

Advanced Materials**RenInfusion[®] 8603 / Ren[®] 8603 System****EPOXY RESIN SYSTEM****DESCRIPTION :**

RenInfusion[®] 8603 (Resin) / Ren[®] 8603 (Hardener) is a two-component, low-viscosity epoxy system developed for use in the production of advanced composites using vacuum-assisted resin transfer molding (VARTM), resin transfer molding (RTM), Seemans Composite Resin Injection Molding Process (SCRIMPSM), or other infusion processes. The low-mixed viscosity and wet-out potential of RenInfusion[®] 8603 / Ren[®] 8603 enhance processability parameters.

RenInfusion[®] 8603 / Ren[®] 8603 has intermediate temperature performance and maintains excellent toughness. Composites produced with this product can achieve a glass transition of 180 °F (82 °C) without a post cure.

MIX RATIO :

By weight: 100 to 15 Resin to Hardener
By volume: 100 to 19 Resin to Hardener

Mixing Instructions : Measure each component accurately (\pm 5%) into clean containers. Thoroughly mix resin and hardener together (minimum 2 minutes) scraping container sidewalls, bottom and mixing stick several times to assure a uniform mix.

TYPICAL HANDLING PROPERTIES :

Tested @ 77 °F (25 °C) unless otherwise noted.

Property	Criteria	ASTM Test Method	Test Value
Color	Mixed		Transparent
Specific Gravity	Resin	D-792	1.10
	Hardener		1.00
Viscosity, cP	Resin	D-2393	680
	Hardener		20
	Mixed		240
Gel Time, minutes	4 fl. oz.	D-2471	160
	14 fl. oz.		78

NOTE : Typical Properties – These physical properties are reported as typical test values obtained by our test laboratory. If assistance is needed establishing product specifications, please consult with our Quality Control Department.

RECOMMENDED CURE SCHEDULE :

24 hours @ 77 °F (25 °C)

NEAT SYSTEM**TYPICAL CURED PROPERTIES :**

Cured 24 hours minimum @ 77 °F (25 °C)
 Tested @ 77 °F (25 °C) unless otherwise noted.

Property	ASTM Test Method	Test Values
Hardness (Shore D)	D-2240	82
Ultimate Flexural Strength, psi	D-790	14,200
Flexural Modulus, psi	D-790	0.4×10^6
Ultimate Tensile Strength, psi	D-638	8,500
Tensile Modulus, psi		0.4×10^6
Tg by DMA, E' onset, °F (°C)	D-4065	166 (74)
Ultimate Compressive Strength, psi	D-695	16,904
Compressive Modulus, psi		438,158
% Elongation	D-638	2.6
Izod Impact, notched, ft.lb./in	D-256	0.459

NOTE : All properties are of neat product form (non-composite)**INFUSION PROCESS****TYPICAL CURED PROPERTIES :**

Cured 7 days @ 77 °F (25 °C)
 Tested @ 77 °F (25 °C) unless otherwise noted.

Property	ASTM Test Method	Test Values⁽¹⁾	Test Values⁽²⁾
Hardness (Shore D)	D-2240	90	92
Ultimate Flexural Strength, psi	D-790	48,200	93,700
Flexural Modulus, psi	D-790	3.2×10^6	5.8×10^6
Ultimate Tensile Strength, psi	D-638	43,450	79,700
Tensile Modulus, psi		3.2×10^6	8.2×10^6
Tg by DMA, E' onset, °F (°C)	D-4065	180 (82)	180(82)
Ultimate Compressive Strength, psi	D-695	31,916	55,887
Compressive Modulus, psi		3.7×10^6	6.9×10^6
% Elongation	D-638	1.5	1.0

LAY-UP PROCESS :

	Glass Laminate¹	Graphite Laminate²
Panel Type :	Approx. 2 ft. x 2 ft. flat panel	Approx. 2 ft. x 2 ft. flat panel
Cloth Type :	8 layers, Volan A 7500, 10 oz.	8 layers, 3K, 70P
Cloth Rotation :	0 degree	0 degree
Procedure :	VARTM, flat panel	VARTM, flat panel
Laminate Thickness :	0.080"	0.078"

PACKAGING :

<u>Unit</u>		<u>Weight</u>
5 gallon	<i>Resin</i>	43 lb.
1 gallon	<i>Hardener</i>	6.5 lb.
Drum	<i>Resin</i>	467 lb.
5 gallon	<i>Hardener</i>	35 lb.
Drum	<i>Hardener</i>	350 lb.

HANDLING

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 ration. Mix together thoroughly and use immediately after mixing. Material temperature should not be below 65 °F (18 °C) when mixing.

SHELF LIFE :

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

SAFETY / HANDLING PRECAUTIONS :

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

RenInfusion® 8603

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

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

Ren® 8603

DANGER CORROSIVE. Causes eye burns and skin 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.

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.

PRECAUTIONARY 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, generation 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 laminating resin for casting.

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

Caution 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.

IMPORTANT LEGAL NOTICE

Huntsman Advanced Materials warrants only that its products meet the specifications agreed with the user. Typical properties, where stated, are to be considered as representative of current production and should not be treated as specifications.

The manufacture of materials is the subject of granted patents and patent applications; freedom to operate patented processes is not implied by this publication.

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