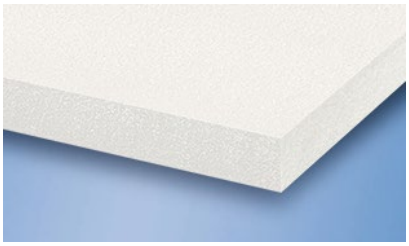
AIREX® TegraCore™

GM--TDS-090

Fire Performance Structural Lightweight Foam **DATA SHEET 10.2020 - Replaces 01.2020**

DESCRIPTION



AIREX® TegraCore™ is a closed-cell, ductile thermoplastic polymer foam that combines outstanding retardant properties at low flammability, smoke, toxicity and heat release rate, along with high temperature resilience and excellent lightweight properties.

Additionally, very low moisture and resin absorption, thermo formability, damage tolerance and chemical resistance bundle to high performance combination.

AIREX® TegraCore™ is an exceptional thermal insulation foam or core material for use in lightweight composites applications that demand high fire retardant properties, for complex shapes in environmental demanding conditions.

CHARACTERISTICS

- Low total cost fabrication
- Exceeds FAR 25.853 requirements: nearly zero smoke evolution, easily passes OSU heat release test
- Processing temperature up to 180 °C (355 °F)
- Very low moisture absorption
- Excellent hot-wet performance
- Exceptional impact resistance (non-brittle failure mode)
- Very good chemical resistance against aerospace fluids
- Dimensional stability in flight conditions
- Easy CNC routing and thermoforming to complex shapes
- Thermoplastic & thermoset composites compatible
- Good sound and thermal insulation

APPLICATIONS

- **Aircraft and Aerospace:** Interiors, luggage bins, side walls, seat covers, galleys, monuments, edge fillers, trolleys, insulating panels
- **Defense:** Naval joiner work, radomes, antennas, ballistic spacers
- **Marine:** Fire retardant interiors, cladding
- **Railway:** Interiors, side skirts, roof panels
- **Industrial:** High temperature tooling, radomes, x-ray tables

PROCESSING

- Adhesive bonding
- Thermoformable
- Pre-preg processing (up to 180 °C, 355 °F)
- Hot press molding
- Thermoplastic processable
- Automated tape laying (ATL/CTL)

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MECHANICAL PROPERTIES				
Typical properties for AIREX® TegraCore™		**Unit (metric)**	**Value** [1)]	**TegraCore™** [1)]
Density	ISO 845	kg/m³	Average	53
Compressive strength perpendicular to the plane	ASTM D1621	N/mm²	Average	0.65
Compressive modulus perpendicular to the plane	ASTM D1621	N/mm²	Average	23
Tensile strength perpendicular to the plane	ASTM C297	N/mm²	Average	1.1
Shear strength	ASTM C273	N/mm²	Average	0.75
Shear modulus	ASTM C273	N/mm²	Average	9.3
Thermal conductivity at room temperature	ISO 8301	W/m.K	Average	0.038
Standard sheet	Width	mm ± 5		590
	Length	mm ± 5		2500
	Thickness	mm ± 0.5		5 to 30

Finishing Options, other dimensions and closer tolerances upon request

[1)] Preliminary data

Fire performance	**Standard**		**TegraCore™**
Aircraft	FAR 25.853/ABD0031	Flammability	passed
	FAR 25.853/ABD0031	Smoke density	passed
	ABD0031	Toxicity	passed
	FAR 25.853/ABD0031	OSU Heat release	passed
		OSU Heat release rate	passed
Rail	CEN TS 45545-2		HL3 [2)] Final certification depending on sandwich design

[2)] all thicknesses

The data provided gives approximate values for the nominal density.

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® TegraCore™		**Unit (imperial)**	**Value**[1)]	**TegraCore™** [1)]
Density	ISO 845	lb/ft³	Average	3.3
Compressive strength perpendicular to the plane	ASTM D1621	psi	Average	94
Compressive modulus perpendicular to the plane	ASTM D1621	psi	Average	3,330
Tensile strength perpendicular to the plane	ASTM C297	psi	Average	160
Shear strength	ASTM C273	psi	Average	110
Shear modulus	ASTM C273	psi	Average	1,300
Thermal conductivity at room temperature	ISO 8301	BTU/ft.hr.°F	Average	0.021
Standard sheet	Width	in ± 0.2		23.2
	Length	in ± 0.2		98.4
	Thickness	in ± 0.02		0.2 to 1.2

Finishing Options, other dimensions and closer tolerances upon request

[1)] Preliminary data

Fire performance	**Standard**		**TegraCore™**
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	FAR 25.853/ABD0031	Smoke density	passed
	ABD0031	Toxicity	passed
	FAR 25.853/ABD0031	Heat release	passed
Rail	CEN TS 45545-2		HL3 [2)] Final certification depending on sandwich design

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