



Data Sheet / Issue 7/06 / Replaces Issue 10/05

## AIREX<sup>®</sup> R82 HIGH PERFORMANCE FOAM

**Description** A thermoplastic foam that combines outstanding fire resistance with low smoke and toxicity, along with excellent dielectric properties. It has a high strength to weight ratio, low moisture absorption, is thermoformable, and ductile. It is an exceptional core material for use in applications that demand structural fire resistance, are required to be transparent to radar, or operate in extreme hot or cold environments.

**Applications**

- **Aircraft and Aerospace**  
interiors, cockpit doors, cryogenic tanks, insulating panels, radomes, helicopter rotor blades, general aviation (sport aircraft) fuselage
- **Road and Rail**  
front-ends, side skirts, roof panels, interiors
- **Marine**  
fast-ferries, fire resistant interiors, radomes
- **Defense**  
naval superstructures, antennas, combat communication systems
- **Industrial**  
high-temperature tooling, radomes, x-ray tables

**Characteristics**

- **fulfils most stringent fire requirements**
- **operating temperature from -194°C to +160°C (-317°F to +320 °F)**
- **remains ductile at cryogenic temperatures**
- excellent dielectric properties (radar transparent)
- very low moisture absorption
- good fatigue resistance
- high impact resistance (non-brittle failure mode)
- thermoformable
- good sound and thermal insulation

**Processing**

- contact molding (hand/spray)
- adhesive bonding
- thermoforming
- prepreg processing (up to 180 °C, 355°F)



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Typical properties for AIREX® R82			R82.60	R82.80	R82.110
Apparent nominal density	ISO 845	kg/m <sup>3</sup> lb/ft <sup>3</sup>	60 3.75	80 5.0	110 6.85
Compressive strength perpendicular to the plane	ISO 844	N/mm <sup>2</sup> psi	0.70 100	1.1 160	1.4 200
Compressive modulus perpendicular to the plane	DIN 53421	N/mm <sup>2</sup> psi	46 6700	62 9000	83 12000
Tensile strength in the plane	ISO 1926	N/mm <sup>2</sup> psi	1.7 250	2.0 290	2.2 320
Tensile modulus in the plane	ISO 1926	N/mm <sup>2</sup> psi	45 6500	54 7800	64 9300
Shear strength	ISO 1922	N/mm <sup>2</sup> psi	0.80 120	1.1 160	1.4 200
Shear modulus	ASTM C393	N/mm <sup>2</sup> psi	18 2600	23 3300	30 4350
Shear elongation at break	ISO 1922	%	20	18	18
Impact strength	DIN 53453	kJ/m <sup>2</sup> ft.lb/in <sup>2</sup>	1.0 0.48	1.3 0.62	1.4 0.67
Thermal conductivity at room temperature	ISO 8301	W/m.K BTU.in/ft <sup>2</sup> .hr.°F	0.036 0.25	0.037 0.26	0.040 0.28
Plain sheet	width	mm ± 10	1350	1200	1000
		in	53.15	47.24	39.37
	length	mm ± 10	2800	2700	2300
in		110.24	106.3	90.65	
thickness	mm ± 0.5	3* to 60	3* to 60	5 to 30	
	in	0.118 to 2.36	0.118 to 2.36	0.197 to 1.18	
Block	thickness	mm ± 2	60	60	30
		in	2.36	2.36	1.18
Color			off white	off white	off white

Other dimensions and closer tolerances upon request

\*Tolerance for 3mm: + 0.8mm / - 0.2mm

Fire performance	Standard		R82.60	R82.80	R82.110
Aircraft	FAR 25.853/ABD0031	Flammability	passed	passed	passed
	FAR 25.853/ABD0031	Smoke density	passed	passed	passed
	ABD0031	Toxicity	passed	passed	passed
	FAR 25.853/ABD0031	Heat release	passed	passed	passed
Rail	DIN 5510/2	Flammability	S4	S4	
	DIN 5510/2	Smoke density	SR2	SR2	
	DIN 5510/2	Dripping	ST2	ST2	
	DIN 5510/2 / DIN 53438-2	Edge flaming	K1	K1	
Rail	NF F16-101	Flammability	M1	M1	
	NF F16-101	Smoke density	F1	F1	

The data provided gives approximate values for the nominal density. Due to density variations these values can be lower than indicated above. Minimum values to calculate sandwich constructions can be provided upon request.

The information contained herein is believed to be correct and to correspond to the latest state of scientific and technical knowledge. However, no warranty is made, either expressed or implied, regarding its accuracy or the results to be obtained from the use of such information. No statement is intended or should be construed as a recommendation to infringe any existing patent.

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