



## PROVISIONAL DATA SHEET

# RenCast™ 6405/ Ren® 178-85

## POLYURETHANE ELASTOMER

### A RIGID HIGH STRENGTH SHORE 75 ± 5 D ELASTOMER

**DESCRIPTION:** RenCast 6405(Resin) Ren 178-85(Hardener) is a low viscosity, off-white, two-component casting polyurethane elastomer ideal for prototypes and rigid parts. Ren 6405/Ren 178-85 cures to a tough, tear resistant, rigid material without containing MOCA<sup>(1)</sup> or TDI<sup>(2)</sup>. RenCast 6405/Ren 178-85 is easily mixed and reproduces fine detail with a minimum of air entrapment and cures at room temperature. The system RenCast 6405/Ren 178-85 accepts pigments and other colorants better than the standard RenCast 6405 system. The absence of white pigments yields deeper colors than previously obtainable.

**APPLICATIONS:** Prototyping and short-run production of injection molded parts and thermoformed parts.

**MIXING INSTRUCTIONS:** Reaction Ratio: 100R to 100H by weight  
90R to 100H by volume

**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>(3)</sup>
Gel time and Viscosity Profile (150g)	<u>Time (min.)</u>	<u>Viscosity (cP)</u>
	5	240
	15	350
	20	gelled
Color Resin Hardener	Visual	Amber Off-white
Viscosity Resin Hardener	D-2393	40-50 cP 800-900 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>	
Density (g/cc)	D-792	1.13	1.13	
Hardness (Shore D)	D-2240	75 ± 5	75 ± 5	
Tensile Strength (psi)	D-638 @ 20"/min	5,300 (36,500 kPa)	5,500 (37,900 kPa)	
Ultimate Elongation (%)	D-638 @ 20"/min	13.3	10	
Tear Strength (ppi)	D-624 @ 20"/min DIE C	300 (52 kN/m)	350 (61 kN/m)	
Compression Yield Strength (psi)	D-695	6,500 (45,000 kPa)	7,000 (48,000 kPa)	
Ultimate Flexural Strength (psi)	D-790	6,870 (47,350 kPa)	8,580 (59,160 kPa)	
Deflection Temperature (264 psi)	D-648	124°F (51°C)	146°F (63°C)	
Coefficient of Thermal Expansion (in/in°F)	D-3386	5.8 x 10 <sup>-5</sup>	5.6 x 10 <sup>-5</sup>	
Notched IZOD Impact Strength	D-256	.71 ft-lb/in (.38 Joules/cm)	.55 ft-lb/in (.30 Joules/cm)	
Linear Shrinkage (in/in)	Mold #0 Mold #1	D-2566 (0.875" deep)	0.0007 0.0029	0.0044 0.0055

<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 hrs. @ 176°F (80°C) (supported)

**NOTE:** Typical Properties – 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.

**CURING INSTRUCTIONS:** Although room temperature epoxies 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 postcure of 176°F for a minimum of 16 hours. (Add to this adequate time to bring the part to the postcure 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 postcure; 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.

## STORAGE/HANDLING INFORMATION:

### **RenCast 6405 and Ren 178-85**

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

### **RenCast 6405**

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 178-85**

Stir well before use. This material will separate.

**SHELF LIFE:** Provided materials are stored under the recommended storage conditions in their original containers, they will remain in useable condition for six months from date of shipping.

**PACKAGING:** This product is available in the following package size(s):

- Pail unit resin, 38#; Pail unit hardener, 38#

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

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

**RenCast 6405**

**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.

**Ren 178-85**

**CAUTION!** In accord with good industrial practice, handle with due care.

Avoid contact with eyes, skin, and clothing.  
Wash thoroughly after handling.

Nuisance dust may be generated when sanding or sawing cured material.

**FIRST AID:** In case of contact with:

**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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Vantico A&T US, Inc.  
RenShape Solutions  
4917 Dawn Avenue  
East Lansing, MI 48823 USA

Tel 517 351 5900  
800 375 1363  
[www.renshape.com](http://www.renshape.com)

Customer Service Hotline: 800 367 8793  
Technical Inquiries: 800 759 7165  
Product Literature: 800 955 5509