Product Data

Preliminary

Parts-In-Minutes® Polyurethanes

RP 6488 Resin / Hardener

Extremely High Impact Resistant Polyurethane System for Hand, Pressure and Vacuum Casting

DESCRIPTION: RP 6488 system is a new development in Parts-In-Minutes polyurethanes. This product is formulated to closely simulate the properties of polyethylene and other polyolefins. The resulting Parts-In-Minutes RP 6488 polyurethane parts will more closely parallel the performance of polyethylene and blends in product evaluation simulations and in real-life short-run product applications.

Features of this cured product include notched Izod impact strength of over 5 ft-lb./in for outstanding part durability and toughness. This increase in toughness is made without sacrifice in heat deflection temperature. Heat Deflection temperature of RP 6488 is over 200°F for post cured material. RP 6488 processes easily like other Parts-In-Minutes polyurethanes in the Ren Parts-In-Minutes™ polyurethane family through hand casting or vacuum casting.

APPLICATIONS:

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

ADVANTAGES:

- A gel time greater than 15 minutes coupled with a demold time of about 8 hours facilitates the production of large size parts (can be heat accelerated)
- 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 32	Resin to Hardener
By Volume:	100 to 30	Resin to Hardener

Mixing Instructions: The pot life of the RP 6488 system does allow for hand-cast batches as well as vacuum casting applications. Your Ren representative is available to discuss the requirements for using this material.

Simple silicone, polyurethane, or epoxy molds can be used for molding the RP 6488 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	Slightly hazy clear Black Black, semi-transparent
Specific Gravity	Resin Hardener	D-1963	1.09 1.16
Viscosity, cP	Resin Hardener	D-2393	2,500-3,500 120-170
Gel Time, minutes	150g	D-2471	13 to 16

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

DEMOLD TIME

	Resin Temp.	Mold Temp.	Demold Time	Part Thickness
Approximate	77°F (25°C)	77°F (25°C)	8 hours	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, 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 6488 System

Property	ASTM Method	Test[1] Value
Density, lb.ft^3 (g/cm^3)	D-792	72 (1.14)
Cubic Inch per Pound		23.9
Hardness, Shore D	D-2240	68
Flexural Strength, at yield, psi	D-790	4,400
Flexural Modulus, psi	D-790	95,000
Ultimate Tensile Strength, psi	D-412	3,600
% Elongation	D-412	125
Tg by DMA, E' onset, °F(°C)	D-4065	249 (121)
Deflection Temperature, °F(°C) 66 psi	D-648	206 (97)
Izod Impact, notched, ft-lb./in	D-256	5
Coefficient of Thermal		
Coefficient of Thermal Expansion -22° to 86°F, in/in/°F -30 to 30°C, in/in/°C	D-3386	 89 x 10^{-6} 161 x 10^{-6}

1 Cured 24 hours @ 77°F (25°C) plus 16 hours @ 176°F (80°C)

PACKAGING:

Unit		***Weight***
A package	Standard System	8# Resin 2.56# Hardener
5 gallon	Resin	40 #
5 gallon	Hardener	12.8#

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

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. It is effective to keep this material warm when loaded in a dispenser system. A 100-watt light bulb positioned under the resin lines and storage tank will usually prevent any freezing problems.

CONDITIONING: This resin component product can freeze upon cold storage or shipping. If frozen, warming to room temperature will melt the product to a usable state. For accelerated melting, vent container and heat to 125 to 145°F until The RP 6488 Resin melts. 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.

RP 6488 Resin

WARNING! Harmful if inhaled. Causes skin and eye irritation. Causes allergic skin and respiratory reaction. Avoid contact with eyes, skin, and clothing. Avoid breathing vapor or mist. Avoid prolonged or repeated contact with skin. Keep container closed. Use with adequate ventilation. Wash thoroughly after handling.

RP 6488 Slow & Fast Hardeners

WARNING! Causes skin and eye irritation. May cause allergic skin reaction. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated contact with skin. Wash thoroughly after handling.

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.

A good rule of thumb is never mix more material than can be applied during the stated pot life or gel time Also take care when using materials in applications other than stated on the Product Data Sheet, i.e., a laminating resin for casting. Please feel welcome to call our Product Information Department or your local Ren representative for instructions before you start your job.

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