

ROHACELL® Triple F

In-situ foamed cores for complex structural composite parts

Identifying lightweight design as a major requirement, the automotive industry is looking more and more for innovative solutions like fiber-reinforced constructions in Body-in-White (BiW) or structural add-on parts.

Such composite parts are becoming more complex and foam cores for sandwich structures must fulfill all requirements.

Cost effective manufacturing of complex three dimensional foam cores for the serial production of carbon-fiber composites is now achievable using innovative ROHACELL® Triple F in-mold foamed (IMF) cores.

Even geometries previously impossible to create with NC machining are now quick and easy. The core is foamed "in situ" - directly inside a mold. ROHACELL® Triple F has the potential to lower cost per part by the reduction of waste, manual work and cycle times.

Integrate components during foaming

Triple F foam cores significantly reduce your preparation time and are simple to use. Inserts can be directly integrated during the core foaming process, resulting in a final tool off part ready to be used for lay-up and curing production.

Time consuming reworking and conditioning are not needed.

Fine surface details are accurately reproduced during the foaming process and the final core has a smooth surface that provides good adhesion to facing layers. By avoiding unnecessary resin and extra layers, ROHACELL® Triple F reduces finished part weight and cost.

Fast processing cycles for high volume production

With a temperature resistance up to 130 °C (266°F) or more and a pressure resistance up to 3.5 MPa (362 psi), ROHACELL® Triple F is an ideal foam core for fast curing processes such as RTM or wet pressing – making your process more efficient.

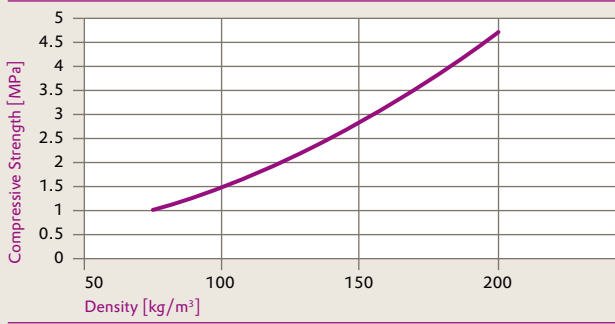
Processing conditions for final parts made with ROHACELL® Triple F are optimized for high volume serial production rates between 1,000 and 50,000 parts/year or more.

Density adjustable to your needs

Depending on the mechanical properties required by your production or life service conditions, core density can be customized during the foaming process to densities between 70 kg/m³ and 200 kg/m³ (4.4 lb/ft³ and 12.5 lb/ft³) or customized to your specific needs.



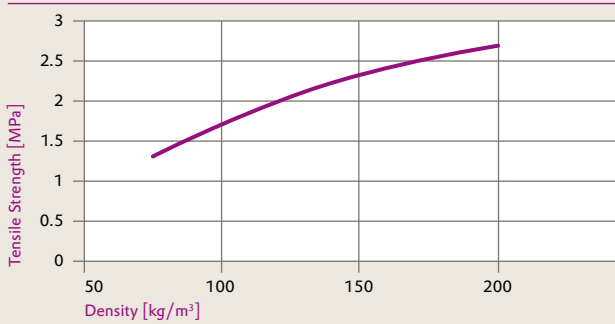
Compressive Strength* vs. Density



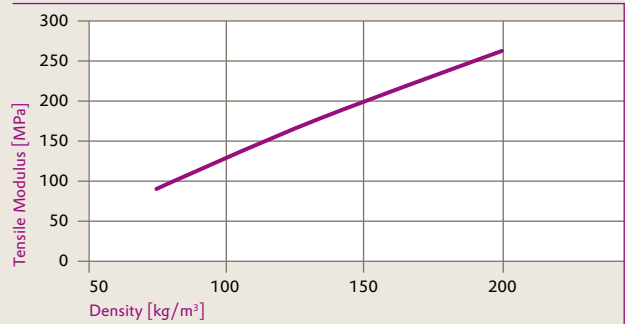
Compressive Modulus vs. Density



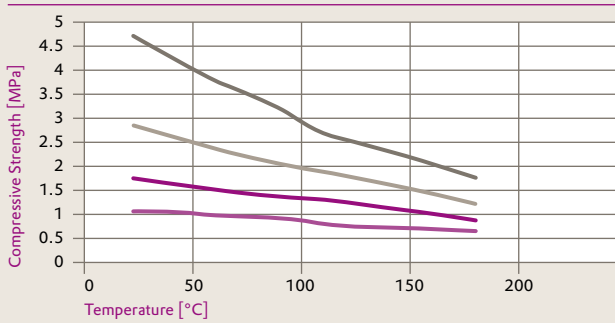
Tensile Strength



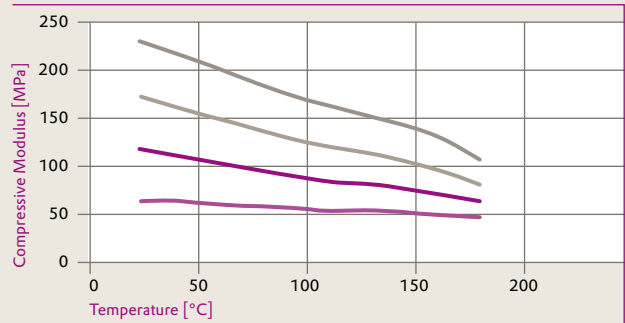
Tensile Modulus



Compressive Strength* vs. Temperature



Compressive Modulus vs. Temperature



— ROHACELL® Triple F 75 — ROHACELL® Triple F 110
— ROHACELL® Triple F 150 — ROHACELL® Triple F 200

— ROHACELL® Triple F 75 — ROHACELL® Triple F 110
— ROHACELL® Triple F 150 — ROHACELL® Triple F 200

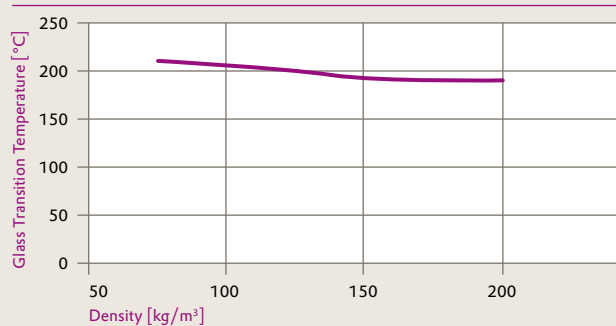
Physical properties

Property	Test Method	Unit	ROHACELL® 75 Triple F	ROHACELL® 110 Triple F	ROHACELL® 150 Triple F	ROHACELL® 200 Triple F
Nominal density	ISO 845	kg/m ³	75	110	150	200
Tensile strength	ISO 527-2	MPa	1.3	1.9	2.3	2.7
Tensile modulus	ISO 527-2	MPa	90	143	199	262
Elongation at break	ISO 527-2	%	1.8	1.7	1.6	1.5
Compressive strength *	ISO 844	MPa	1.0	1.7	2.8	4.7
Compressive modulus	ISO 844	MPa	64	117	172	229
Thermal expansion		1E-6/K	47	44	42	45
Glass transition temperature (Tg)		°C	211	205	193	189

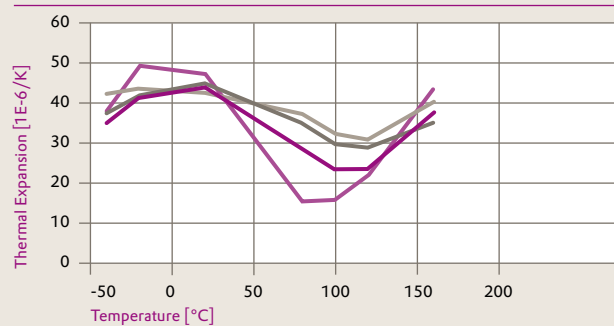
Technical data values presented above are typical for nominal density, subject to normal manufacturing variations

All data presented is for ROHACELL® Triple F 1-5-X A05 at 23°C if not indicated otherwise. *: Compressive strength at 3% deformation.

Glass Transition Temperature



Thermal Expansion



— ROHACELL® Triple F 75 — ROHACELL® Triple F 110
 — ROHACELL® Triple F 150 — ROHACELL® Triple F 200



ROHACELL® Triple F foam core

- In-situ foamed
- Complex geometries
- Integrated inserts, if needed
- High compression strength and temperature resistance at low density
- Compatible with fast curing processes
- No outgassing
- No hazardous ingredients
- Fire resistance according to DIN 75200 specification

ROHACELL® Triple F particle structure ensures high damage tolerance and is compatible with all common thermosets.

Sandwich components with an in-mold foamed core made from ROHACELL® Triple F are supplied by LiteCon Advanced Composite Product GmbH, a joint venture between Evonik Industries AG and SECAR Technology GmbH established in 2013.



Interested in ROHACELL® Triple F?

Then talk with your local ROHACELL® manager, or contact:

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