Preliminary

Parts-In-Minutes®
Polyurethanes

RP 6489 RESIN
RP 6489 HARDENER

High Impact Resistant
Polyurethane Prototyping System
For Polypropylene Like Prototypes

DESCRIPTION RP 6489 is a new development in Parts-In-Minutes polyurethanes. This product is formulated to closely simulate the properties of polypropylene and other polyolefins. The resulting Part-In-Minutes RP 6489 polyurethane parst will more closely parallel the performance of polypropylene and blends in product evaluation simulations and in real-life short-run product applications.

Features of this cured product include the triple combination of:

- ?? Heat Distortion of 185°F
- ?? Notched Izod Impact of 2 ft-lb/in.
- ?? Flexural Modulus of 190,000 psi

APPLICATIONS

- ?? Simulation of polypropylene parts for crash testing
- ?? Production of short-run functional parts
- ?? High impact-resistant, tough parts

ADVANTAGES

- ?? Excellent combination of Izod Impact resistance and heat resistance
- ?? Produce durable short-run and prototype parts

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: RP 6473 Si clear silicone rubber

MIX 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 or

TYPICAL HANDLING PROPERTIES

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

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Property	Criteria	ASTM Test Method	Test Value
Color	Resin Hardener Cured, Slow/Fast	Visual	Amber Clear Off-white
Specific Gravity	Resin Hardener	D-1963	1.15 1.02
Viscosity, cP	Resin Hardener	D-2393	1700 1900
Gel Time, minutes	150g	D-2471	30-40 seconds

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
9.5”	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 (517) 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: 50 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

DEMOLD TIME

	Temperature	Time	Thickness
RP 6489 System	77°F (25°C)	10-30 min	1/8”

RECOMMENDED CURE SCHEDULES

Options		Temperature	Time
1.		77°F (25°C)	7 days
2.		77°F (25°C)	24 hours
	plus	176°F (80°C)	16 hours

Curing Instructions: 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 16 hours at 176°F (80°C).

Depending on their size or shape, parts may need to be fully supported during room temperature cure.

TYPICAL CURED PROPERTIES

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

RP 6489

Property	ASTM Method	Test[1] Value	Test[2] Value
Density, lb./ft^3 (g/cm^3)	D-792		
Cubic Inch per Pound			
Hardness, Shore D	D-2240		75D
Flexural Strength, at yield, psi	D-790		7,800
Flexural Modulus, psi	D-790		190,000
Ultimate Tensile Strength, psi	D-412		
% Elongation	D-412		
Tear Strength, ppi	D-624		
Tg by DMA, E' onset, °F (°C)	D-4065		
Deflection Temperature, °F (°C) @ 66 psi	D-648		185F(85)
Izod Impact, notched, ft-lb./in	D-256		2
Coefficient of Thermal Expansion -22° to 86°F, in/in/°F -30° to 30°C, in/in/°C	D-3386		

[1] Cured 7 days @ 77°F (25°C)
[2] Cured 24 hours @ 77°F (25°C) plus 16 hours @ 176°F (80°C)

PACKAGING

Unit		Weight
DS-200ml Cartridge	*RP 6489*	Near future

STORAGE Store at 70 to 90°F. 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.

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

HANDLING Work in a well-ventilated area and use clean, dry tools for mixing and applying. For a 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.

SHELF LIFE Provided this material is stored under the recommended storage condition in the original container, it will remain in useable condition for six months from date of shipping.

SAFETY Do not use or handle this product until the Material Safety Data Sheet has been read and understood.

FIRST AID: In case of contact

Skin: Immediately wash with soap and water. Remove contaminated clothing and launder before reuse. Destroy contaminated shoes.
Eyes: Immediately flush with water for at least 15 minutes. Call a physician.
Ingestion: If conscious, give plenty of water to drink. Do not induce vomiting. Call a physician.
Inhalation: Remove to fresh air. Administer oxygen or artificial respiration if necessary. Call a physician.
Other: Referral to physician is recommended if there is any question about the seriousness of any injury.

PRECAUTIONARY NOTE: Thermosetting systems generate heat when curing. The amount of heat and the period of time in which heat is released vary significantly between systems. Additionally, ambient or compound temperature, amount of material mixed, and construction and shape of the mold or container can also be factors in the temperature profile of a mixed system.

In some cases, the thermosetting reaction can be vigorous, generating heat sufficient to cause decomposition of the system with subsequent liberation of large volumes of acrid smoke.

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