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Advanced Materials

RenLam® 1310R Resin
Ren® 1510H Hardener

HEAT RESISTANT EPOXY LAMINATING SYSTEM

- High Temperature Performance
- Long Work Life

DESCRIPTION :

RenLam® 1310R resin/Ren® 1510H hardener epoxy laminating system is a two-component, black material that contains no MDA. It is non-staining and non-crystallizing and features a long, three hour work life. The multifunctional epoxy-based system product is designed to perform at temperatures up to 400ºF (204°C) after an elevated temperature postcure. RenLam® 1310R resin/Ren® 1510H 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*

Property	1310R/1510H	Test Method
Color, Mixed	Black	Visual
Viscosity, mixed, cP at 77°F (25°C)	9,000	ASTM-D-2393
Gel time, 4 fl. oz. at 77ºF (25°C), hrs.	3	ASTM-D-2471

* Tested at 77°F (25°C)

MIX RATIO :

RenLam® 1310R resin:Ren® 1510H hardener 100:15 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.

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TYPICAL CURED PROPERTIES :
Laminate : 10 oz., 6K, 5 harness satin weave graphic fabric/CGL 1354 laminate, 8 layers, lay-up 0° rotation, vacuum bagged. Resin content: 46%

	Cure Value **Heat Cured**[2]	Cure Value **Aged 1000 hrs. @ 375°F (190°C)**	Test Method
Flexural Strength, psi (MPa)			ASTM-D-790
at 77ºF (25°C)	82,000 (566)	78,000 (538)	
at 350°F (177°C)	40,000 (276)	43,000 (296)	
at 400°F (204°C)	25,000 (172)	22,000 (152)	
Flexural Modulus, psi (MPa)			ASTM-D-790
at 77°F (25°C)	$5.7x10^6$ (39,310)	$5.7x10^6$ (39,310)	
at 350°F (177°C)	$4.5x10^6$ (31,034)	$5.9x10^6$ (40,690)	
at 400°F (204°C)	$2.9x10^6$ (20,000)	$2.8x10^6$ (19,310)	
Tensile Strength, psi (MPa)			ASTM D-638
at 77°F (25°C)	77,000 (531)	76,000 (524)	
at 350°F (177°C)	79,000 (545)	79,000 (545)	
at 400°F (204°C)	74,000 (510)	74,000 (510)	
Compressive Strength, psi (MPa)			ASTM D-695
at 77°F (25°C)	43,000 (296)	40,000 (276)	
at 350°F (177°C)	24,000 (166)	26,000 (179)	
at 400°F (204°C)	19,000 (131)	17,000 (117)	
Glass transition temperature per DMA, °F (°C)	440 (226)		

Tested parallel to weave direction

Cure Schedule – Postcured 24 hrs. at 77°F (25°C), + 2 hrs. at 200°F (93°C) + 2 hrs. at 250°F (121°C) + 2 hrs. at 300°F (149°C), + 3 hrs. at 375°F (177°C), tested at 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.

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.

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.

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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