



BUILDING TRUST



SikaBiresin® PX 224

Technical Data Sheet POLYURETHANE CASTING SYSTEM HIGH IMPACT STRENGTH

DESCRIPTION

Polyurethane Casting system for vacuum or hand casting used to make high impact strength prototype parts. Flexural modulus 265,000 psi (1,825 Mpa) when *cure #1 is used and 333,000 psi (2,298 Mpa) when **cure #2 is used. Extremely tough and impact resistant with exceptional hardness and a base that readily accepts color for a range of pigments and thus cured colors.

PROPERTIES

- High Impact Strength
- High Hardness
- Easy Processing
- Pigmentable
- TG in excess of 200°F
- Mercury Free

PHYSICAL PROPERTIES

		SikaBiresin® PX 224	SikaBiresin® PX 224	
		Part A Iso	Part B Polyol	Mixed
Composition				
Mixing Ratio by weight		100	50	
Aspect		liquid	liquid	liquid
Color	Visual	Light Amber	Colorless	White
Viscosity at 25°C (cps)	Brookfield LVT	150-300	600-800	200 – 500*
Specific gravity at 25°C *Cured product (mixed)	lbs./gal	9.9 – 10.3	9.1-9.5	9.6 - 10.0*
Pot life at 25°C on 150 g	minutes			6-9

*Calculated value

PROCESSING CONDITIONS (Biresin PX 224 can be used manually or in a vacuum casting machine.):

Mixing is not instantly miscible. Mix mixture for 1-2 minutes prior to pouring into mold. Note that at room temperature the part will cure translucent instead of an opaque white and as a result the properties will differ from those stated in the tables below. A minimum processing temperature is recommended. Cast in preheated molds at 110°F -140°F and allow a dwell for 1 hour, then increase to 150-160°F and dwell for 2.5 hours. The ability to post cure unsupported is a function of thickness and geometric complexity as well as pre-cure temperature and duration. It is considered best practice to evaluate the option for an unsupported post cure on an actual piece processed in the anticipated cast program.



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MECHANICAL AND THERMAL PROPERTIES */**

	Test Method	Unit(s)	Test Result(s)***
Hardness - *Cure #1 **Cure #2	ASTM D-2240	Shore D	83 83
Tg (TMA) - *Cure #1 **Cure #2	ASTM E 1545	°F (°C)	174 (79) 201 (94)
CTE (+10°C – 60°C range) *Cure #1 **Cure #2	ASTM E 1545	ppm °F (°C)	35 (64) 34 (61)
Tensile strength - *Cure #1 **Cure #2	ASTM D-638	psi (MPa)	8,400 (58) 11,100 (77)
Tensile Modulus - *Cure #1 **Cure #2	ASTM D-638	psi (MPa)	182,200 (1,257) 193,800 (1,337)
Elongation - *Cure #1 **Cure #2	ASTM D-638	%	7.5 8.8
Flexural strength - *Cure #1 **Cure #2	ASTM D-790	psi (MPa)	10,800 (75) 14,500 (100)
Flexural modulus - *Cure #1 **Cure #2	ASTM D-790	psi (MPa)	265,100 (1,829) 333,300 (2,300)
Compressive strength - *Cure #1 **Cure #2	ASTM D-695	psi (MPa)	13,700 (95) 15,200 (105)
Compressive modulus - *Cure #1 **Cure #2	ASTM D-695	psi (MPa)	306,500 (2,115) 303,800 (2,096)
Impact strength notched - *Cure #1 **Cure #2	ASTM D 256-05	Ft.- lb/in ² (KJ/m ²)	4.0 (8.4) 4.1 (8.6)
Shrinkage – Linear (1/2" x 1" x 10") steel shrinkage mold	ASTM D-2566	in/in %	.006 .6

*Cure #1 - 2.5 hrs/150°F-160°F (65-71°C) after one hour dwell in a 110°F-140°F (44°C-60°C) preheated mold

**Cure #2 - Cure#1 + 16hrs/180°F (82°C). Ramp rate 86°F/hr.

***NOTE: Samples were conditioned 7 days @ R.T. after these cures for testing.

STORAGE CONDITIONS

Product shelf life is 6 months for the isocyanate part A and 12 months for the polyol part B when stored in original unopened containers between 59 – 77°F (15 – 25°C). Any opened product must be tightly sealed under an inert/dry environment such as nitrogen or argon.

HANDLING PRECAUTIONS

Normal health and safety precautions should be observed when handling these products:

- Ensure good ventilation
- Wear gloves, and safety glasses.

For further information, please consult the material safety data sheet.

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