



Product Data

RenShape[®] 450 MODELING BOARD

RenShape 450 modeling board is preferred by model makers throughout the world for its ability to hold precise tolerances, maintain good dimensional stability even after exposure to temperature and humidity extremes, and produce good surface detail with solid, well-defined edges. RenShape 450 board is easy to hand carve or CNC machine. It causes minimal cutter wear even at high feed rates. RenShape 450 modeling board is well suited for producing temporary, styling, visual and master models, architectural and automotive die models, prototype parts, CAD design verification models, prototype foundry patterns, prototype vacuum-form molds, and other applications requiring fast machining and good model surfaces. Special performance characteristics of the grain-free modeling material include:

ADVANTAGES	<ul style="list-style-type: none"> • Good edge definition • Low shrinkage and water absorption • High-quality surface finish
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ACCESSORIES	Matched Epoxy Adhesive	Polyurethane Repair Pastes
	Ren-Weld [®] 103	RenPatch [®] 177-113/Ren 177-113 or RenPatch 440

TYPICAL PROPERTIES*	Test Method	Test Values
Color	Visual	Light brown
Density, lb./ft ³ (g/cm ³)	ASTM D-792	41 (0.66)
Hardness, Shore D	ASTM D-2240	65
Ultimate Flexural Strength, psi (MPa)	ASTM D-790	4,000 (27.6)
Flexural Modulus, psi (MPa)	ASTM D-790	144,000 (993)
Ultimate Tensile Strength, psi (MPa)	ASTM D-638	2,300 (15.9)
Tg by DMA, E", °F(°C)	ASTM D-4065	205 (96)
Compressive Strength, 0.2% offset, psi (MPa)	ASTM D-695	2,800 (19.3)
Compressive Modulus, psi (MPa)	ASTM D-695	135,000 (931)
Coefficient of Thermal Expansion	ASTM D-3386	
-22° to 86°F, in/in/°F		36 x 10 ⁻⁶
-30° to 30°C, in/in/°C		65 x 10 ⁻⁶

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

NOTE: 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 Product Management Department.

MACHINING	Roughing Speed	Roughing Feed	Finishing Speed	Finishing Feed
	2,000 RPM	100 IPM (254cm/min.)	15,000 RPM	200 IPM (508cm/min.)

Cutters: Roughing: 1 in. (2.5cm) Hog Ball End Mill 4-Flute HS Steel 8% cobalt
Finishing 5/8 in (16mm) Ball End Mill 2-Flute Carbide
Depth: Roughing varies from 0.25 in. to 2.5 in. (6mm to 6.35cm) with a 40% stepover
Finishing depth is 1/8 in. (3mm) leaving a 0.002 in. (0.05mm) scallop height

These machining parameters are represented as starting points. Cutter type and material, spindle speed, feed rate, machine power and rigidity all affect machining results. User must determine the best parameters for specific situations.

PACKAGING:

RenShape 450 board is available in a limited number of standard combinations of 1 in., 2 in., 3 in. and 4 in. (2.5cm, 5cm, 7.6cm, 10cm) thicknesses, widths of 16 in., 20 in and 24 in. (40cm, 51cm, 60cm) and length of 60 in. (152cm). Boards are finished on top and bottom faces and on all edges. Please contact Customer Service (800) 367-8793 for currently available options, price and availability.

STORAGE/HANDLING:

Store boards flat in original cartons at 60°F to 100°F (15°C to 38°C). In accord with good industrial practice, handle with due care. Avoid dusty conditions, use adequate ventilation. Avoid breathing dust. Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling.

SHELF LIFE:

Provided this material is stored under the recommended storage condition in the original container, it will remain in useable condition for an unlimited amount of time.

CAUTION:

Huntsman Advanced Materials Americas Inc. 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. Copies of the latest MSDS may be requested by calling our customer service group at 800-367-8793 or emailing your request to kathy_dewey@huntsman.com.

FIRST AID!

Eyes and skin: Flush eyes with water for 15 minutes. Contact a physician if irritation persists. Wash skin thoroughly with soap and water. Remove and wash contaminated clothing before reuse.

Inhalation: Remove subject to fresh air.

Swallowing: Dilute by giving water to drink and contact a physician promptly. Never give anything to drink to an unconscious person.

KEEP OUT OF REACH OF CHILDREN

FOR PROFESSIONAL AND INDUSTRIAL USE ONLY

IMPORTANT LEGAL NOTICE:

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