



**Advanced Materials**

**RenGel<sup>®</sup> 1320 resin with Ren<sup>®</sup> 1510 or Ren<sup>®</sup> 1520 hardeners**

HIGH TEMPERATURE SURFACE COAT

**DESCRIPTION:**

RenGel<sup>®</sup> 1320(Resin) is a graphite, fiber-reinforced surface coat based on high temperature resistant multifunctional epoxy resin. This surface coat offers excellent resistance to crazing after long-term, high temperature exposure.

**ADVANTAGES:**

- Wet lay-up compatible
- Prepreg compatible
- Excellent elevated temperature performance
- Excellent property retention after heat aging
- Does not contain VCHD

**SYSTEM SELECTION:**

RenGel<sup>®</sup> 1320 High Temperature Surface Coat can be utilized with hardener options:

- RenGel<sup>®</sup> 1320 hardener/ Ren<sup>®</sup> 1510 hardener is well suited for situations requiring an extended tack time, such as large or complex shapes.
- RenGel<sup>®</sup> 1320 hardener/ Ren<sup>®</sup> 1520 hardener is a reflow surface coat. It should only be used with a reflow wet laminating system or a hot gelling tooling prepreg. This option is not recommended for use with self-supporting room temperature systems.

**MIXING INSTRUCTIONS:**

Reaction Ratio	<b>Product</b>	<b>R/H (by weight)</b>
	RenGel <sup>®</sup> 1320 hardener/ Ren <sup>®</sup> 1510 hardener.	100R to 8H
	RenGel <sup>®</sup> 1320 hardener/ Ren <sup>®</sup> 1520 hardener.	100R to 19H

**Mixing:** Stir each component thoroughly before use. Weigh each component accurately ( $\pm$  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 Value (1)	
		RenGel <sup>®</sup> 1320 resin / Ren <sup>®</sup> 1510 hardener	RenGel <sup>®</sup> 1320 resin / Ren <sup>®</sup> 1520 hardener
Working Life (4 fl. ozl)	D-2471	4 hrs.	8 hrs.
Color Mixed	Visual	Black	Black
Viscosity	D-2393	Paste	Paste



Tack Time (30 mil)		5 hrs.	24 hrs.
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<sup>(1)</sup> Tested after postcure @ 77°F (25°C)

**TYPICAL CURED PROPERTIES:**

Property	ASTM Test Method	Test Value (1)	
		RenGel <sup>®</sup> 1320 resin / Ren <sup>®</sup> 1510 hardener	RenGel <sup>®</sup> 1320 resin / Ren <sup>®</sup> 1520 hardener
Specific Gravity	D-792	1.5	1.4
Hardness (Shore D) @ 77°F (25°C) @ 347°F (175°C)	D-2240	93 88	90 90
Ultimate Compressive Strength (psi) @ 77°F (25°C) @ 347°F (175°C)	D-695	28,500 13,500	20,500 12,000
Ultimate Flexural Strength (psi) @ 77°F (25°C) @ 347°F (175°C)	D-790	12,300 4,600	8,600 6,600
Ultimate Tensile Strength (psi) @ 77°F (25°C) @ 347°F (175°C)	D-638	8,800 2,200	5,000 4,900
Tg by DMA Cast °F/°C	D-648	396/202	457/236
Coefficient of Thermal expansion, TMA 20°C to 100°C (in/in/°C)	D-3386	1.72 x 10 <sup>-5</sup>	2.05 x 10 <sup>-5</sup>
Cast shrinkage, Mold #0, in/in	D-2566	0.003	0.005

<sup>(1)</sup> Tested after postcure @ 77°F (25°C)

**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:**

After gelling at room temperature for 16 to 24 hours, the following postcure schedule is recommended: Two hours at 200°F (93°C) on the mold if possible, plus two hours at 250°F (121°C), plus two hours at 300°F (149°C), plus three hours at 375°F (191°C).

Temperature limitations of the mold or model dictate whether it can be used as the supporting structure during the postcure cycle. If the tool must be pulled from the model for the postcure, a supporting frame must be provided.

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.

**STORAGE/HANDLING INFORMATION:**

**RenGel<sup>®</sup> 1320 resin, Ren<sup>®</sup> 1510 and Ren<sup>®</sup> 1520 hardeners**

Store at 60-100°F in a dry place After use 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.



**RenGel® 1320 resin**

Stir well before use. This material will separate.

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**SHELF LIFE:**

Provided materials are under the recommended storage conditions in their original containers, they will remain in useable condition for at least one year from date of shipping.

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**PACKAGING:**

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

Small preweighed units = 6 qts. Resin (16.4 lbs. total), 6 preweighed Hardener (3 lbs. total)  
Pail units = pail resin (42 lbs.) w/ appropriate hardener (7.9 lbs.)

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.

**RenGel® 1320 resin**

**DANGER!** Causes severe skin irritation. Causes eye irritation. May cause skin burns and allergic skin reaction.

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

**Ren® 1510 hardener**

**DANGER!** CORROSIVE – Causes skin and eye burns. Harmful if absorbed through skin. May cause allergic skin and respiratory reactions.

Do not get in eyes, on skin, or on clothing. Avoid breathing vapor or mist. Keep container closed. Use with adequate ventilation. Wash thoroughly after handling.

**Ren® 1520 hardener**

**DANGER!** CORROSIVE – Causes skin and eye burns. Harmful if absorbed through skin. May cause allergic skin and respiratory reactions.

Do not get in eyes, on skin, or on clothing. Avoid prolonged or repeated contact with skin. Avoid breathing vapor or mist. Keep container closed. Use with adequate ventilation. 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 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.

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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, 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 laminated resin for casting.

Please feel welcome to call our Product Information Department or your local Ren<sup>®</sup> representative for instructions before you start your job.

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