



BUILDING TRUST

**PX 523****Technical Data Sheet
POLYURETHANE CASTING SYSTEM
FOR TRANSPARENT PROTOTYPES****DESCRIPTION**

Polyurethane Casting system for use into silicone molds for transparent prototype parts up to a 4 inch (101 mm) thickness. Flexural modulus 321,000 psi (2,215 Mpa). Crystal clear glass-like parts for models, fashion, jewelry, stained glass repair, art and decoration parts.

PROPERTIES

- High transparency (water clear)
- Easy to polish
- High reproduction accuracy
- Easy processing
- Good UV Resistance
- Mercury free

PHYSICAL PROPERTIES

| | | PX 5210 | PX 523 | |
|--|-----------------|--------------------------|------------------------|-------------|
| Composition | | Part A Isocyanate | Part B Polyol | Mixed |
| Mixing Ratio by weight | | 100 | 56 | |
| Aspect | | liquid | liquid | liquid |
| Color | | Colorless to Light Amber | Transparent Light Blue | Clear |
| Viscosity at 25°C (cps) | Brookfield LVT | 150-250 | 1000-1200 | 400-600 |
| Specific gravity at 25°C *Cured product (mixed) | lbs./gal (g/cc) | 8.9 (1.07) | 8.9 (1.07) | *8.8 (1.06) |
| Pot life at 25°C on 156 g | minutes | | | 15-20 |

PROCESSING CONDITIONS (PX 5210/PX 523 can be used manually or in a vacuum casting machine.):

| Both Part A and Part B need to be between 68°F – 77°F (20°C – 25°C) for best results | |
|--|---|
| Manual Processing | Vacuum Chamber Processing |
| Up to 4 inches (101 mm) thick | Up to 4 inches (101 mm) thick |
| Silicone mold at 158°F (70°C) | Silicone mold at 158°F (70°C) |
| Mix manually for 3 minutes | Weigh part A in the upper cup (allow a little extra for cup retention) and weigh part B in the lower cup (mixing cup). |
| Degas under vacuum (29 inches Hg (737 mm Hg) or greater recommended) for 5 to 10 minutes maximum. | Degas under vacuum (29 inches Hg (737 mm Hg) or greater recommended) for 10 minutes and pour part A into part B and mix for 2 to 3 minutes . |
| Pour into preheated mold, do not put into vacuum. May be placed in pressure pot prior to oven cycle. | When the mold is filled as indicated by flow from the vents if a closed mold, release vacuum. May be placed in pressure pot prior to oven cycle. |
| <ul style="list-style-type: none"> • After casting into 158°F (70°C) mold, place into an oven at 158°F (70°C) for these recommended minimum times prior to demolding: <ul style="list-style-type: none"> • 3 hours for up to 0.08 inches (2 mm) thickness. • 2 hours for 0.08 - 0.5 inches (2 mm - 12 mm) thickness. • 1 hour for 0.5 – 4 inches (12mm – 101 mm) thickness. | |
| After a full post-cure to prevent any yellowing of the cast part, do not exceed the following cure times/temperatures: 48h at 176°F (80°C) or 12h at 194°F (90°C) or 6h at 212°F (100°C). | |

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FOR TRANSPARENT PROTOTYPES**

| MECHANICAL AND THERMAL PROPERTIES | | | |
|--|----------------|--|------------------|
| | Test Method | Unit(s) | Test Result(s) * |
| Hardness | ASTM D-2240 | Shore D | 85 |
| Tg | ASTM E 1545-00 | °F (°C) | 237 (114) |
| CTE (10°C – 80°C range) | ASTM E 1545-00 | ppm °F (°C) | 44 (80) |
| Tensile strength | ASTM D-638 | psi (MPa) | 10,200 (70.4) |
| Tensile Modulus | ASTM D-638 | psi (MPa) | 166,000 (1,145) |
| Elongation | ASTM D-638 | % | 12.9 |
| Flexural strength | ASTM D-790 | psi (MPa) | 15,000 (104) |
| Flexural modulus | ASTM D-790 | psi (MPa) | 321,000 (2,215) |
| Compressive strength | ASTM D-695 | psi (MPa) | 12,800 (88) |
| Compressive modulus | ASTM D-695 | psi (MPa) | 164,000 (1132) |
| Impact strength notched | ASTM D 256-05 | Ft.- lb/in ² (KJ/m ²) | 0.93 (1.95) |
| Impact strength unnotched | ASTM D 256-05 | Ft.- lb/in ² (KJ/m ²) | >7.3** >(15.3) |

*Recommended post cure: 4 hrs/60°C + 16 hrs/100°C (ramp rate 30°C/hr)

** Sample did not break

STORAGE CONDITIONS

- Product shelf life is 12 months when stored in original unopened containers between 59 – 77°F (15 – 25°C). Any opened can must be tightly closed. 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.

DISCLAIMER

The information contained in this technical data sheet results from research and tests conducted in our laboratories under precise conditions. Seller cannot anticipate all conditions under which seller's products, or the products of other manufacturers in combination with seller's products, may be used. It is the responsibility of the user to determine the suitability of the SikaAxson's products, under their own conditions, before commencing with the proposed application. In no event shall SikaAxson US be liable for any direct, indirect, punitive, incidental, special, and/or consequential damages, to property or life, whatsoever arising out of or connected with the use or misuse of our products.

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