

Product Information

ROHACELL® HERO

Innovative **ROHACELL® HERO** delivers the latest in materials technology for composite aircraft structures that are lightweight, durable over their lifetime and less expensive to produce.

It's the new standard in aircraft structural core

KEEPING IT LIGHT

Sandwich technology is an excellent way to reduce weight and thanks to its outstanding mechanical properties and low density, ROHACELL® HERO sandwich cores offer the most weight saving potential of all structural foams.

Featuring a closed cell structure, **ROHACELL® HERO** minimizes added weight by taking up resin only in the cut surface cells – resulting in a lighter finished part weight compared with traditional honeycomb structures.

LONG HAUL DURABILITY

Offering excellent elongation at break properties, ROHACELL® HERO remains robust and durable for the lifetime of the aircraft.

Surface impact damage is easily visible during inspections and rework/repair is simple since the core damage does not extend beyond the initial impact location and there is no water ingress as can occur with honeycomb core structures.

IT CAN TAKE THE HEAT

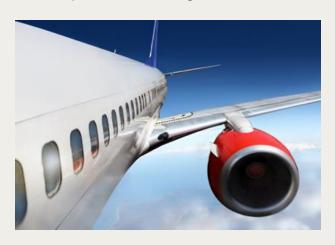
With heat resistance of up to 210 °C (428 °F), processing or curing temperatures can be increased higher than other core materials allow (e.g., typical cure cycle at $180 \, ^{\circ}\text{C}/356 \, ^{\circ}\text{F}$ with maximum pressure dependent upon density). This results in significant reductions in total cycle time and faster part manufacturing.

No other core material offers such ease of processing in a wide variety of processes, including autoclave, resin infusion, RTM and VARTM.

WE CAN HELP YOU SHAPE THE FUTURE

Let our Shapes Department supply you with finished, ready-to-use net-shape ROHACELL® HERO parts. Your cores will be delivered ready for immediate use in your next processing step.

- Eliminate waste
- Reduce in-house production time
- Up to 30 % cost savings



ROHACELL® HERO IN FLIGHT

ROHACELL® HERO is a recommended grade for core material in sandwich structures for aircraft wings, landing gear doors, radomes, vertical and horizontal stabilizers, ailerons and other areas subject to surface impact damage.

ROHACELL®

Property	Test Method*	Unit	ROHACELL® 51 HERO	ROHACELL® 71 HERO	ROHACELL® 110 HERO	ROHACELL® 200 HERO
Density	ISO 845	kg/m³	52	75	110	205
	ASTM D 1622	lbs/ft³	3.25	4.68	6.87	12.80
Compressive Strength	ISO 844	MPa	0.6	1.1	2.5	7.1
	ASTM D 1621	psi	87	160	363	1,030
Compressive Modulus	ISO 844	MPa	32	48	83	180
	ASTM D 1621	psi	4,640	6,960	12,000	26,100
Tensile Strength	ISO 527-2	MPa	2.6	4.1	6.3	12.3
	ASTM D 638	psi	377	595	914	1,780
Tensile Modulus	ISO 527-2	MPa	82	123	189	389
	ASTM D 638	psi	11,900	17,800	27,400	56,400
Elongation at Break	ISO 527-2 ASTM D 638	%	8	9.5	9.9	10.8
Shear Strength	DIN 53294	MPa	0.7	1.3	2.3	5.2
	ASTM C 273	psi	102	189	334	754
Shear Modulus	DIN 53294	MPa	22	28	50	109
	ASTM C 273	psi	3,190	4,060	7,250	15,800
Maximum Shear Strain	DIN 53294 ASTM C 273	%	7.0	7.2	7.2	7.2
Glass Transition Temperature		°C °F	N/A	207 405	203 397	200 392
Coefficient of Thermal Expansion		1/K*10E-5	3.76	3.77	3.72	4.26

Technical data values presented above are typical for nominal density, subject to normal manufacturing variations. *Data values are based on ISO & DIN standard test methods, however ASTM values can be confirmed upon request. All ROHACELL® products are closed-cell rigid foams based on polymethacrylimide (PMI) chemistry and contain no CFC's.

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 Operations GmbH | Smart Materials

High Performance Polymers Performance Foams 64293 Darmstadt, Germany Phone +49 6151 18-1005

Evonik Corporation Theodore, Alabama USA Phone +1 866 764-6235

Evonik Specialty Chemicals (Shanghai) Co., Ltd. Shanghai, China Phone +86 21 6119 3788

