



## Product Data

# RenShape<sup>®</sup> 5169 FOUNDRY BOARD

RenShape 5169 board is an extremely tough, abrasion-resistant red material for CNC-machining foundry patterns and core boxes. The board is also well suited for producing tooling aids and fixtures and molds for thermoforming clear, thin-gauge thermoplastic sheet. Metalforming applications for durable RenShape 5169 board include draw dies, low-pressure hydroforming molds, stretch forming dies, and wear-resistant inserts for RenCast<sup>®</sup> 6470 polyurethane molds. RenShape 5169 board can be milled with hardened-steel cutters. Special features of the foundry board include:

| ADVANTAGES |  |
|------------|--|
|            | • Tough and resilient                            |
|            | • Good edge definition and dimensional stability |
|            | • High compressive and tensile strengths         |
|            | • Good impact and abrasion resistance            |
|            | • Surfaces can be polished to a high luster      |

| ACCESSORIES | Matched Epoxy Adhesive     | Polyurethane Repair Paste  |
|-------------|----------------------------|----------------------------|
|             | Ren-Weld <sup>®</sup> 5169 | RenPatch <sup>®</sup> 5169 |

| TYPICAL PROPERTIES*                                | Test Method | Test Values             |
|--|-------------|-------------------------|
| Color  | Visual      | Red                     |
| Density, lb./ft. <sup>3</sup> (g/cm <sup>3</sup> ) | ASTM D-792  | 75 (1.2)                |
| cu. in./lb.  | ASTM D-2240 | 23.1                    |
| Hardness, Shore D                                  |             | 85                      |
| Ultimate Flexural Strength, 5% strain, psi (MPa)   | ASTM D-790  | 14,000 (96.6)           |
| Flexural Modulus, psi (MPa)                        | ASTM D-790  | 380,000 (2,621)         |
| Ultimate Tensile Strength, psi (MPa)               | ASTM D-638  | 9,000 (62.1)            |
| T <sub>g</sub> by DMA, °F (°C)                     | ASTM D-4065 | 206 (97)                |
| Compressive Strength, 0.2% offset, psi (MPa)       | ASTM D-695  | 8,800 (60.6)            |
| Compressive Modulus, psi (MPa)                     | ASTM D-695  | 366,000 (2,524)         |
| Izod Impact, notched, ft-lb./in                    | ASTM D-256  | 0.90                    |
| Coefficient of Thermal Expansion                   | ASTM D-3386 |                         |
| -22° to 86°F, in/in/°F                             |             | 40.8 x 10 <sup>-6</sup> |
| -30° to 30°C, in/in/°C                             |             | 73.5 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 Product Management Department.

**CONSTRUCTION TECHNIQUE:**

- Cut RenShape 5169 board on a band saw to form the required rough shape.
- Apply mixed Ren-Weld 5169 adhesive to both sides of the cut board and laminate sections together.
- Gently clamp the structure and cure overnight at room temperature.
- Machine or carve contours of the model.

| <b>MACHINING</b> | <b>Roughing Speed</b> | <b>Roughing Feed</b>                | <b>Finishing Speed</b> | <b>Finishing Feed</b>                |
|------------------|-----------------------|-------------------------------------|------------------------|--------------------------------------|
|                  | 1,600 RPM             | 70 - 140 IPM<br>(178 - 356cm/ min.) | 10,000 RPM             | 100 – 200 IPM<br>(254 – 508 cm/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  
**Blades:** Use carbide offset-tooth blade for faster cutting and less binding

**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 5169 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 20 in and 24 in. (51cm, 60cm) and lengths of 30 in. and 60 in. (76.2cm, 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](mailto: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.

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