

Technical Information

ROHACELL® HF



Structural foam for antenna applications

ROHACELL® HF is a closed-cell rigid foam based on polymethacrylimide (PMI) chemistry that is completely free of CFC's.

With its extremely low dielectric constants and particularly favorable transmission properties at high frequencies, ROHACELL® HF is ideal for use in antenna applications.

Processing benefits

Featuring an extremely fine closed-cell structure, the foam ensures minimal resin uptake and problem-free compatibility with metallic facing materials due to the absence of corrosive effects.

ROHACELL® HF foam is suitable for hand lay-up, prepreg processing and vacuum infusion at temperatures up to 130°C (266°F) and pressures up to 0.3 MPa (44 psi).

Applications

From miniature antennas in cell phones to large fixed ship-based and stationary antenna structures, ROHACELL® HF is used worldwide. Other typical applications include usage as structural core for radomes and mammography plates.

Thermoforming and shaping

ROHACELL® HF can be easily thermoformed or CNC machined to meet application requirements.

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

ROHACELL® HF Properties

Property	Standard	Unit	ROHACELL® 31HF	ROHACELL® 51 HF	ROHACELL® 71 HF
Density	ISO 845	kg/m ³	32	52	75
	ASTM D 1622	lbs/ft ³	2.00	3.25	4.68
Compressive Strength	ISO 844	MPa	0.4	0.9	1.5
	ASTM D 1621	psi	58	130	217
Tensile Strength	ISO 527-2	MPa	1.0	1.9	2.8
	ASTM D 638	psi	145	275	406
Elastic Modulus	ISO 527-2	MPa	36	70	92
	ASTM D 638	psi	5,220	10,150	13,340
Shear Strength	DIN 53294	MPa	0.4	0.8	1.3
	ASTM C 273	psi	58	116	188
Shear Modulus	DIN 53294	MPa	13	19	29
	ASTM C 273	psi	1,885	2,755	4205
Strain at break	ISO 527,2	%	3.5	4.0	4.5
	ASTM D 638				
Coefficient of Thermal Expansion		1/K*10E-5	N/A	3.34	3.23

Technical data of our products are typical values for the nominal density.

Electrical properties of ROHACELL® HF

Property	Frequency [GHz]	ROHACELL® 31HF	ROHACELL® 51 HF	ROHACELL® 71 HF
Dielectric constants	2.5	1.050	1.057	1.075
	5.0	1.043	1.065	1.106
	10.0	1.046	1.067	1.093
	26.5	1.041	1.048	1.093
Loss tangent	2.5	<0.0002	<0.0002	<0.0002
	5.0	0.0016	0.0008	0.0016
	10.0	0.0017	0.0041	0.0038
	26.5	0.0106	0.0135	0.0155

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