

## 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® 31 HF	ROHACELL® 51 HF	ROHACELL® 71 HF
Density	*	kg/m <sup>3</sup>	32 ± 7	52 ± 12	75 ± 15
	*	lbs/ft <sup>3</sup>	2.00 ± 0.44	3.25 ± 0.75	4.68 ± 0.94
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.

\* 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.

## Electrical properties of ROHACELL® HF

Property	Frequency [GHz]	ROHACELL® 31 HF	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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**Evonik Resource Efficiency GmbH**  
High Performance Polymers  
64293 Darmstadt, Germany  
Phone +49 6151 18-1005  
www.rohacell.com

**Americas**  
**Evonik Foams Inc.**  
Theodore, Alabama, USA  
Phone +1 866 764-6235

**Evonik Specialty Chemicals**  
**(Shanghai) Co., Ltd.**  
Shanghai, China  
Phone +86 1391 6212034