

Advanced Materials

RenShape[®] 440

LOW DENSITY STYLING BOARD

DESCRIPTION :

RenShape[®] 440 board is a light reddish-brown colored, syntactic polyurethane material. RenShape[®] 440 has a moderately low density of approximately 31 to 34 lbs./ft.³. RenShape[®] 440 machines very easily and finishes to a good surface. The product is well suited for hand carving and CNC machining of styling, temporary and visual master models, architectural models, prototypes and CAD design verification models. Advantages include:

ADVANTAGES	
	• Easy to hand-work and machine
	• Non-abrasive
	• Fast cutting speeds
	• Good edge definition
	• Good dimensional stability

ACCESSORIES	Matched Epoxy Adhesive	Polyurethane Repair Pastes
	Ren-Weld [®] 103	RenPatch [®] 440 or RenPatch [®] 177-113/Ren [®] 177-113

ADVANTAGES*	Test Method	Test Values
Color	Visual	Reddish brown
Density, lb./ft. ³ (g/cm ³)	ASTM D-792	34 (0.55)
Hardness, Shore D	ASTM D-2240	54
Ultimate Flexural Strength, psi (MPa)	ASTM D-790	2,300 (15.9)
Flexural Modulus, psi (MPa)	ASTM D-790	106,000 (731)
Ultimate Tensile Strength, psi (MPa)	ASTM D-638	1,300 (9)
Tg by DMA, E", °F(°C)	ASTM D-4065	203 (95)
Compressive Strength, 0.2% offset, psi (MPa)	ASTM D-695	1,400 (9.6)
Compressive Modulus, psi (MPa)	ASTM D-695	105,000 (724)
Coefficient of Thermal Expansion -22° to 86°F, in/in/°F -30° to 30°C, in/in/°C	ASTM D-3386	34.4 x 10 ⁻⁶ 62.0 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 Quality Control 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[®] 440 board is available in a limited number of standard combinations of 1 in., 2 in., 3 in., 4 in., 5 in. and 6 in. (2.5cm, 5cm, 7.6cm, 10cm, 12.7cm, 15cm) thicknesses, widths of 16 in. and 20 in. (40cm and 51cm) 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 :

RenShape[®] 440 boards should be stored flat 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 10 years. The product should not be exposed to direct sunlight.

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**

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