

Product Information

ROHACELL® WIND-F

STRUCTURAL FOAM FOR WIND TURBINE BLADES

ROHACELL® WIND-F is a closed-cell rigid foam based on polymethacrylimide (PMI) chemistry, which does not contain any CFC's and is specifically designed to meet the demands of the wind energy industry.

It is the most suitable ROHACELL® grade for use as a core material in sandwich structures of wind turbine blades, e.g., skin or spar section.

PROCESSING AND PRODUCTION

ROHACELL® WIND-F is compatible with all common epoxy and polyester resin systems and delivers excellent mechanical properties at low foam densities while sustaining continuous process temperatures up to 150 °C (302 °F).

The mechanical properties at the required density outperform those of other available polymer foams. Even at nominal densities as low as 50 kg/m³, the requirements for core materials can be met by ROHACELL® WIND-F.

Due to the small cell size, resin up-take during manufacturing is optimized compared to other polymer foams or balsa wood. Consequently, the lower resin up-take reduces the weight of wind turbine blades and the manufacturing costs.

With excellent resistance to high temperatures, processing or curing temperature can be increased significantly to reduce total cycle time without exothermal issues.

BENEFITS OF ROHACELL® WIND-F CORES

- Reduced blade mass › lower turbine loads
 - Significantly scales down resin absorption compared to PVC, Balsa and PET cores
 - Lower core density while maintaining mechanical properties
- Decrease in production costs due to shorter cycle times (pre-curing and post-curing)
 - Endures fast, high temperature processes with advanced resin systems
 - Higher mold efficiency
- Enables extended blade lifetime
 - Superior fatigue behavior (WöC > 16)
 - Increase in specific blade stiffness

Property		Test Method	Unit	ROHACELL® 50 WIND-F	ROHACELL® 60 WIND-F	ROHACELL® 80 WIND-F	ROHACELL® 100 WIND-F
Density	Nominal	*	kg/m ³	50 + 8	60 + 10	80 + 15	100 + 20
Compressive Strength	Nominal Minimum	ISO 844	MPa psi	0.9 0.5	1.2 0.8	1.9 1.3	2.7 1.9
Compressive Modulus	Nominal Minimum	ISO 844	MPa psi	29.9 21.4	40.3 29.8	61.3 45.5	82.3 61.3
Tensile Strength	Nominal Minimum	ISO 527-2	MPa psi	1.5 1.1	1.9 1.4	2.7 2.1	3.5 2.7
Tensile Modulus	Nominal Minimum	ISO 527-2	MPa psi	69.3 54.1	88.3 69.3	126.2 97.7	164.1 126.2
Shear Strength	Nominal Minimum	DIN 53294	MPa psi	0.8 0.6	1.1 0.8	1.6 1.2	2.1 1.6
Shear Modulus	Nominal Minimum	DIN 53294	MPa psi	25.9 19.6	33.6 25.8	49.0 37.4	64.4 48.9

Technical data values presented are subject to normal manufacturing variations. All ROHACELL® products are closed-cell rigid foams based on polymethacrylimide (PMI) chemistry and contain no CFC's. * Density values are valid for full-size sheets with a minimum thickness of 10 mm (0.39 inch) only. Other density ranges are available upon request.

FOR MORE INFORMATION

If you have questions or would like to discuss using **ROHACELL® WIND-F** in your application, we encourage you to talk with your local ROHACELL® representative.

Visit www.rohacell.com to locate and directly connect with the contact in your region, by phone or email.

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