

Advanced Materials**RenPim[®] 6451 Resin / Hardener System**

PARTS IN MINUTES[®] POLYURETHANE
75 SECOND SET / RAPID DEMOLD POLYURETHANE PROTOTYPE SYSTEM
FORM MACHINE DISPENSING

DESCRIPTION :

RenPim[®] 6451 Resin/Hardener System sets in 75 seconds for fast casting and demolding of large prototype parts using automated dispensing equipment. Prototype parts made from RP 6451 Resin/Hardener System exhibit high performance, thermoplastic-like characteristics including high impact strength and excellent dimensional stability. Parts manufactured from the RP 6451 Resin/Hardener System can withstand operating temperatures up to 240 °F (115 °C). This unique polyurethane system permits large prototype parts (16-20 lbs) to be demolded in as little as 15 minutes when used in conjunction with meter mix dispensing equipment.

APPLICATIONS :

Rapid production of large thermoplastic-like parts for prototyping and limited end-part production. Excellent for use in automotive prototyping applications.

MIXING INSTRUCTIONS :

Reaction Ratio 80 Resin to 100 Hardener by weight
 67 Resin to 100 Hardener by volume

This highly reactive system is best suited for use employing a meter mix dispensing system or suitable cartridges/static mixer system. Your technical sales representative is available to discuss the requirements for dispensing this material.

Simple silicone, polyurethane or epoxy molds can be used for molding the RP 6450 system. Mold design and construction should be for pressure-free casting.

TYPICAL MIXED PROPERTIES :

Tested @ 77 °F (25 °C) unless otherwise noted

| Property | Criteria | ASTM Test Method | Test Value |
|------------------|----------|------------------|------------------|
| Gel time (150 g) | | D-2471 | 65 to 85 seconds |
| Color | Resin | Visual | Dark Brown |
| | Hardener | | Cream |
| | Mixed | | Buff |
| Viscosity, cP | Resin | D-2393 | 170 cP |
| | Hardener | | 1,600 cP |
| Demold Time | | | 15 to 30 minutes |

TYPICAL CURED PROPERTIES :

| Property | ASTM Test Method | Test Values ¹ | Test Values ² |
|---|------------------|--------------------------|--------------------------|
| Density (g/cc) | D-792 | 1.15 | 1.15 |
| Izod Impact (ft ³ lb/in.) | D-256 | .54 | .62 |
| Hardness (Shore D) | D-2240 | 75 | 74 |
| Ultimate Compressive Strength (psi) | D-695 | 7,600 | 5,700 |
| Compressive Modulus (psi) | D-695 | 166,500 | 162,600 |
| Ultimate Flexural Strength (psi) | D-790 | 7,300 | > 6,400 ³ |
| Flexural Modulus (psi) | D-790 | 174,500 | 146,500 |
| Ultimate Tensile Strength (psi) | D-638 | 4,200 | 4,000 |
| Tensile Modulus (psi) | D-638 | 170,000 | 162,000 |
| % Elongation | D-638 | 4.2 | 3.4 |
| Tg per DMA °F (°C) | D-4065 | 322 (161) | 315 (158) |
| Deflection Temperature °F (°C) | D-648 | | |
| | | 66 psi | 268 (131) |
| | | 224 (106) | 219 (104) |
| Coefficient of Thermal Expansion (in/in/°F) -30 to +30 °C | D-3386 | 7.17 x 10 ⁻⁵ | 6.83 x 10 ⁻⁵ |

Note Typical Properties : These physical properties are reported as typical test values obtained by our test laboratory. If assistance is needed in establishing product specifications, please consult with our Quality Control Department.

CURING INSTRUCTIONS :

Parts can be cured unsupported at room temperature. This system requires a post-cure for development of maximum physical properties. After demolding at room temperature, the parts should be post-cured and supported for 14 hours at 176 °F (80 °C).

¹ Cure Schedule – 7 days @ RT

² Cure Schedule – 24 hours @ RT. Plus 14 hours @ 176 °F (80 °C)

³ Samples did not break

HANDLING :**RP 6451 Resin and Hardener**

This product is moisture-sensitive and packaged under a blanket of dry nitrogen. Maintain factory seal, after use re-blanket with dry nitrogen and tightly reseal.

Work in a well ventilated area and use clean, dry tools for mixing and applying. For two component system, combine the resin and hardener according to mix ration. Mix together thoroughly and use immediately after mixing. Material temperature should not be below 65 °F (18 °C) when mixing.

RP 6451 Resin

This product may crystallize upon storage. If crystallized, vent container and heat to 125 – 145 °F until crystals dissolve. Stir well after product has liquefied.

RP 6451 Hardener

Stir well before use. This material will separate.

PACKAGING :

This product is available in the following package size(s) :

| | | | | |
|------------|--------------|--------------------------------|------|-------------|
| A Packages | = Resin | 6.4# with appropriate hardener | 8# | Total 14.4# |
| Pail Units | = Pail resin | 32# with appropriate hardener | 40# | Total 72# |
| Drum Units | = Pail Resin | 360# with appropriate hardener | 450# | Total 810# |

Please call Customer Service (800) 376 8793 for price and availability.

STORAGE :

RenPim[®] 6451 Resin/Hardener System should be stored in a dry place, in the sealed original container, at temperatures between +2°C and +40°C (+35.6°F and 104°F). Under these storage conditions, the shelf life is 1 year. The product should not be exposed to direct sunlight.

PRECAUTIONARY STATEMENT :

Huntsman Advanced Materials Americas LLC maintains up-to-date Material Safety Data Sheets (MSDS) on all of its products. These sheets contain pertinent information that you may need to protect your employees and customers against any known health or safety hazards associated with our products. Users should review the latest MSDS to determine possible health hazards and appropriate precautions to implement prior to using this material.

First Aid!

Refer to MSDS as mentioned above.

KEEP OUT OF REACH OF CHILDREN**FOR PROFESSIONAL**

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