



## Product Data

# RenShape<sup>®</sup> 440

## Low Density Styling Board

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.<sup>3</sup>. 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 <sup>®</sup> 103 | RenPatch <sup>®</sup> 440 or<br>RenPatch 177-113/Ren <sup>®</sup> 177-113 |

| ADVANTAGES*  | Test Method | Test Values  |
|--|-------------|--|
| Color  | Visual      | Reddish brown                                      |
| Density, lb./ft. <sup>3</sup> (g/cm <sup>3</sup> )                                   | 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<br>-22° to 86°F, in/in/°F<br>-30° to 30°C, in/in/°C | ASTM D-3386 | 34.4 x 10 <sup>-6</sup><br>62.0 x 10 <sup>-6</sup> |

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.

|                  |                                    |   |                                      |  |
|------------------|------------------------------------|---|--------------------------------------|--|
| <b>MACHINING</b> | <b>Roughing Speed</b><br>2,000 RPM | <b>Roughing Feed</b><br>100 IPM<br>(254cm/min.) | <b>Finishing Speed</b><br>15,000 RPM | <b>Finishing Feed</b><br>200 IPM<br>(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/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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