

Industrial Processing Foam

DATA SHEET 02.2016 - Replaces 07.2011

DESCRIPTION



AIREX[®] C51 is a closed-cell polymer foam with outstanding damage tolerance and formability. Its excellent price / performance ratio uniquely qualifies this core material for high-volume sandwich production.

The foam has a high elongation at break and shows good impact properties. It can be formed at room temperature to simple shapes as well as thermoformed to complex 3-dimensional parts. The perforation of **AIREX[®] C51**'s surface ensures a good adhesion to the laminate.

The elevated temperature resistance allows short processing cycles with fast curing resin systems, including thermoplastic fiber reinforced skins (GMT) making it very suitable for mass-produced lightweight sandwich structures subjected to both static and dynamic loads.

CHARACTERISTICS

- High impact resistance (non-brittle failure mode)
- Elevated short-period temperature resistance
- Cold and hot formable to 3-dimensional contours
- Good fatigue resistance
- Superior bond strength
- Low resin absorption
- Good sound and thermal insulation

APPLICATIONS

- **Road and Rail:** Car bodies, headliners, deflectors, spoilers, seats, truck panels, side skirts, covers
- **Wind energy:** Turbine generator housings
- **Industrial:** Containers, shelters, covers

PROCESSING

- Contact molding (hand/spray)
- Compression molding (GMT)
- Thermoforming
- Infusion
- Resin injection (RTM)
- Adhesive bonding
- Pre-preg processing (up to 120 °C, 250 °F)

MECHANICAL PROPERTIES			
Typical properties for AIREX® C51		Unit (metric)	C51.60
Apparent nominal density	ISO 845	kg/m ³	60
Compressive strength perpendicular to the plane	ISO 844	N/mm ²	0.45
Compressive modulus perpendicular to the plane	DIN 53421	N/mm ²	25
Tensile strength in the plane	ISO 527 1-2	N/mm ²	0.55
Tensile modulus in the plane	ISO 527 1-2	N/mm ²	10
Shear strength	ISO 1922	N/mm ²	0.45
Shear modulus	ASTM C393	N/mm ²	5.0
Shear elongation at break	ISO 1922	%	30
Thermal conductivity at room temperature	ISO 8301	W/m.K	0.036
Standard sheet	Width	mm ± 10	1200
	Length	mm ± 10	2500
	Thickness	mm ± 1.0	10 to 20
Color			off white

Finishing Options and other dimensions upon request

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.

MECHANICAL PROPERTIES			
Typical properties for AIREX® C51		Unit (imperial)	C51.60
Apparent nominal density	ISO 845	lb/ft ³	3.7
Compressive strength perpendicular to the plane	ISO 844	psi	65
Compressive modulus perpendicular to the plane	DIN 53421	psi	3'650
Tensile strength in the plane	ISO 527 1-2	psi	80
Tensile modulus in the plane	ISO 527 1-2	psi	1'450
Shear strength	ISO 1922	psi	65
Shear modulus	ASTM C393	psi	730
Shear elongation at break	ISO 1922	%	30
Thermal conductivity at room temperature	ISO 8301	BTU.in/ft ² .hr.°F	0.25
Standard sheet	Width	mm ± 10	1200
	Length	mm ± 10	2500
	Thickness	mm ± 1.0	10 to 20
Color			off white

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