

## 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 <sup>3</sup>	32	52	75
	ASTM D 1622	lbs/ft <sup>3</sup>	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

ROHACELL® is a registered trademark of Evonik Industries and its subsidiaries

This information and all technical and other advice are based on Evonik's present knowledge and experience. However, Evonik assumes no liability for such information or advice, including the extent to which such information or advice may relate to third party intellectual property rights. Evonik reserves the right to make any changes to information or advice at any time, without prior or subsequent notice. EVONIK DISCLAIMS ALL REPRESENTATIONS AND WARRANTIES, WHETHER EXPRESS OR IMPLIED, AND SHALL HAVE NO LIABILITY FOR, MERCHANTABILITY OF THE PRODUCT OR ITS FITNESS FOR A PARTICULAR PURPOSE (EVEN IF EVONIK IS AWARE OF SUCH PURPOSE), OR OTHERWISE. EVONIK SHALL NOT BE RESPONSIBLE FOR CONSEQUENTIAL, INDIRECT OR INCIDENTAL DAMAGES (INCLUDING LOSS OF PROFITS) OF ANY KIND. It is the customer's sole responsibility to arrange for inspection and testing of all products by qualified experts. Reference to trade names used by other companies is neither a recommendation, nor an endorsement of the corresponding product, and does not imply that similar products could not be used.

**Evonik Resource Efficiency GmbH**  
High Performance Polymers  
64293 Darmstadt, Germany  
Phone +49 6151 18-1005  
E-mail rohacell@evonik.com  
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