

VACUUM CASTING SYSTEMS

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UPX 8400-1:

- 3 components to cover all A shore range
- Low viscosity
- Easy to tint

PX 212:

- Filled PP similarity
- Perfectly suitable for automotive parts
- High impact resistance
- Two reactivity available



Front light lens made by PX 5212

PX 226:

- Filled ABS or Nylon similarity
- Household appliances; electrical components production
- Excellent ratio pot life/demoulding time
- Two reactivity available

PX 245:

- Stiffer product on the market
- Filled polyamide similarity
- High rigidity parts like electronic devices casings



Pigmented stiff housing part



Vacuum casting process provides parts with best visual appearance and highest mechanical properties

SOFT TO SEMI-RIGID SYSTEMS

Component	ISOCYANATE	A	PX 761	UPX 8400-1	PX 205	PX 212 / 225	PX 1000 / 215
Component	POLYOL	B	PX 761	UPX 8400-1	PX 205	PX 212	PX 1000
Component	EXTENDER	C	-	UPX 8400-1	-	-	-
Mixing ratio	[g]	A	100	100	100	100	100
		B	45	100	50	100	100
		C	-	0 - 500	-	-	-
Colour			amber	off-white	amber to dark amber	translucent	off-white
Characteristics			fast demoulding; high reproduction accuracy; «moulded rubber» aspect; abrasion resistance; max. peak temperature: 100 °C	3 components for variable hardness; fixed mix ratio in between polyol & Isocyanate; easy to tint; low silicone moulds aggressiveness	very good impact resistance; quick hardening; thermoplastic aspect; easy processing	low viscosity for easy casting; excellent impact resistance; fast demoulding	low viscosity; long potlife; good mechanical properties; can be painted
Applications			soft technical parts under vacuum process	prototype and short series of soft parts to cover all A shore range. Fully compatible with ESSIL 291 silicone moulds	parts with high impact and abrasion resistance. Hinge effect	thermoplastic-like parts with a flexural modulus of elasticity close to filled PP	cast by hand or vacuum machine to achieve ABS type large parts
Processing data (approx. values)							
Mixed viscosity	[mPas]		1,500	-	1,600	800	100
Potlife	[min]		8 - 12	13 - 15	12 - 15	4 - 6	15 - 20
Demoulding time	[min]		60 - 90	120	60	60 - 75	240
Physical Data (approx. values)							
Density	[g/cm³]		1.02	1.14	1.08	1.15	1.06
Shore hardness			A 63	A 95	D 70	D 76	D 78
E-Modulus	[MPa]		-	-	500	1,200	1,700
Tensile strength	[MPa]		-	19.6	25	40	38
Flexural strength	[MPa]		-	-	30	80	67
Elongation at break	[%]		1,000	660	100	25	4
Impact strength	[kJ/m²]		-	-	Unbreakable	> 50	25
HDT	[°C]		-	-	55	78	-
T _c	[°C]		-	-	90 - 100	90	75

TOUGH-HARD TO STIFF SYSTEMS

Component	ISOCYANATE	A	PX 221	PX 212 / 225	PX 226	Biresin® VG280	PX 245
Component	POLYOL	B	PX 221	PX 225 OP	PX 226 - PX 245	PX 226L - PX 245L	Biresin® G55
Mixing ratio	[g]	A	100	100	100		100
		B	45	80	50		80
Colour			off-white	opalescent	white		yellowish-translucent
Characteristics			high reproduction accuracy; can be easily pigmented with colouring CP; high impact resistance	good impact and flexural resistance; very easy coloring with all kind of pigments (non water based) like AXSON CP range	good impact and flexural resistance; Available in two reactivity; High thermal resistance; Can be easily coloured with CP pigments		very stiff, high flexural strength, impact resist., simulates ABS, PVC
Applications			prototype parts and mock-ups with mechanical properties similar to thermoplastics such as HIPS	thermoplastic-like parts with a flexural modulus of elasticity close to 2,500 MPa (ex: polycarbonate, ABS).	prototype parts and mock-ups with mechanical properties similar to thermoplastics like filled ABS		very stiff housings with high strength and impact resistance
Processing data (approx. values)							
Mixed viscosity	[mPas]		350	600	2,000		600
Potlife	[min]		7	4 - 5	4	7.5	4
Demoulding time	[min]		30 - 40	45	25	60	60 - 90
Physical Data (approx. values)							
Density	[g/cm³]		1.20	1.20	1.20		1.1
Shore hardness			D 81	D 85	D 82		D 84
E-Modulus	[MPa]		2,100	2,500	2,500		2,800
Tensile strength	[MPa]		60	70	70		75
Flexural strength	[MPa]		105	110	105		120
Elongation at break	[%]		7.5	9	15		7
Impact strength	[kJ/m²]		71	50	70		> 100
HDT	[°C]		-	-	92		80
T _c	[°C]		95	100	105		-

SILICONES

PX 5213:

- New transparent casting resin
- All parts with optical properties
- UV and weather resistant
- Casting up to 100 mm

PX 223 HT:

- Leader on the market
- Low aggressiveness on silicone moulds
- Temperature and thermal resistance



Jewelry articles made of transparently pigmented PX 5213

ESSIL 291:

- Compatibility with PUR casting resins
- High surface quality even for clear parts
- Dimensional stability in use
- Exists with self bleeding version for longer ageing



Art & Deco cats in PX

Elastic mould made of addition curing silicone Essil 291 for optical parts

TRANSPARENT OR SPECIFIC USE SYSTEMS

Component	ISOCYANATE	A	PX 5210		PX 223 HT	PX 234 HT	PX 280	PX 331
Component	POLYOL	B	PX 5212	PX 5213	PX 223 HT	PX 234 HT	PX 280	PX 331
Mixing ratio	[g]	A	100	100	100	100	100	100
		B	50	62	80	50	80	100
Colour			transparent	transparent	black	light amber	off-white	off-white
Characteristics			high transparency (water clear); easy polishing; high reproduction accuracy; good U.V. resistance; easy processing; high stability under temperature		low viscosity for easy casting; good impact and flexural resistance; temperature resistance above 120 °C	good thermal resistance up to 190 °C; low viscosity; fast demoulding; good impact resistance; two pot lifes available; colourable	compliance with directive 2002/72/CE; compliance with directive 2007/19/CE regarding food contact; compliance with FDA 21 CFR 177.2600 regulation for repeated use; good mechanical properties	fast demoulding; good thermal properties; self-extinguishing FAR 25 certified, UL 94 V0 in 3 mm according NF EN 60695-11-10; ; can be easily coloured with CP pigments
Applications			transparent parts until a 10 mm thickness: crystal glass like parts, fashion, jewellery, art and decoration parts, lenses for lights	transparent parts until 100 mm thickness: crystal glass like parts, art and decoration parts	universal system to match ABS type thermoplastic when temperature resistance is required. Good chemical resistance.	all parts with very good thermal resistance such as: PA6.6, PPS, PEEK	could be cast by hand, 2K or vacuum machine to achieve ABS type parts. Could be used for parts in contact with aqueous, acid and greasy foods None homologated for liquid contact	all parts in general industry or aeronautic when requiring a fire classification
Processing data (approx. values)								
Mixed viscosity	[mPas]		500	500	850	250	450	700
Potlife	[min]		8	20	6 - 7	5	8	20
Demoulding time	[min]		60	45	45 - 75	60	90	120
Physical Data (approx. values)								
Density	[g/cm³]		1.06	1.06	1.14	1.19	1.19	1.35
Shore hardness			D 85	D 86	D 80	D 80	D 85	D 86
E-Modulus	[MPa]		2,400	2,100	2,300	1,850	2,800	3,700
Tensile strength	[MPa]		66	68	60	61	75	55
Flexural strength	[MPa]		110	100	80	80	117	133
Elongation at break	[%]		7.5	6	11	13	5	4
Impact strength	[kJ/m²]		48	42	> 60	41	25	26
HDT	[°C]		80	85	110	190 - 195	-	90
T _c	[°C]		95	100	> 120	220	80	100

SILICONES

Resin	A	ESSIL 291		ESSIL 125		ESSIL 222
Catalyst	B	ESSIL 291	ESSIL 292	ESSIL 125	ESSIL 124	ESSIL 222
Mixing ratio	[g]	100		100		100
		10		5		100
Colour		transparent		white		light blue
Characteristics		high transparency; good chemical resistance towards polyurethanes; vulcanized by polyaddition; very easy to mix and to cast; very low shrinkage when hardening at room temperature; dry surface	self bleeding silicone. Improve moulds ageing; oily surface for better releasing and demoulding	vulcanized by polycondensation; high tear strength; available in slow and fast versions; high value for elongation at break; temperature resistance; thixotropic additive (ESSIL 126 THIXO)		vulcanized by polyaddition; very good temperature resistance; high tear strength; very low viscosity; quick setting time
Applications		soft negatives, flexible moulds for the prototype industry. ESSIL 291 silicone is particularly suitable for casting resins (PX range) in a vacuum casting machine. Essil 292 Catalyst is advised to increase the number of parts in a same mould		achievement of soft negatives by casting process and soft skin moulds dedicated to detailed shapes with undercuts; prototyping applications or small-scale serial production for Art & Deco parts		flexible moulds for prototypes industry (gravity casting or under vacuum); self-demoulding moulds for decorative concrete parts
Processing data (approx. values)						
Mixed viscosity	[mPas]	40,000	38,000	-	-	4,000
Potlife	[min]		60	80	40	10
Demoulding time	[h]		16	24	12	1
Physical Data (approx. values)						
Density	[g/cm³]		-	1	1	1.13
Shore hardness	(A)		38	24	25	A22
Tear strength	[N/mm]		24	17	19	20
Elongation at break	[%]		350	-	550	380