

**Advanced Materials****RenPIM® 6458 POLY/ RenPIM® 6458 ISO  
Resin / Hardener**

RAPID SET / RAPID DEMOLD,  
HIGH FLEXURAL MODULUS POLYURETHANE SYSTEM  
ONE-TO-ONE BY VOLUME RATIO

**DESCRIPTION:**

RenPIM® 6458 Parts-In-Minutes® polyurethane casting system is formulated to produce tough, high-modulus parts for short-run production and rapid prototypes. The RENPIM® 6458 system when meter-mixed can be used to produce parts in low cost tooling. The system is an easy to use one-t-one by volume mix ratio which also allows cartridge filling for small custom applications. The RENPIM® 6458 parts can be demolded in approximately 15 minutes with no need for heated tools or materials.

RENPIM® 6458 Parts-In-Minutes® polyurethane is a very low viscosity product which can be used to produce parts which are simple to complex. The product is rigid and simulates grades of ABS with a flexural modulus of greater than 425,000 psi. When cured at room temperature, RENPIM® 6458 system sets to a clear amber color which can easily changed with pigments.

**APPLICATIONS:**

RENPIM® 6458 Parts-In-Minutes® polyurethane is designed for the production of tough, short-run, and prototype parts using low cost tooling and meter-mix dispensing equipment.

**MIXING INSTRUCTIONS:**

Reaction Ratio                    100R to 85H by weight  
    100R to 100H by volume

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

Simple silicone, polyurethane or epoxy molds can be used for molding the RENPIM® 6458 system. Mold design and construction should allow pressure-free casting.

**TYPICAL HANDLING PROPERTIES:**

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

| Property                            | ASTM Test Method | Test Values <sup>1</sup>                    |
|-------------------------------------|------------------|---|
| Color<br>Resin<br>Hardener<br>Cured | Visual           | Amber liquid<br>Clear liquid<br>Clear amber |
| Viscosity, cP<br>Resin<br>Hardener  | D-2393           | 75 cP<br>400 cP                             |
| Gel time (150g)                     | D-2471           | 50 seconds                                  |
| Demold Time, minutes                |                  | <15 minutes                                 |

|                  |          |      |
|------------------|----------|------|
| Specific Gravity | Resin    | 1.20 |
|                  | Hardener | 1.05 |

**TYPICAL CURED PROPERTIES:**

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

| Property  | ASTM Test Method | Test Value 1           | Test Value 2           |
|---|------------------|------------------------|------------------------|
| Density (g/cc)  | D-792            | 1.21                   | 1.21                   |
| Izod Impact, ft-lb./in                                      | D-256            | 0.87                   | 0.71                   |
| Hardness, Shore D   | D-2240           | 86                     | 86                     |
| Ultimate Compressive Strength, psi                          | D-695            | 14,100                 | 17,700                 |
| Compressive Modulus, psi                                    | D-695            | 769,000                | 758,000                |
| Ultimate Flexural Strength, psi @ 5% strain                 | D-790            | 16,500                 | 16,100                 |
| Flexural Modulus, psi                                       | D-790            | 432,000                | 428,000                |
| Ultimate Tensile Strength, psi                              | D-638            | 10,200                 | 9,500                  |
| Tensile Modulus, psi  | D-638            | 798,000                | 784,000                |
| Elongation %  | D-638            | 3.2                    | 7.4                    |
| Tg per DMA, °F (°C)   | D-4065           | 190 (88)               | 210 (99)               |
| Coefficient of Thermal Expansion<br>-30°C to 30°C, in/in/°C | D-3386           | 4.3 x 10 <sup>-5</sup> | 4.3 x 10 <sup>-5</sup> |
| Deflection Temperature, °F (°C) 264 psi                     | D-648            | 129 (54)               | 140 (60)               |
| 66 psi  |                  | 136 (58)               | 179 (82)               |

1 Cure Schedule – 7 days @ R.T., tested @ 77°F

2 Cure Schedule –16 hours. @ 176°F (80°C), tested @ 77°F

**NOTE:** 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.

**HANDLING :****RENPI® 6458 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.

If heating of product in plastic packaging is necessary, heat in a ventilated oven to 145°F maximum. Before heating, loose the container lid slightly to relieve any pressure buildup and replace container to be heated into a metal bucket of sufficient volume to contain the product, should the container tip over or leak.

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 ratio. Mix together thoroughly and use immediately after mixing. Material temperature should not be below 65°F (18°C) when mixing.

**RENPI® 6458 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.

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**PACKAGING:**

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

|          |              |              |
|----------|--------------|--------------|
| 200mL    | Dual Syringe |              |
| 5 gallon | Resin        | 45 pounds    |
|          | Hardener     | 38.25 pounds |
| Drum     | Resin        | 500 pounds   |
|          | Hardener     | 425 pounds   |

Please call Customer Service (800-367-8793) for price and availability.

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**STORAGE :**

RenPIM<sup>®</sup> 6458 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.

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**First Aid!**

Refer to MSDS as mentioned above.

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

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