

Advanced Materials**RenPaste[®] 4503 RESIN
Ren[®] 4503 HARDENER****EPOXY SEAMLESS MODELING PASTE**

DESCRIPTION :

RenPaste[®] 4503 epoxy resin and Ren[®] 4503 hardener used to form the seamless modeling paste are low-density, filled, viscous liquids. When mixed, they produce a smooth, brown, lightweight, thixotropic paste.

RenPaste[®] 4503 epoxy resin and Ren[®] 4503 hardener are designed to be proportioned, mixed and dispensed with equipment build specifically for using the epoxy seamless modeling paste. The applicator nozzle extrudes paste directly onto an undersized form, including horizontal, vertical and slightly overhanging contours.

APPLICATIONS :

Production of models and molds

ADVANTAGES :

Quick model build-up through high-output automated equipment
1.5-inch (38mm) thickness layer in one application
Low exotherm
Virtually odorless during application and milling
Room-temperature curing; machineable after 1 day
Easy-to-machine formulation, producing a fine, void-free, seamless surface
Low density with good dimensional stability
Epoxy-based

MIX RATIO	4503R/4503H	By Weight	100:90	Resin to Hardener
	4503R/4503H	By Volume	100:100	Resin to Hardener

TYPICAL HANDLING PROPERTIES Tested @ 77°F(25°C)

<u>Property</u>	<u>Criteria</u>	<u>Test Method</u>	<u>Test Value</u>
Color	Resin	Visual	Brown
	Hardener		White
	Cured		Brown
Specific Gravity	Resin	ASTM D-792	0.70—0.85
	Hardener		0.60—0.76
Gel Time, minutes at 77°F (25°C)	1.5 in. (38mm)	ASTM D-2471	60--90

NOTE : These physical properties are reported as typical test values obtained by the Huntsman Advanced Materials laboratories. If assistance is needed in establishing product specifications, please consult with the Huntsman Advanced Materials Quality Control Department.

PROCESSING : Before beginning, ensure that the undersized form is strong, stable, clean and free of loose material. Apply paste as a single layer up to 1.5 in. (38mm) in thickness using suitable meter/mix equipment.

RECOMMENDED CURE SCHEDULE**Temperature****Time**

77°F (25°C)

24 hours

TYPICAL CURED PROPERTIES :

Tested @ 77°F(25°C) unless otherwise noted.
Not for specification purposes.

<u>Property</u>	<u>Test Method</u>	<u>Test Values</u>
Density, lb./ft. ³ (g.cm ³)	ASTM D-792	47.3 (0.76)
Cubin Inch per Lb.		34.6
Hardness, Shore D	ASTM D-2240	60
Ultimate Flexural Strength, psi (MPa)	ASTM D-790	2,200 (15.2)
Deflection Temperature, °F (°C)	ASTM D-648	at 66 psi (0.46 MPa)
		at 264 psi (1.8 MPa)
Tg per DMA, E' onset, °F (°C)	ASTM D-4065	127 (53)
Tg per DMA, E' peak, °F (°C)	ASTM D-4065	137 (58)
Ultimate Compressive Strength, psi (MPa)	ASTM D-695	159 (71)
Coefficient of Thermal Expansion,	ASTM D-3386	
		-22°F to 86°F, in./in./°F,
		-30°C to +30°C, in./in./°C
Linear Shrinkage, Mold #1**, in./in. (mm/mm)	Huntsman Method*	2,100 (14.5)
		32x10 ⁻⁶
		58x10 ⁻⁶
		0.002 (0.002)

* Test sample : 1.6 in. x 2 in. x 39 in. (41mm x 51mm x 99cm), free standing

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.

to the Product of all hazards pertaining to and proper procedures for safe handling, use, storage, transportation and disposal of and exposure to the Product, and the containers or equipment in which the Product may be handled, shipped or stored.

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