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Advanced Materials

RenPIM® 6490 Resin / Hardener

HIGH IMPACT RESISTANT POLYURETHANE PROTOTYPING SYSTEM
FOR POLYPROPYLENE-LIKE PROTOTYPES

DESCRIPTION:

RenPIM® 6490 system is a new development in Parts-In-Minutes® polyurethanes. This product is formulated to closely simulate the properties of polypropylene and its copolymers.

APPLICATIONS:

- Simulation of polypropylene parts
- Production of short-run functional parts
- High impact-resistant, tough parts

ADVANTAGES:

- Excellent combination of impact resistance and heat resistance
- Produce durable short-run and prototype parts
- Extremely tough

ACCESSORIES:

Use Ren® PIM Color Pastes for the best coloring results. Other coloring materials may not be compatible with this product and yield undesirable results.

- Ultra-Fast Adhesive: Parts-In-Minutes® RP 6465 R/H amber polyurethane
- Moldmaking Silicone: RenCast® 6473 Si clear silicone rubber

MIXING RATIO:

By Weight:	100 to 45	Resin to Hardener
By Volume:	100 to 50	Resin to Hardener

Mixing Instructions: This reactive system is best suited for use employing a meter-mix dispensing system though it is also possible to use a 2:1 ratio cartridge system. Your Ren® representative is available to discuss the requirements for dispensing this material. This material has a short potlife, plan accordingly.

Simple silicone, polyurethane, or epoxy molds can be used for molding the RP 6490 system. Mold design and construction for small parts can be for pressure-free casting. Large parts will require reinforced tooling.

TYPICAL HANDLING PROPERTIES:
Tested @ 77°F (25°C) unless otherwise noted.

Property	Criteria	ASTM Test Method	Test Value
Color	Resin Hardener Cured	Visual	Amber Clear Off-white
Specific Gravity	Resin Hardener	D-1963	1.15 1.03
Viscosity, cP	Resin Hardener	D-2393	1700 1250
Gel Time, seconds	150g	D-2471	70 - 80

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 Product Management Department.

PROCESSING:

Static mixer recommendations for general purpose, all around use:

Overall Length	Outside Diameter	Inside Element Diameter	Number of Elements
12”	0.370”	0.250”	32

Unacceptable results may be obtained with other static mixers. Evaluate different mixers carefully for suitability. Specialty Static Mixers are available from the following companies among others:

Michael Engineering Limited (989) 772-4073
Plas-pac Industries, Inc. (860) 889-3383

SHOOT TIME:

It is important to know if your pumping equipment has the capacity to shoot the required part:

- Estimated maximum Shoot Time: 80 to 90 sec
- Part Shoot Time(min.) *= Part Weight(lb) ÷ Pumping Capacity (lb./min)

If the part Shoot Time does not fall within the parameters for this product, increase the capacity of the dispensing equipment or select a Parts-In-Minutes® Polyurethane with a more suitable Shoot Time. See the Vantico Parts-In-Minutes® Polyurethane Selector Guide for more information.

Determine part weight by taking part dimensions from a drawing and calculating the weight based on a Parts-In-Minutes® Polyurethane density of 70 lb./ft^3.If a master model exists, it can be weighed and the prototype part weight estimated by comparing the densities of the Parts-In-Minutes® Polyurethane vs. the material used in the master.

Determine pumping capacity of the meter-mixing equipment by shooting polyurethane into an empty cup for a specified time period. Then, calculate the pounds dispensing per minute.

* Actual pumping time may take up to 10 to 20% longer than the calculated time because the equipment injection rate may slow down as the tool fills with polyurethane.

DEMOLD TIME:

Temperature	Time	Thickness
77°F (25°C)	30-40 min	1/8”
140°F (60°C)	15-20 min	1/8”

TYPICAL CURED PROPERTIES:
Tested @ 77°F (25°C) unless otherwise noted.

Property	ASTM Method	Test[1] Value	Test[2] Value
Density, lb.ft^3 (g/cm^3)	D-792	1.16	1.14
Cubic Inch per Pound	D-792	24	24
Hardness, Shore D	D-2240	78	76
Flexural Strength, at yield, psi	D-790	78	76
Flexural Modulus, psi	D-790	6,800	7,850
Ultimate Tensile Strength, psi	D-412	4,700	5,800
% Elongation	D-412	67	60
Compressive strength, ultimate, psi	D-695	25,500	25,700
Compressive modulus, psi	D-695	191,000	340,000
Tg by DMA, E” onset, °F (°C)	D-4065	160 (71)	168 (76)
Deflection Temperature, °F (°C) @ 66 psi	D-648	143 (62)	154 (68)
Izod Impact, notched, ft-lb./in	D-256	1.7	1.9
Coefficient of Thermal Expansion -22° to 86°F, in/in/°F -30° to 30°C, in/in/°C	D-3386	59 x 10^{-6}	58 x 10^{-6}

[1] Cured 7 days @ 77°F (25°C)
[2] Cured 24 hours @ 77°F (25°C) plus 14 hours @ 176°F (80°C)

PACKAGING:

Unit	***Weight***
A Package	11.6 pounds total
Resin Pail	40 pounds
Hardener Pail	18 pounds

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

CONDITIONING:

This product may freeze upon storage. If frozen, vent container and heat to 125-145°F until crystals dissolve. Stir well after product has liquefied. If heating of product in plastic packaging is necessary, heat in a ventilated oven to 145°F maximum. Before heating, loosen the container lid slightly to relieve any pressure buildup and place container to be heated into a metal bucket of sufficient volume to contain the product should the container tip over or leak.

It is advisable to place a 100-watt light bulb under the feed lines and resin tank of your dispensing unit. This will prevent freezing/crystallizing problems.

HANDLING:

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.

STORAGE :

RenPIM® 6490 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.

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

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.

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