

**Advanced Materials****RenCast<sup>®</sup> 6403-1 / Ren<sup>®</sup> 6403-1**

POLYURETHANE ELASTOMER  
A FAST CURING GOOD LOAD RECOVERY SHORE 92 ± 7A ELASTOMER

**DESCRIPTION :**

RenCast<sup>®</sup> 6403-1 (Resin) / Ren<sup>®</sup> 6403-1 (Hardener) is a low viscosity, milky-white, two-component polyurethane casting elastomer. RenCast<sup>®</sup> 6403-1 contains no MOCA<sup>(1)</sup> or TDI<sup>(2)</sup>, yet it develops high tensile and tear strengths without a heat post-cure. It can be further strengthened with mild heat post cure, if desired. The low viscosity permits excellent reproduction of detail and good air release.

**APPLICATIONS :**

High resiliency makes RenCast<sup>®</sup> 6403-1 ideal for metal forming applications and durable parts such as impellers, rollers, and gears.

**MIXING INTRUSCTIONS :**

Reaction Ratio                      50R to 100H (by wt.)

**Mixing:** Stir each component thoroughly before use. Weigh each component accurately (± 5%) into clean containers. Thoroughly mix resin and hardener together (minimum 3 minutes) scraping container sidewalls, bottom and mixing stick several times to assure a uniform mix.

**TYPICAL MIXED PROPERTIES :**

Property	ASTM Test Method	Test Values <sup>(1)</sup>
Gel Time and Viscosity Profile (150g)	<u>Time (min.)</u>	<u>Viscosity (cP)</u>
	5	800
	10	1,000
	14	20,000
	15	gelled
Color	Resin	Amber
	Hardener	Milky-white
Viscosity	Resin	35 – 50 cP
	Hardener	1,100 – 1,500 cP
Demold time (for most applications)		24 hours
Cure time (for ultimate properties)		7 days

<sup>(1)</sup>MOCA – 4,4' methylene bis (2-chloroaniline)

<sup>(2)</sup>TDI – toluene diisocyanate

<sup>(3)</sup> Tested @ 77 °F (25 °C)

**TYPICAL CURED PROPERTIES :**

Property	ASTM Test Method	Test Values <sup>(1)</sup>	Test Values <sup>(2)</sup>
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Density (g/cc)	D-792	1.10	1.10
Hardness (Shore D)	D-2240	85 – 90	85 – 90
Ultimate Tensile Strength (psi)	D-638 @ 20"/min.	2,500 (17,200 kPa)	3,400 (23,400 kPa)
Ultimate Elongation (%)	D-638 @ 20"/min.	240	390
Tear Strength (ppi)	D-624 @ 20"/min.	470	580
	DIE C	(82.3 kN/m)	(101.6 kN/m)
Compression Set <sup>(3)</sup> (%)	D-395 B	64.5	27.9
Linear shrinkage (in/in)	D-2566 Mold #1	0.001	0.004

<sup>(1)</sup> Cure Schedule – 7 days @ 77°F (25 °C), tested @ 77 °F

<sup>(2)</sup> Cure Schedule – 24 hours @ 77°F (25 °C), + 16 hours @ 176 °F (80 °C)

<sup>(3)</sup> Compression Set, ASTM D-395, Method B

**NOTE :** Typical Properties – These physical properties are reported as typical test values obtained by our test laboratory. If assistance is needed establishing product specifications, please consult with our Quality Control Department.

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### **CURING INSTRUCTIONS :**

Although room temperature polyurethane will normally set up to a rigid, demoldable state within 24 hours at room temperature (75 °F ± 5 °F), these systems reach their full cure after seven days at room temperature. A full cure can be accelerated by applying heat after the part has set rigid. We recommend a post cure of 176 °F for a minimum of 16 hours. (Add to this adequate time to bring the part to the post cure temperature.) After cure, the part should be cooled at a slow rate so as not to shock the part thermally.

Uniform heat distribution is also required during post cure ; concentrated heat, such as that directed from a lamp, can cause warp. An elevated temperature cure will slightly increase the shrinkage compared to a room temperature cure.

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### **STORAGE/HANDLING INFORMATION :**

#### **RenCast® 6403-1 / Ren® 6403-1**

Store at 70 - 90 °F. 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.

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 ration. Mix together thoroughly and use immediately after mixing. Material temperature should not be below 65 °F (18 °C) when mixing.

#### **RenCast® 6403-1**

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.

**Ren<sup>®</sup> 6403-1**

This product upon storage will form a hard precipitate on the bottom of the container. Do not attempt to mix back in as this is normal and does not affect the quality of the product. However do stir the liquid portion well before use.

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**SHELF LIFE :**

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

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**PACKAGING :**

Product is available in "A" packages containing appropriate quantities of resin and hardener. Ren<sup>®</sup> 6403-1 is available in 5-gallon and drum units to match appropriate quantities of existing package sizes or RenCast<sup>®</sup> 6403-1. Please call Customer Service (800 367 8793) for price and availability.

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**SAFETY/HANDLING PRECAUTIONS :**

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

**RenCast<sup>®</sup> 6403-1**

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

**Ren<sup>®</sup> 6403-1**

**WARNING** Causes eye irritation. Avoid contact with eyes. Wash thoroughly after handling. Nuisance dust may be generated when sanding or sawing cured material.

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**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.

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**PRECAUTION 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, generation 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.

**Caution** To protect against any potential health risks presented by our products, the use of proper personal protective equipment (PPE) is recommended. Eye and skin protection is normally advised. Respiratory protection may be needed if mechanical ventilation is not available or is insufficient to remove vapors. For detailed PPE recommendations and exposure control options consult the product MSDS or a Huntsman EHS representative.

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