Product Information

ROHACELL® WF/WF-HT

STRUCTURAL FOAM FOR THE MOST DEMANDING MANUFACTURING PROCESS CONDITIONS

ROHACELL® WF foam core has been specifically designed for the use in the aerospace industry.

Based on polymethacrylimide (PMI) chemistry, it is engineered to meet demanding requirements from aircraft manufacturers and has led to many specifications for more than 30 years, including MIL-PRF-46194A, WL 5.1460, WL 5.1461 and others.

PROCESSING AND PRODUCTION

ROHACELL® core makes it possible to produce sandwich components in a single process step (co-curing), resulting in reduced overall production time and reduced costs up to 25 % over other sandwich composites solutions.

ROHACELL® WF can take curing temperatures up to 130 °C (266°F) and pressures up to 0.7 MPa (102 psi). After a heat treatment (HT) process, ROHACELL® WF-HT can even be used at curing temperatures of 180 °C (356 °F) and at pressures of 0.7 MPa (102 psi).

ROHACELL® WF/ WF-HT is highly suitable with autoclave technologies and vacuum infusion processes, including RTM and VARTM.

WEIGHT SAVINGS

When building composite sandwich components, lightweight ROHACELL® WF/ WF-HT has a closed cell structure that ensures the resin stays exactly where you want it – in the interface between the core and face sheet. This eliminates excess and unnecessary resin that adds undesirable weight to the finished part.

Additionally, ROHACELL® WF/ WF-HT offers high thermal/mechanical properties in all three dimensions to be considered as isotropic behaviour, resulting in no need for any kind of potting or reinforcement in the area of load introductions and edges.

Overall, ROHACELL® can contribute to reducing the weight of the entire sandwich composite part by up to 20 % in comparison to other composite solutions.

THERMOFORMING AND SHAPING

ROHACELL® WF/ WF-HT can be easily thermoformed or CNC machined to meet customer requirements, bringing tremendous manufacturing advantages.

High precision, pre-shaped and ready-to-use foam cores in complex or simple geometries can also be directly supplied by the ROHACELL® Shapes Department.

Property	Test Method	Unit	51 WF	71 WF	110 WF	200 WF	300 WF
Density	ISO 845 ASTM D 1622	kg/m³ lbs/ft³	52 ± 12 3.25	75 ± 15 4.68	110 ± 21 6.87	205 ± 35 12.81	300 ± 60 18.7
Compressive Strength	ISO 844 ASTM D 1621	MPa psi	0.6 (0.4) 87 (58)	1.3 (1.05) 188 (152)	3.1 (2.2) 449 (319)	9.0 (6.4) 1305 (928)	17.8 (7.9) 2580 (1150)
Tensile Strength	ISO 527-2 ASTM D 638	MPa psi	1.6 (0.88) 232 (128)	2.2 (1.56) 319 (227)	3.7 (2.5) 536 (369)	6.8 (5.37) 986 (780)	12.0 (8.1) 1740 (1180)
Elastic Modulus	ISO 527-2 ASTM D 638	MPa ksi	75 (45) 10.9 (6.5)	105 (75) 15.2 (10.8)	180 (135) 26.1 (19.5)	350 (270) 50.8 (39.1)	580 (300) 84.1 (43.5)
Shear Strength	DIN 53294 ASTM C 273	MPa psi	0.8 (0.5) 116 (72)	1.3 (1.0) 188 (145)	2.2 (1.75) 348 (253)	5.0 (3.6) 725 (426)	8.3 (5.2) 1203 (760)
Shear Modulus	DIN 53294 ASTM C 273	MPa ksi	20 (14) 2.9 (2.0)	34 (24.1) 4.9 (3.5)	60 (40) 8.7 (5.8)	120 (100) 17.4 (14.5)	360 (200) 52.2 (19.0)
Strain at Break	ISO 527-2 ASTM D 638	%	3.0	3.0	2.5	3.0	2.8
Coefficient of Thermal Expansion		1/K*10E-5	3.1	3.1	3.1	3.8	3.5
Compressive Creep Resistance ≤ 4 % for Non-HT Material	Temperature Pressure Time	°C MPa h	130 0.2 2	130 0.3 2	130 0.4 4	130 0.7 2	130 0.7 2
Compressive Creep Resistance ≤ 4 % for HT Material	Temperature Pressure Time	°C MPa h	180 0.25 2	180 0.5 2	190 0.7 4	180 0.7 2	180 0.7 2

Technical data of our products are typical values for nominal density and minimum values in ().

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