

Thermoforming



Creating ROHACELL® custom core shapes for sandwich construction is quick and easy to achieve with thermoforming.

All grades of ROHACELL® can be thermoformed between 190 °C (374 °F) and 230 °C (446 °F) depending on grade, density, thickness and complexity of the shape.

Preparation step: ROHACELL® drying process

Before thermoforming, sheets must be dried at 125 °C (257 °F) using a heating cabinet equipped with continuous air circulation.

The drying process should take place in the air circulation oven with each panel separated from adjacent panels by no less than 25 mm (1 inch) to allow constant airflow. All precautions regarding panel placement and accurate temperature control must be strictly maintained.

Drying conditions at 125 °C (257 °F)

| Thickness (mm) | Thickness (inch) | Drying time |
|----------------|------------------|-------------|
| < 25 | < 1 | 4 hours |
| 25 to 50 | 1 to 2 | 6 hours |
| 50 to 75 | 2 to 3 | 8 hours |
| 75 to 100 | 3 to 4 | 10 hours |
| > 100 | > 4 | 12 hours |

Thermoforming ROHACELL®

Formation of parts can be achieved using a vacuum or non-vacuum diaphragm with a female/male mold or matched mold. Since ROHACELL® has a low heat capacity due to its small mass, the mold will not be subjected to extreme heat. Wood, polyester or epoxy resin molds are acceptable.

ROHACELL® sheets can be heated in an oven, between heating plates or with infrared heaters. After heating the sheet to the correct temperature for the specific grade and density (refer to tables provided in this document), it is transferred to the forming device. To easily transfer the sheet with minimal resistance, generous margins beyond the finished part shape are recommended.

Cooling of ROHACELL® sheets must be kept at a minimum during transfer from the heating cabinet or heating plates to the forming device. The sheet will cool rapidly when removed from the heating device as cut surface cells immediately begin to cool and subsequently contribute to cooling throughout the entire sheet.

To minimize the cooling effect and maintain the forming temperature during transfer, a protective cover on the heated foam sheet is required. Cotton cloth, breather, glass fabric or silicone rubber can all be used as a protective cover.

After forming, the foam shape will cool quickly. Uniform cooling from both sides is recommended to avoid spring back.

Once the formed part has cooled to 80 °C (176 °F), it may be removed from the forming tool.

Thermoforming temperature guidelines

All grades of ROHACELL® can be thermoformed, but temperatures vary depending on the product grade and density.

These tables provide typical thermoforming temperatures, but specific temperature requirements vary and are dependent upon process, final part geometry and the type of equipment used.

Consultation with an expert in our Sandwich Technology Center is highly recommended prior to thermoforming ROHACELL®.

Please contact us at thermoforming@rohacell.com to determine the specific temperature requirements for your project.

ROHACELL® HERO

| Unit | ROHACELL® 71 HERO | ROHACELL® 110 HERO | ROHACELL® 150 HERO | ROHACELL® 200 HERO |
|------|----------------------|-----------------------|-----------------------|-----------------------|
| °C | 190 | 190 | 210 | 210 |
| °F | 374 | 374 | 410 | 410 |

ROHACELL® HF

| Unit | ROHACELL® 31 HF | ROHACELL® 51 HF | ROHACELL® 71 HF |
|------|--------------------|--------------------|--------------------|
| °C | 215 | 205 | 195 |
| °F | 419 | 401 | 383 |

ROHACELL® IG and A

| Unit | ROHACELL® 31 IG / A | ROHACELL® 51 IG / A | ROHACELL® 71 IG / A | ROHACELL® 110 IG |
|------|------------------------|------------------------|------------------------|---------------------|
| °C | 195 | 195 | 195 | 195 |
| °F | 383 | 383 | 383 | 383 |

ROHACELL® IG-F

| Unit | ROHACELL® 31 IG-F | ROHACELL® 51 IG-F | ROHACELL® 71 IG-F | ROHACELL® 110 IG-F |
|------|----------------------|----------------------|----------------------|-----------------------|
| °C | 195 | 195 | 195 | 195 |
| °F | 383 | 383 | 383 | 383 |

ROHACELL® RIST-HT

| Unit | ROHACELL® 51 RIST-HT | ROHACELL® 71 RIST-HT | ROHACELL® 110 RIST-HT |
|------|-------------------------|-------------------------|--------------------------|
| °C | 210 | 205 | 195 |
| °F | 410 | 401 | 383 |

ROHACELL® RIMA

| Unit | ROHACELL® 51 RIMA | ROHACELL® 71 RIMA | ROHACELL® 110 RIMA |
|------|----------------------|----------------------|-----------------------|
| °C | 215 | 205 | 195 |
| °F | 419 | 401 | 383 |

ROHACELL® RIMA-HT

| Unit | ROHACELL® 51 RIMA-HT | ROHACELL® 71 RIMA-HT | ROHACELL® 110 RIMA-HT |
|------|-------------------------|-------------------------|--------------------------|
| °C | 220 | 210 | 200 |
| °F | 428 | 410 | 392 |

ROHACELL® S

| Unit | ROHACELL® 51 S | ROHACELL® 71 S | ROHACELL® 110 S |
|------|-------------------|-------------------|--------------------|
| °C | 215 | 201 | 200 |
| °F | 419 | 410 | 392 |

ROHACELL® SL

| Unit | ROHACELL® 71 SL | ROHACELL® 110 SL |
|------|--------------------|---------------------|
| °C | 200 | 200 |
| °F | 392 | 392 |

ROHACELL® WF

| Unit | ROHACELL® 51 WF | ROHACELL® 71 WF | ROHACELL® 110 WF | ROHACELL® 200 WF |
|------|--------------------|--------------------|---------------------|---------------------|
| °C | 208 | 210 | 210 | 205 |
| °F | 406 | 410 | 410 | 401 |

ROHACELL® WF-HT

| Unit | ROHACELL® 51 WF-HT | ROHACELL® 71 WF-HT | ROHACELL® 110 WF-HT | ROHACELL® 200 WF-HT |
|------|-----------------------|-----------------------|------------------------|------------------------|
| °C | 213 | 215 | 215 | 210 |
| °F | 415 | 419 | 419 | 410 |

ROHACELL® WIND-F

| Unit | ROHACELL® 50 WIND-F | ROHACELL® 60 WIND-F | ROHACELL® 80 WIND-F | ROHACELL® 100 WIND-F |
|------|------------------------|------------------------|------------------------|-------------------------|
| °C | 195 | 195 | 195 | 195 |
| °F | 383 | 383 | 383 | 383 |

ROHACELL® XT

| Unit | ROHACELL® 71 XT | ROHACELL® 110 XT |
|------|--------------------|---------------------|
| °C | 225 | 215 |
| °F | 437 | 419 |

ROHACELL® XT-HT

| Unit | ROHACELL® 71 XT-HT | ROHACELL® 110 XT-HT |
|------|-----------------------|------------------------|
| °C | 230 | 220 |
| °F | 446 | 428 |

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