

Advanced Materials

RenLam[®] 4005R Resin Ren[®] 1500H Hardener

HEAT-RESISTANT EPOXY LAMINATING SYSTEM

- High Temperature Performance

- Unfilled

- Good Work Life

DESCRIPTION:

RenLam[®] 4005R resin/Ren[®] 1500H hardener epoxy laminating system is an unfilled, two-component material designed to perform at temperatures up to 300°F (149°C). Intermittent use is possible in the 300°F (149°C) to 350°F (177°C) range. Laminated tools built with RenLam[®] 4005R resin/Ren[®] 1500H hardener epoxy system can be constructed with regular hand lay-up techniques or vacuum bagged, if the tool is small enough to allow the operator to complete bagging and squeezing operations before the material starts to gel. The system gels at room temperature but must be postcured to achieve maximum strength. RenLam[®] 4005R resin/Ren[®] 1500H hardener epoxy laminating system is well suited for use in building vacuum-form, RTM, RIM and compression molds as well as other high-temperature tooling. The epoxy system can be utilized with large quantities of bulk fill, such as Ren[®] RP 39 aluminum grain for casting.

TYPICAL MIXED PROPERTIES* Property

Color Viscosity, mixed, cP at 77°F (25°C) Gel time, 4 fl. oz. at 77°F (25°C) 4005R/1500H Amber 1,900 50-60

Test Method Visual ASTM-D-2393 ASTM-D-2471

* Tested at 77°F (25°C)

MIX RATIO :

RenLam[®] 4005R resin:Ren[®] 1500H hardener

100:14 by weight 100:15 by volume

Stir each component thoroughly before use. Weight each component accurately (\pm 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 :

	<u>Cure Value</u>	Test-Method
Specific Gravity (cast)	1.19	ASTM D-792
Cubic Inch per Pound	23.3	ASTM D-792
Hardness, Shore D	90	ASTM-D-2240
Ultimate Flexural Strength, at 77°F (25°C), psi (MPa)	35,000 (241)	ASTM-D-790
Flexural Modulus, at 77°F (25°C), psi (MPa)	1.6x10 ⁶ (11,034)	
Ultimate Tensile Strength, at 77°F (25°C), psi (MPa)	26,000 (179)	ASTM D-638
Tg by DMA, E", °F (°C)	338 (166)	ASTM D-4065
Ultimate Compressive Strength, at 77°F (25°C), psi (MPa)	28,000 (193)	ASTM D-695
Deflection Temperature (264 psi), °F (°C)	289 (143)	ASTM D-648
Coefficient of Thermal Expansion, in./in./°F	8.5 x 10 ⁻⁶	ASTM D-3386

Cure Schedule – Contact laminate, 10 oz. glass cloth, 90° rotation, postcured 24 hrs. at 77°F (25°C), + 2 hrs. at 150°F (66°C) + 2 hrs. 200°F (93°C) + 2 hrs. at 250°F (121°C) + 2 hrs. at 300°F (149°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.

CURING INSTRUCTIONS :

With proper backup completed, allow to gel at room temperature followed by a postcure of two hours at 150°F (66°C) plus two hours at 200°F (93°C), plus two hours at 250°F (121°C), plus two hours at 300°F (149°C).

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 2 years from date of Manufacture.

CAUTION :

Do not use this product until the MSDSs have been read and understood. 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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