

Advanced Materials**RenCast[®] 6470 Resin****Ren[®] 6470 Hardener with DT 082 Filler****CASTING POLYURETHANE AND
MASS-CASTING POLYURETHANE SYSTEM****DESCRIPTION :**

RenCast[®] 6460 resin/Ren[®] 6470 hardener polyurethane casting system filled with DT 082 Filler is a mass-casting material that is well suited for applications requiring low cost, toughness, low shrinkage and low exotherm during cure.

APPLICATIONS :

Sheet metal-forming tools, duplicate milling models, foundry pattern plates, vacuum-forming tools, negative molds and fixtures, and large volume molds for the ceramics industry.

MIX RATIO	6470R/6470H	By Weight	80:100	Resin to Hardener
	6470R/6470H with DT 082 Filler	By Weight	80:100:360-410*	Resin to Hardener to Filler

MIXING INSTRUCTIONS :

Stir RenCast[®] 6460 resin and Ren[®] 6470 hardener polyurethane thoroughly before use. Weigh resin and hardener accurately ($\pm 5\%$) into clean containers. Thoroughly mix resin and hardener together (minimum of 3 minutes), scraping container sidewalls, bottom and mixing stick several times to assure a uniform mix.

To mix RenCast[®] 6460 resin and Ren[®] 6470 hardener polyurethane with DT 082 Filler: After mixing the polyurethane resin and hardener, add the proper amount of DT 082 Filler, slowly, while mixing, to the resin and hardener blend. Mix until all filler lumps have disappeared. Whenever possible, de-air the mixture before casting to remove unwanted air bubbles using a suitable vacuum pump and chamber (vacuum >26 inches mercury).

*If a lower mixed viscosity is desired, reduce the amount of DT 082 Filler used.

TYPICAL HANDLING Tested @ 77°F(25°C)

PROPERTIES

<u>Property</u>	<u>Criteria</u>	<u>Test Method</u>	<u>Test Value</u>
6470R/6470H			
Color	Resin	Visual	Clear Amber
	Hardener		Cloudy Amber
	Mixed		Off-white
Viscosity, cP @ 77°F (25°C)	Mixed	ASTM D-2393	250--500
Gel Time, minutes @ 77°F (25°C)	4 fl. oz. (118ml)	ASTM D-2471	60--80
6470R/6470H			
Color	Resin	Visual	Clear Amber
	Hardener		Cloudy Amber
	Mixed		Off-white
Viscosity, cP @ 77°F (25°C)	Mixed	ASTM D-2393	13,000
Gel Time, minutes @ 77°F (25°C)	14 fl. oz. (414ml)	ASTM D-2471	72

NOTE : These physical properties are reported as typical test values obtained by the Huntsman Advanced Materials laboratories. If assistance is needed in establishing product specifications, please consult with the Huntsman Advanced Materials Quality Control Department.

RECOMMENDED CURE SCHEDULE

Temperature	Demold Time	Full Cure Time
77°F (25°C)	24 hours	7 days

TYPICAL CURED PROPERTIES :

Tested @ 77°F(25°C) unless otherwise noted.
Not for specification purposes.

<u>Property</u>	<u>Test Method</u>	<u>Test Values¹</u>	<u>Test Values²</u>
RenCast® 6460 resin/ Ren® 6470 hardener polyurethane			
Specific Gravity	ASTM D-792	1.23	1.23
Hardness, Shore D	ASTM D-2240	86	88
Ultimate Flexural Strength, psi (MPa)	ASTM D-790	14,000 (96.6)*	15,500 (107)*
Flexural Modulus, psi (MPa)	ASTM D-790	410,000 (2,828)	440,000 (3,034)
Ultimate Tensile Strength, psi (MPa)	ASTM D-638	4,700 (32.4)	9,000 (62)
Tensile Modulus, psi (MPa)	ASTM D-638	423,000 (2,917)	427,000 (2,945)
Elongation, %	ASTM D-638	1.3	3.4
Tg per DMA, °F (°C)	ASTM D-4065	155 (68)	181 (83)
Heat Deflection Temperature, °F (°C) at 66 psi (0.46MPa) at 264 psi (1.8 MPa)	ASTM D-648	127 (53)	140 (60)
		124 (51)	133 (56)
		12,200 (84.1)	12,500 (86.2)
Compressive Modulus, psi (MPa)	ASTM D-695	251,000 (1,731)	255,000 (1,759)
Izod Impact Strength, notched, ft. lb./in. (J/m)	ASTM D-256	0.36 (19.2)	0.45 (24)
Coefficient of Thermal Expansion, in./in./°F, -22°F to 86°F (-30°C to +30°C)	ASTM D-3386	38.6x10 ⁻⁶	37.8x10 ⁻⁶
		0.0017 (0.0017)	0.0069 (0.0069)
Linear Shrinkage, Mold #1**, in./in. (mm/mm)	ASTM D-2566	0.0017 (0.0017)	0.0069 (0.0069)

¹ Cured for seven days at 77°F (25°C)

² Cured for 14 hours at 176°F (80°C)

* Stress at peak; samples did not break.

** Radius Depth 0.875 in. (22mm); Length 10 in. (25.4cm)



TYPICAL CURED PROPERTIES :

Tested @ 77°F(25°C) unless otherwise noted.
Not for specification purposes.

Property	Test Method	Test Values³	Test Values⁴
RenCast® 6460 resin/ Ren® 6470 hardener polyurethane with DT082 Filler			
Specific Gravity	ASTM D-792	1.84	1.89
Hardness, Shore D	ASTM D-2240	91	95
Ultimate Flexural Strength, psi (MPa)	ASTM D-790	8,400	7,200
Flexural Modulus, psi (MPa)	ASTM D-790	1,410,000 (9,724)	1,446,000 (9,972)
Ultimate Tensile Strength, psi (MPa)	ASTM D-638	4,700 (32.4)	4,420 (30.5)
Tensile Modulus, psi (MPa)	ASTM D-638	1,660,000 (11,448)	1,567,000 (10,807)
Elongation, %	ASTM D-638	0.6	0.6
Tg per DMA, °F (°C)	ASTM D-4065	214 (101)	165 (74)
Ultimate Compressive Strength, psi (MPa)	ASTM D-695	13,900 (95.9)	12,850 (88.6)
Compressive Modulus, psi (MPa)	ASTM D-695	1,340,000 (9,241)	1,336,000 (9,214)
Izod Impact Strength, notched, ft. lb./in. (J/m)	ASTM D-256	0.42 (22.4)	0.30 (16)
Coefficient of Thermal Expansion, in./in./°F, -22°F to 86°F (-30°C to +30°C)	ASTM D- 3386	20.7x10 ⁻⁶	20.2x10 ⁻⁶
Linear Shrinkage, Mold #1*, in./in. (mm/mm)	ASTM D- 2566	0.001 (0.001)	0.001 (0.001)

¹ Cured for seven days at 77°F (25°C) with 80 pbw 6470R:100 pbw 6470H: 360 pbw DT 082

² Cured for seven days at 77°F (25°C) with 80 pbw 6470R:100 pbw 6470H: 410 pbw DT 082

* Radius Depth 0.875 in. (22mm); Length 10 in. (25.4cm)

STORAGE :

RenCast® 6460 resin/Ren® 6470 hardener with DT 082 Filler 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.

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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