

Heat Treatment of ROHACELL®

Why is it necessary to dry or heat-treat ROHACELL®?

The creep compression resistance behavior of ROHACELL® can be improved by drying and heat treating.

It depends on the manufacturing process which heat treatment process should be used.

Drying process

For manufacturing with cure temperature between 125°C (257°F) to 175°C (356°F) drying of the ROHACELL® sheet is sufficient.

Before thermoforming the sheets should be dried at 125°C ± 5°C (257 ± 9°F) by using a heating cabinet with air circulation.

- The process shall take place in an air circulation oven and each panel shall be separated from adjacent panels by not less than 25 mm to provide a constant airflow.
- All precautions regarding placement and accurate temperature control shall be strictly maintained.
- The ROHACELL® sheets can be heated in an oven, between heating plates or by infrared heaters if the thickness is less than 6 mm (1/4").
- The duration depends on the sheet thickness (approximately 1 mm/1 min).

Drying conditions

| Thickness (mm) | Thickness (inch) | 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 |

Heat treating process (for ROHACELL® WF / XT)

For autoclave processing (temperature up to 190°C (374°F) and pressure up to 0.7 MPa (100 psi) a heat treating process (HT) prior to processing ROHACELL® is required.

All precautions regarding placement of the sheets and accurate temperature control of the oven shall be strictly maintained. Sheets must be loaded with perforated metal plates to prevent warping of the ROHACELL® sheet.

Both, drying and heat treating cause a decrease in volume of the panels and a surface deterioration. Final shaping of core must be performed after HT at a temperature of >180°C (356°F).

Heat-treated ROHACELL® sheets must be processed within a certain period of time (out-time) depending on the storage climate, sheet thickness, manufacturing parameter and density. More detailed information is available.

If the out-time is exceeded the heat treatment might be repeated for un-shaped cores having the appropriate size. Net-shaped cores cannot be heat-treated again, because of the co-curing changes in dimension.

Heat-treated sheets can be stored in water vapour proof bags (e.g. acc. to MIL-spec.) if necessary.

Conditions (for ROHACELL® WF / XT)

1st step: drying for at minimum 4hrs at 125°C +/- 5°C (257°F +/- 9°F)

2nd step: immediately after step 1, heat treating at:

190 +/- 3°C (374 +/- 5°F) for 48 hrs – RC 51WF – RC 200 WF

210 +/- 3°C (410 +/- 5°F) for 48 hrs – RC 71 XT, 110 XT

option for RC 200 WF:

160 +/- 3°C (320 +/- 5°F) for 20 hrs + 180 +/- 3°C (356 +/- 5°F) for 28 hrs
curing condition 180°C (356°F) ,< 0.55 MPa (80psi)

For further information, please contact our experts by phone +49 6151 18 1005 or e-mail rohacell@evonik.com.

® = registered trademark

This information and all technical and other advice are based on Evonik's present knowledge and experience. However, Evonik assumes no liability for such information or advice, including the extent to which such information or advice may relate to third party intellectual property rights. Evonik reserves the right to make any changes to information or advice at any time, without prior or subsequent notice. Evonik disclaims all representations and warranties, whether express or implied, and shall have no liability for, merchantability of the product or its fitness for a particular purpose (even if Evonik is aware of such purpose), or otherwise. Evonik shall not be responsible for consequential, indirect or incidental damages (including loss of profits) of any kind. It is the customer's sole responsibility to arrange for inspection and testing of all products by qualified experts. Reference to trade names used by other companies is neither a recommendation, nor an endorsement of the corresponding product, and does not imply that similar products could not be used.