

**Advanced Materials****RenLam<sup>®</sup> 1710 / Ren<sup>®</sup> 956 System****ROOM TEMPERATURE LAMINATING SYSTEM****DESCRIPTION:**

RenLam<sup>®</sup> 1710(Resin) / Ren<sup>®</sup> 956(Hardener) is a white, room temperature curing, two-component epoxy laminating system offering excellent cloth wet-out and low shrinkage with good dimensional stability.

**APPLICATIONS:**

RenLam<sup>®</sup> 1710 / Ren<sup>®</sup> 956 system is well suited for patterns, drill jigs, assembly fixtures, Keller models, body cubes, draw dies, master die models, spotting rack, etc.

**MIXING INSTRUCTIONS:**

Reaction Ratio            100R to 16H (by weight)  
                                   100R to 23H (by volume)

**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 PHYSICAL PROPERTIES:**

Property	ASTM Test Method	Test Values <sup>(1)</sup>
Ge time (4 fl. oz.)	D-2471	35 mins.
Color    Resin	Visual	White
Hardener		Amber
Mixed		White
Mixed Viscosity	D-2393	2,000 cP

<sup>(1)</sup> Tested @ 77°F (25°C)

**TYPICAL CURED PROPERTIES:**

Property	ASTM Test Method	Test Values <sup>(1)</sup>
Ultimate Compressive Strength (psi)	D-695	26,900
Ultimate Flexural Strength (psi)	D-790	32,900
Flexural Modulus (psi)	D-790	$1.5 \times 10^6$
Ultimate Tensile Strength (psi)	D-638	25,000
Coefficient of Thermal Expansion by TMA (in/in/°F)		$0.81 \times 10^{-3}$

<sup>(1)</sup> Cure Schedule – Contact laminate, 10 oz. glass cloth, 90° rotation, postcured 24 hrs. 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.

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**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 150°F for a minimum of six 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. For best results, parts should be supported during postcure.

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.

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**HANDLING :****RenLam® 1710 / Ren® 956 system**

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.

**RenLam® 1710 resin**

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.

Stir well before use. This material will separate.

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**PACKAGING:**

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

Pail Unit = Pail Resin (38#) with appropriate Hardener (7.8#)

Drum Units = Drum Resin (500#) with Hardener 5-gal. (40#)

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

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**STORAGE :**

RenLam® 1710 / Ren® 956 should be stored in a dry place, in the sealed original container, at temperatures between +2°C and +40°C (+35.6°F and 104°F). Under these storage conditions, the shelf life is 2 years. The product should not be exposed to direct sunlight.

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**PRECAUTIONARY STATEMENT :**

Huntsman Advanced Materials Americas LLC 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.

**First Aid!**

Refer to MSDS as mentioned above.

**KEEP OUT OF REACH OF CHILDREN**

**FOR PROFESSIONAL AND INDUSTRIAL USE ONLY**

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Products may be toxic and require special precautions in handling. The user should obtain Safety Data Sheets from Huntsman Advanced Materials containing detailed information on toxicity, together with proper shipping, handling and storage procedures, and should comply with all applicable safety and environmental standards.

Hazards, toxicity and behavior of the products may differ when used with other materials and are dependent on manufacturing circumstances or other processes. Such hazards, toxicity and behavior should be determined by the user and made known to handlers, processors and end users.

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**Advanced Materials****RenLam<sup>®</sup> 1710 / Ren<sup>®</sup> 1710****EPOXY LAMINATING SYSTEM****DESCRIPTION:**

RenLam<sup>®</sup> 1710(Resin) / Ren<sup>®</sup> 1710 (Hardener) contains 100% reactive, liquid resin ingredients to provide the most desirable stability and performance characteristics in room temperature laminates.

RenLam<sup>®</sup> 1710 laminating system allows faster and more uniform cloth wet-out during application. Up to 18 layers can be applied at one time. Its controller viscosity holds the cloth in place and does not drain out of vertical surfaces, providing excellent glass cloth penetration.

**ADVANTAGES:**

- Fast demold time (normally eight hours)
- Rigid cure
- Batch-to-batch uniform quality
- Dimensional stability
- Machinable

**MIXING INSTRUCTIONS:**

Reaction Ratio            100R to 16H (by weight)  
                                      100R to 23H (by volume)

**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 Values <sup>(1)</sup>
Ge time (4 fl. oz.)	D-2471	22 mins.
Color	Visual	White
Viscosity (mixed)	D-2393	3,500 cP

<sup>(1)</sup> Tested @ 77°F (25°C)

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**TYPICAL CURED PROPERTIES:**

Property	ASTM Test Method	Test Values <sup>(1)</sup>
Specific Gravity	D-792	1.71 1.35 (cast)
Cubic inch per pound	D-792	18.8
Hardness (Shore D)	D-2240	90
Ultimate Compressive Strength (psi)	D-695	23,000
Ultimate Flexural Strength (psi)	D-790	30,000
Flexural Modulus (psi)	D-790	1.84 x 10 <sup>6</sup>
Ultimate Tensile Strength (psi)	D-638	25,000
Tg per DMA (°F)	D-4065	164
Deflection Temperature (°F) @ 264 psi (cast)	D-648	129
Coefficient of Thermal Expansion (in/in/°F)	D-3386	1.20 x 10 <sup>-5</sup>

<sup>(1)</sup> Properties are in a 10 oz. laminate rotated 90° and cured for 7 days at 77°F (25°C), tested at 77°F

**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:**

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 150°F for a minimum of six 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. For best results, parts should be supported during postcure.

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.

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**STORAGE/HANDLING INFORMATION:****RenLam<sup>®</sup> 1710 / Ren<sup>®</sup> 1710**

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.

**RenLam<sup>®</sup> 1710**

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.

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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**SAFETY/HANDLING PRECAUTIONS:**

Do not use or handle this product until the material Safety Data Sheet has been read and understood.

**RenLam® 1710**

**WARNING!** Causes eye and skin irritation. May cause allergic skin reaction.

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

**Ren® 1710**

**DANGER!** CORROSIVE – Causes eye burns and skin irritation.

Do not get in eyes, Avoid contact with skin and clothing. 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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