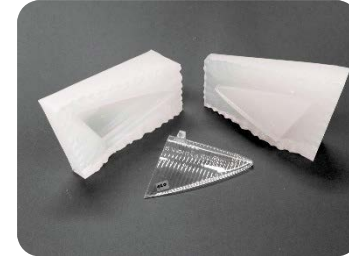
Reference	PRA794	PRA730
Hardness	80 Shore D	81 Shore D
Countertype of <sup>1</sup>	ABS	ABS
Colour of the cured material	dark brown / black	dark grey
Heat deflection Temperature (C°), ISO 75 Ae <sup>2</sup>	130	130
Flexural modulus (Mpa) ISO 178	1500	2100
Maximal flexural strength (MPa) ISO 178	65	63
Tensile strength (MPa) ISO 527	60	41
Elongation at break (%) ISO 527	5	4
Impact resistance (kJ.m <sup>-2</sup> )	20	16
Self extinguishing properties	UL94 5 V (4mm)	FAR 25 (2mm)
Density (g/cm <sup>3</sup> )	1.16	1.20
Mixing ratio (Weight/P:Iso)	80 : 100	100 : 72
Mix viscosity at 25°C (mPa.s)	1100	2500
Pot life (25°C/min)	7 – 8	8
Demoulding time (70°C/min)	45	45
Mold life/nb of castings in Silicone <sup>3</sup>	30-50	30+
Standard Packaging/ Kg	18	16
Shelf life in months/ minimum <sup>4</sup>	18	12
Comments	Flame retardant according to UL94 5V, excellent flame retardancy, long mould life	Flame retardant according to FAR 25





# Transparent range

Reference	PRC1710	PRC1719	Cristal HRI 120	PRC120
Hardness	87 Shore D	87 Shore D	87 Shore D	25 Shore D
Countertype of <sup>1</sup>	ABS / PC / PMMA	PC / PMMA	PC / PMMA	PC / PMMA
Colour of the cured material	transparent	transparent	transparent	transparent
Heat deflection Temperature (C°), ISO 75 Ae <sup>2</sup>	93	93	80	not applicable
Flexural modulus (Mpa) ISO 178	2200	2200	2200	not applicable
Maximal flexural strength (MPa) ISO 178	84	84	87	not applicable
Tensile modulus (MPa) ISO 527	2900	2400	2000	not applicable
Maximum tensile stress (MPa) ISO 527	65	65	67	5
Elongation at break (%) ISO 527	>15	>15	8.7	170
Impact resistance (kJ.m <sup>-2</sup> )	48	48	87	
Refractive index	1.51	1.51	1.549	1.5
Hazen coloration on 50mm ISO 2211	<30	<30	<30	<20
Density (g/cm <sup>3</sup> )	1.10	1.10	1.18	1.04
Mixing ratio (Weight/P:Iso)	60 : 100	60 : 100	75 : 100	100 : 100
Mix viscosity at 25°C (mPa.s)	400	400	550	535
Pot life (25°C/min)	9	19	120	20
Demoulding time (70°C/min)	80	150	120	60
App. maximal wallthickness (mm)	6	12	50	5
Mold life/nb of castings in Silicone <sup>3</sup>	20+	20+	20+	20+
Standard Packaging/ Kg	16	16	10,5	12
Alternative Packaging on request/ Kg	9.6	9,6	17,5	20
Shelf life in months/ minimum <sup>4</sup>	9	9	12	6
Comments	High transparency, UV-stable Colourable, high HdT Good mechanical properties	High transparency, UV-stable Colourable, high HdT Good mechanical properties	Very high optical properties Very high refractive index (1.549) Long potlife	Flexible transparent UV-stable



The exact data are available in our TDS. The thermal and mechanical properties have been tested under specific conditions of curing and post-curing.



# PU Elastomer range : HPE System

Reference XS17013 HARDNESS	40 A	50 A	60 A	70 A	85 A	90 A 35-40 D	50-55 D
Countertype of <sup>1</sup>	rubber	rubber	rubber	rubber	rubber	rubber	rubber
Colour of the cured material	amber	amber	amber	amber	amber	amber	amber

Mixing ratio

Soft polyol (XSA17010-1)	(g)	100	75	50	25		
Hard polyol (XSA16004-1)	(g)		8	16	24	32	40
Soft iso (XSB16004-1)	(g)	100	100	100	100	100	50
Hard iso (XSB17011-1)	(g)						50
							100

Elongation at break (%) ISO 527	270	400	500	800	900	820	750
Tensile strength at break at 23°C (MPa) ISO 37	2.7	3.6	6	7.2	13	14	15
Tear resistance at 23°C (Kn.M <sup>-1</sup> ) ISO 34	11.5	18	27	40	54	64	74

Mix viscosity at 25°C (mPa.s)	2000	2400	2700	3000	3200	2500	1600
Pot life (25°C/min)	60	55	50	45	40	15	8
Demoulding time (25°C) (h)	24	24	24	24	24	12	8
Demoulding time (70°C) (h)	3	3	3	3	3	2	2
App. maximal wallthickness (mm)	100	80	80	60	50	30	20



The exact data are available in our TDS. The thermal and mechanical properties have been tested under specific conditions of curing and post-curing.

# ABOUT SYNTHENE

The innovative chemical company, located in France, was founded in 1958. SYNTHENE provides specific formulation and high quality industrial solutions. SYNTHENE places a particular emphasis on offering high-performance products, with cautiously selected raw materials from trustworthy manufacturers. All SYNTHENE Prototyping resins meet the current requirements of REACH and SVHC.



1 Countertype of plastic once the resin is cured

2 After heat treatment

3 Silicone mould life : according to our experience, the mould geometry, surface, demoulding time, kind of silicone etc

4 For unopened jerricans or bottles

# RAPID PROTOTYPING RANGE

SYNTHENE offers you a complete range of rapid prototyping resins. This goes from classic **'all-round use' ABS-like** materials, **UV-stable water-clear resins** to any hardness of **elastomers**.

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