

Advanced Materials**RenCast® 6463 / Ren® 6463 Slow / Ren® 6463 Fast System**

CRYSTAL CLEAR POLYURETHANE FOR PROTOTYPES AND PARTS

DESCRIPTION:

RenCast® 6463(Resin) with Ren® 6463 Slow or Ren® 6463 fast(Hardener) polyurethane systems are formulated to produce tough, crystal clear parts. Two speeds are available to meet a variety of molding conditions and part production requirements. RenCast® 6463 systems can be processed and cured at room temperature. The convenient one to one weight and volume mixing ratio combined with low mixed viscosity help produce high quality crystal clear parts. RenCast® 6463 resin offers the best combination of Heat Distorsion Temperature and notched Izod Impact Strength available on the market today. Parts made from RenCast® 6463 resin exhibit outstanding clarity, durability and toughness.

APPLICATIONS:

Designed for production of crystal clear, durable, short run, and rapid prototype parts using low cost tooling and hand mix and meter-mix dispensing equipment.

ADVANTAGES:

- Simple to use one-to-one weight or volume reacting ratio
- Excellent combination of Izod Impact resistance and heat resistance
- Very low mixed viscosity for easy pouring
- Hardness and flexural modulus to simulate clear plastics
- Good color stability

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.

- Moldmaking Silicone: RenCast® 6473 Si clear silicone rubber

MIXING RATIO:

By Weight:	100 to 100	Resin to hardener
By Volume:	100 to 100	Resin to hardener

Mixing Instructions: Mix thoroughly and vacuum de-air where possible for best results. Pressure casting in a suitable pressure chamber at 90 psi produces excellent results.

Simple silicone, polyurethane, or epoxy molds can be used for molding the RenCast® 6463 system. Mold design and construction for small parts can be for pressure-free casting. Large parts will require reinforced tooling.

Part clarity is governed by a number of important factors. The master model for making molds for clear parts is extremely important. Any imperfections on this model will transfer to the final RenCast® 6463 parts. A highly polished master combined with a high-quality silicon rubber mold such as RenCast® 6473 resin SI is a good starting point. Use of release agents anywhere in the process will generally degrade surface optics.

TYPICAL HANDLING PROPERTIES:

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

Property	Criteria	ASTM Test Method	Test Value
Color	Resin Hardener Cured	Visual	Clear Clear Crystal Clear
Specific Gravity	Resin Hardener Cured	D-1963	1.20 1.04 1.04
Viscosity, cP	Resin Slow Hardener Fast Hardener	D-2393	280 700 700
Gel time, 150g, minutes	Slow Hardener Fast Hardener	D-2471	18 – 25 4 - 6

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.

PROCESSING:

Static mixer recommendations for general purpose, all around use:

Overall Length	Outside Diameter	Inside Element Diameter	Number of Elements
9.5"	0.370	0.25	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

VACUUM CASTING OF RenCast® 6463 system:

1. The silicone mold is used at room temperature
2. RenCast® 6463 resin and hardener system is heated to 90°F, this is standard temperature recommended for MCP equipment
3. RenCast® 6463 resin is placed into the B cup of the MCP Machine
4. RenCast® 6463 hardener is placed into the A cup of the MCP Machine
5. Vacuum degas for 20 minutes for thorough processing
6. Mixing is 60 seconds
7. When pouring, allow mixed RenCast® 6463 material to come up into the mold vents.
8. Remove the mold and place the mold in the curing oven at 158°F, standard MCP temperature, for two hours.
9. Demold the part. Two hour demold is dependent on silicone mold thickness. Adjust longer if the mold is extremely thick.

DEMOLD TIME:

	Temperature	Time	Thickness
Slow System	77°F (25°C)	16 hours	1/8"
Fast System	77°F (25°C)	4 hours	1/8"

RECOMMENDED CURE SCHEDULE:

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

TYPICAL CURED PROPERTIES:

Cured 7 days @ 77°F (25°C)
 Tested @ 77°F (25°C) unless otherwise noted.

Property	ASTM Test Method	Slow System	Fast System
Density, lb./ft ³ (g/cm ³)	D-792	68 (1.09)	68 (1.09)
Cubic inch per pound		25.4	25.4
Hardness, Shore D	D-2240	79	79
Flexural Strength, at yield, psi	D-790	10,500	10,800
Flexural Modulus, psi	D-790	250,000	230,000
Ultimate Tensile Strength, psi	D-638	4,800	5,700
Tg by DMA, E", °F (°C)	D-4065	153 (67)	174 (79)
Deflection Temperature, °F (°C) 66 psi	D-648	136 (58)	152 (67)
264 psi		133 (56)	140 (60)
Compressive Strength, 0.2%, psi	D-695	7,700	6,800
Izod Impact, notched, ft.-lb./in	D-256	1.0	1.1
Coefficient of Thermal Expansion -22° to 86°F, in/in/°F -30° to 30°C, in/in/°C	D-3386	53 x 10 ⁻⁶ 95.4 x 10 ⁻⁶	51.4 x 10 ⁻⁶ 92.5 x 10 ⁻⁶

TYPICAL CURED PROPERTIES:

Cured 7 days @ 77°F (25°C) plus 16 hours @ 176°F (80°C)
 Tested @ 77°F (25°C) unless otherwise noted.

Property	ASTM Test Method	Slow System	Fast System
Density, lb./ft ³ (g/cm ³)	D-792	68 (1.09)	68 (1.09)
Cubic inch per pound		25.4	25.4
Hardness, Shore D	D-2240	78	80
Flexural Strength, at yield, psi	D-790	11,200	11,300
Flexural Modulus, psi	D-790	240,000	270,000
Ultimate Tensile Strength, psi	D-638	6,100	7,900
Tg by DMA, E", °F (°C)	D-4065	187 (86)	187 (86)
Deflection Temperature, °F (°C) 66 psi	D-648	153 (67)	153 (68)
264 psi		145 (63)	144 (62)
Compressive Strength, 0.2%, psi	D-695	7,700	7,000
Izod Impact, notched, ft.-lb./in	D-256	1.1	1.1
Coefficient of Thermal Expansion -22° to 86°F, in/in/°F -30° to 30°C, in/in/°C	D-3386	51.0 x 10 ⁻⁶ 91.9 x 10 ⁻⁶	49.9 x 10 ⁻⁶ 89.8 x 10 ⁻⁶

PACKAGING:

<u>Unit</u>		<u>Weight</u>
A Package	<i>Slow System</i>	14 lb.
A Package	<i>Fast System</i>	14 lb.
5 gallon	<i>Resin</i>	38 lb.
5 gallon	<i>Slow Hardener</i>	38 lb.
5 gallon	<i>Fast hardener</i>	38 lb.
Drum	<i>Resin</i>	428 lb.
Drum	<i>Slow hardener</i>	428 lb.
Drum	<i>Fast hardener</i>	428 lb.

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

HANDLING :**RenCast® 6463 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.

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.

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 :

RenCast® 6463 with Ren® 6463 Slow or Ren® 6463 Fast 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 3 years. 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 AND INDUSTRIAL USE ONLY**

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