

**Advanced Materials****RenLam<sup>®</sup> 1310R Resin  
Ren<sup>®</sup> 1520H Hardener****HEAT RESISTANT EPOXY LAMINATING SYSTEM**

- High Temperature Performance
- Very Long Work Life

**DESCRIPTION :**

RenLam<sup>®</sup> 1310R resin/Ren<sup>®</sup> 1520H hardener epoxy laminating system is a two-component, black material that contains no MDA. It is non-staining and unfilled with good reflow characteristics. RenLam<sup>®</sup> 1310R resin/Ren<sup>®</sup> 1520H hardener epoxy laminating system features a long, 16 hour work life. The multifunctional epoxy-based system product is designed to perform at temperatures up to 400°F (204°C) after an elevated temperature postcure. RenLam<sup>®</sup> 1310R resin/Ren<sup>®</sup> 1520H hardener epoxy laminating system is well suited for use in building large, high-strength tools that will be exposed to very high temperatures.

**TYPICAL MIXED PROPERTIES\***

<u>Property</u>	<u>1310R/1520H</u>	<u>Test Method</u>
Color, Mixed	Black	Visual
Viscosity, mixed, cP at 77°F (25°C)	7,700	ASTM-D-2393
Gel time, 4 fl. oz. at 77°F (25°C), hrs.	16	ASTM-D-2471

\* Tested at 77°F (25°C)

**MIX RATIO :**

RenLam<sup>®</sup> 1310R resin:Ren<sup>®</sup> 1520H hardener                      100:32 by weight

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

## TYPICAL CURED PROPERTIES :

Property	Cure Value	Test Method
Coefficient of Thermal Expansion by TMA, 3386		ASTM D-
in./in./°F	3.4x10 <sup>-6</sup>	
in./in./°C	6.2x10 <sup>-6</sup>	

**Laminate : 10 oz., 6K, 5 harness satin weave graphic fabric laminate, 8 layers, 1/8 in. thick, lay-up 0° rotation, vacuum bagged. Resin content: 31%**

Method	Parallel	Perpendicular	Parallel	Test
	<u>To Weave</u>	<u>To Weave</u>	<u>To Weave after Aging 1000 hrs. @ 375°F (190°C)</u>	
Flexural Strength, psi (MPa)				ASTM-D-790
at 77°F (25°C)	78,000 (538)	85,000 (586)	70,000 (483)	
at 350°F (177°C)	47,000 (324)	49,000 (338)	42,000 (290)	
at 400°F (204°C)	34,000 (234)	39,000 (269)	28,000 (193)	
Flexural Modulus, psi (MPa)				ASTM-D-790
at 77°F (25°C)	6.04x10 <sup>6</sup> (41,379)	6.09x10 <sup>6</sup> (42,068)	5.9x10 <sup>6</sup> (40,690)	
at 350°F (177°C)	5.39x10 <sup>6</sup> (37,241)	5.31x10 <sup>6</sup> (36,552)	4.79 x10 <sup>6</sup> (31,103)	
at 400°F (204°C)	4.28x10 <sup>6</sup> (29,655)	4.50x10 <sup>6</sup> (31,034)	3.4x10 <sup>6</sup> (23,448)	
Tensile Strength, psi (MPa)				ASTM D-638
at 77°F (25°C)	100,000 (689)	77,000 (531)	88,000 (607)	
at 350°F (177°C)	92,000 (634)	73,000 (503)	90,000 (621)	
at 400°F (204°C)	86,000 (593)	65,000 (448)	75,000 (517)	
Tensile Modulus, psi (MPa)				
at 77°F (25°C)	10.5x10 <sup>6</sup> (72,413)	10.4x10 <sup>6</sup> (71,724)	10.2x10 <sup>6</sup> (70,344)	
Compressive Strength, psi (MPa)				ASTM D-695
at 77°F (25°C)	45,000 (310)	45,000 (319)	36,000 (248)	
at 350°F (177°C)	33,000 (228)	29,000 (200)	24,000 (166)	
at 400°F (204°C)	23,000 (159)	23,000 (159)	18,000 (124)	
Compressive Modulus, psi (MPa)				
at 77°F (25°C)	8.3x10 <sup>6</sup> (57,241)			

**Laminate : 10 oz., 6K, 5 harness satin weave graphic fabric laminate, 8 layers, 1/8 in. thick, lay-up 0° rotation, vacuum bagged. Resin content: 31%**

	<u>Parallel to Weave</u>	<u>Test Method</u>
Flexural Strength, psi (MPa)		ASTM-D-790
at 77°F (25°C)	58,000 (400)	
at 350°F (177°C)	37,000 (255)	
at 400°F (204°C)	29,000 (200)	
Flexural Modulus, psi (MPa)		ASTM-D-790
at 77°F (25°C)	3.97x10 <sup>6</sup> (23,448)	
at 350°F (177°C)	3.12x10 <sup>6</sup> (21,379))	
at 400°F (204°C)	2.54x10 <sup>6</sup> (17,241)	

**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.

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**CURING INSTRUCTIONS :**

With proper backup completed, allow to gel at room temperature followed by a postcure of two hours at 200°F (93°C), plus two hours at 250°F (121°C), plus two hours at 300°F (149°C), plus three hours at 350°F (177°C) plus three hours at 375°F (191°C) For best results, laminates should be supported during postcure cycles.

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**STORAGE/ SHELF LIFE :**

Epoxy resins and hardeners should be stored in a dry place in their original, sealed containers at temperatures from 60-100°F (16-38°C). Material temperatures should be above 65°F (18°C) when mixing. After use, tightly reseal containers. Under these conditions, epoxy resins and hardeners will remain useable for 12 months from date of shipping from Huntsman.

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**CAUTION :**

Huntsman Advanced Materials Americas Inc. 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. Copies of the latest MSDS may be requested by calling our customer service group at 800-367-8793 or emailing your request to [adhesives\\_group@huntsman.com](mailto:adhesives_group@huntsman.com).

**FIRST AID !**

Eyes and skin : Flush eyes with water for 15 minutes. Contact a physician if irritation persists. Wash skin thoroughly with soap and water. Remove and wash contaminated clothing before reuse.

Inhalation : Remove subject to fresh air.

Swallowing : Dilute by giving water to drink and contact a physician promptly. Never give anything to drink to an unconscious person.

**KEEP OUT OF REACH OF CHILDREN  
FOR PROFESSIONAL AND INDUSTRIAL USE ONLY**

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