

**AIREX<sup>®</sup>**

**AIREX<sup>®</sup> T10**

GM-TDS-113

*The Industrialized Structural Foam Core*

**DATA SHEET 11.2017 - Replaces 09.2017**

## DESCRIPTION





**AIREX<sup>®</sup> T10** is a closed-cell, thermoplastic and recyclable polymer foam with a very homogeneous cell structure, high mechanical properties and an outstanding price / performance ratio.

It has an extraordinary resistance to fatigue, is chemically stable, UV-resistant and has negligible water absorption. It is thermally stable during high temperature processing and post curing without after expansion or out-gassing. T10 is designed for easy use with all resin systems and processing technologies.

**AIREX<sup>®</sup> T10** is ideally suited for high volume applications of lightweight sandwich structures subjected to static and dynamic loads and/or exposed to elevated temperatures during manufacturing.

## CHARACTERISTICS

- Very high compression and shear properties
- Outstanding fatigue strength
- Homogeneous cell structure
- Easy to process with all types of resin and lamination processes
-  High process temperature up to 150 °C (short peaks up to 180 °C)
- Good adhesion (skin-to-core bond)
-  Excellent long term thermal stability, up to 100 °C (212 °F)
- No water absorption, after expansion nor out-gassing
- Recyclable and recycled material
- Highly consistent material properties
- Comprehensive material traceability (machine-readable batch information on each foam sheet)

## APPLICATIONS

- Road:** Structural and semi-structural parts in interior and exterior of cars Sidewalls, floors, skirts/covers of trucks
- Wind energy:** Blades (shear webs & shells), nacelles
- Marine:** Hulls, decks, superstructures, bulkheads, stringers, interiors
- Industrial:** Covers, containers, X-ray tables, sporting goods

## PROCESSING

- Contact molding (hand/spray)
- Vacuum infusion (VARTM)
- Resin injection (RTM)
- Adhesive bonding
- Pre-preg processing
- Compression molding (GMT, SMC)
- Thermoformin

MECHANICAL PROPERTIES					
Typical properties for AIREX® T10		Unit (metric)	Value <sup>1)</sup>	T10.100	T10.110
Density	ISO 845	kg/m <sup>3</sup>	Average <i>Typ. range</i>	100 93 - 107	110 103 - 117
Compressive strength perpendicular to the plane	ISO 844	N/mm <sup>2</sup>	Average <i>Minimum</i>	1.2 0.9	1.6 1.0
Compressive modulus perpendicular to the plane	DIN 53421	N/mm <sup>2</sup>	Average <i>Minimum</i>	110 90	120 100
Tensile strength perpendicular to the plane	ASTM C297	N/mm <sup>2</sup>	Average <i>Minimum</i>	2.0 1.5	2.3 1.8
Tensile modulus perpendicular to the plane	ASTM C297	N/mm <sup>2</sup>	Average <i>Minimum</i>	150 125	165 140
Shear strength lengthwise	ISO 1922	N/mm <sup>2</sup>	Average <i>Minimum</i>	1.1 0.9	1.15 0.95
Shear strength crosswise	ISO 1922	N/mm <sup>2</sup>	Average <i>Minimum</i>	0.8 0.73	0.9 0.78
Shear modulus lengthwise	ISO 1922	N/mm <sup>2</sup>	Average <i>Minimum</i>	34 29	38 32
Shear modulus crosswise	ISO 1922	N/mm <sup>2</sup>	Average <i>Minimum</i>	17.5 16	22 19
Shear elongation at break	ISO 1922	%	Average <i>Minimum</i>	20 15	20 15
Thermal conductivity at room temperature	ISO 8301	W/m.K	Average	tbd	tbd
Standard sheet	Width	mm ± 5		1005	1005
	Length <sup>2)</sup>	mm ± 5		2440	2440
	Thickness	mm ± 0.5		5 to 45	5 to 45

Finishing Options and other dimension upon request

<sup>1)</sup> Minimum values acc. DNV definition; test sample thickness 20 mm except compressive modulus (40 mm)

<sup>2)</sup> Alternative lengths on request

The data provided gives approximate values for the nominal density and DNV minimum values according to DNV type approval certificate.

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® T10		Unit (imperial)	Value <sup>1)</sup>	T10.100	T10.110
Density	ISO 845	lb/ft <sup>3</sup>	Average <i>Typ. range</i>	6.2 5.8 - 6.7	6.9 6.4 - 7.3
Compressive strength perpendicular to the plane	ISO 844	psi	Average <i>Minimum</i>	174 130	232 145
Compressive modulus perpendicular to the plane	DIN 53421	psi	Average <i>Minimum</i>	15'950 13'050	17'410 14'500
Tensile strength perpendicular to the plane	ASTM C297	psi	Average <i>Minimum</i>	280 218	334 261
Tensile modulus perpendicular to the plane	ASTM C297	psi	Average <i>Minimum</i>	21'760 18'130	23'930 20'310
Shear strength lengthwise	ISO 1922	psi	Average <i>Minimum</i>	160 130	167 138
Shear strength crosswise	ISO 1922	psi	Average <i>Minimum</i>	116 106	131 113
Shear modulus lengthwise	ISO 1922	psi	Average <i>Minimum</i>	4'931 4'206	5'511 4'641
Shear modulus crosswise	ISO 1922	psi	Average <i>Minimum</i>	2'538 2'321	3'191 2'756
Shear elongation at break	ISO 1922	%	Average <i>Minimum</i>	20 15	20 15
Thermal conductivity at room temperature	ISO 8301	Btu.in/hr.ft <sup>2</sup> .F	Average	tbd	tbd
Standard sheet	Width	mm ± 5		1005	1005
	Length <sup>2)</sup>	mm ± 5		2440	2440
	Thickness	mm ± 0.5		5 to 45	5 to 45

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