



Advanced Materials

RenPaste® 4618-1 / Ren® 4619

SEAMLESS MODELING PASTE
 INTERMEDIATE TEMPERATURE

KEY PROPERTIES

- Quick marine and aerospace model/plug buildup
- Suitable for use up to 225°F with Post-cure
- Virtually odorless during curing - machinable after one day
- Easily machined formulation - producing a fine, seamless surface
- Superior dimensional stability

APPLICATIONS

- Production of models and molds

PRODUCT DATA

Property	Unit	RenPaste® 4618-1	Ren® 4619
Appearance Color	Visual	Paste Med. Gray	Paste Off White
Density	g/cm ³	0.85 – 0.95	0.85 – 0.95

PROCESSING

Mix ratio	Parts by weight	Parts by volume
RenPaste® 4618-1	100	100
Ren® 4619	50	50

- Use of a perforated aluminum honeycomb base is strongly recommended to reduce weight and cost while maintaining high z-axis strength as well as to minimize internal stresses.
- Apply paste as a single layer up to 3/4" (19mm) in thickness onto a clean, stable substrate. If a thicker application is desired then proceed with the first application at 3/4", wait 24 hours and then apply up to an additional 3/4" where needed. Proceed in this manner until the desired thickness is achieved. The material should be applied in 39" (1Meter) square sections leaving or scribing a small gap between sections to be filled 24 hours later. Alternatively material may be applied in a checkerboard pattern with open squares filled in 24 hours after the first application.

Room temperature cured material will go through a brittle stage before post-cure. Post-cure at the lowest temperature will remove this brittleness.

Use of this product on EPS foam is Strongly Discouraged as the foam will not handle the temperatures required to cure RenPaste® 4618-1/Ren® 4619 and at the highest Postcure Temperature (284°F) may even be hazardous.



**TYPICAL
 PROPERTIES**

Resin/Hardener mix:	Volume	Unit	RenPaste® 4618-1 Ren® 4619
Appearance			Gray Paste
Gel Time at 77°F (25°C)	1 in Thick	min	ca. 120
Max. Layer thickness		in (mm)	1 (24.5)
Machining Time		day	1 - 2

Cured for 24 hrs. at 77°F (25°C) plus 4 hrs. at 149°F (65°C) +
 4 hrs. at 212°F (100°C) + 4 hrs. at 284°F (140°C). Tested at
 77°F (25°C) unless otherwise noted.

Density	ASTM D-792	g/cm ³ lbs/ft ³	1.06 66
Hardness	ASTM D-2240	Shore D	84
Notched Izod Impact Strength	ASTM D-265	ft lbs per in of notch	0.2
Compressive strength	ASTM D-695	psi (MPa)	11,145 (77)
Compressive modulus	ASTM D-695	Kpsi (MPa)	730 (5038)
Flexural strength	ASTM D-790	psi (MPa)	5800 (40)
Flexural modulus	ASTM D-790	Kpsi (MPa)	562 (3878)
Tensile strength	ASTM D-638	psi (MPa)	4000 (28)
Tensile modulus	ASTM D-638	Kpsi (MPa)	719 (4961)
Tg by DMA, E' onset	ASTM D-4065	°F (°C)	207 (98)
Tg by DMA, E" onset	ASTM D-4065	°F (°C)	253 (124)
Coefficient of thermal expansion	ASTM E-831	-30 to +30 °C -22°F to 86°F	44x10 ⁻⁶ in./in./°C 24 x 10 ⁻⁶ in/in/°F
Coefficient of thermal expansion	ASTM E-831	52°C to 107°C 125°F to 225°F	58 x 10 ⁻⁶ in/in/°C 32 x 10 ⁻⁶ in/in/°F
Linear shrinkage*		mm/m in/in	0.001
* Test sample 24" x 3" x 1", released			



CURE SCHEDULE

Cure

Following application, the material should be allowed to cure at ambient temperature 68 – 79°F (20-28°C) for a minimum of 24 hours. If the workshop temperature drops below 68°F, this period should be extended to a several days. It is not recommended to work at temperatures below 61°F.

Post Cure

Post cure should be carried out before milling of the paste to its final dimensions. Having a uniform thickness over the part helps to prevent generation of stress and related distortion on the final part during the post cure process.

Room temperature cured material will go through a brittle stage before post-cure.

Post-cure at the lowest temperature will remove this brittleness

To achieve the maximum Tg the following is recommended:

Heat from room temperature to 149°F (65°C) and hold for 4 hours then heat to 212°F (100°C) and hold for 4 hours then heat to 284°F (140°C) and hold for 4 hours. Cooling should be done in a controlled manner back to room temperature – it should not just be removed from the oven, but cooled slowly over at least 8 hours to prevent stresses.

STORAGE AND SHELF LIFE

RenPaste® 4618-1 US / Ren® 4619 US should be stored in a dry place and in the sealed original container, at temperatures between 2°C and 40°C (36°F and 104°F). Under these storage conditions the shelf life is 1 year. The product should not be exposed to direct sunlight.

PRECAUTIONARY STATEMENT

Huntsman Advanced Materials Americas 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

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Huntsman Advanced Materials
10003 Woodloch Forest Drive
The Woodlands, Texas 77380

Tel: 888-564-9318
Fax: 281-719-4047
www.huntsman.com/advanced_materials