

# DATA SHEET

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**AIREX®**  
**BALTEK®**



## AIREX® T90

### Easy Processing Structural FST Foam

#### CHARACTERISTIC

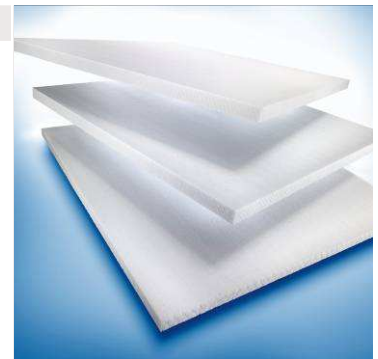
- Superior fire resistance (FAR 25.853; NF 16-101; DIN 5510)
- Outstanding fatigue strength
- Excellent long term thermal stability up to 100 °C (212 °F)
- Best thermal stability in process up to 150 °C (302 °F)
- Good thermal insulation
- Highly consistent material properties
- Easy to process with all types of resin and lamination processes
- Good adhesion (skin-to-core bond)
- Very high chemical stability
- No water absorption, no after-expansion, no outgassing

#### APPLICATIONS

- **Road and Rail**  
Floors, sidewalls, front ends, interiors, roofs, engine covers
- **Marine**  
Decks, interiors, superstructures
- **Industrial**  
Covers, containers, x-ray tables, sporting goods
- **Architecture and Construction**  
Roofs, claddings, domes, portable building

#### PROCESSING

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



AIREX® T90 is a closed-cell, thermoplastic and recyclable polymer foam with excellent fire, smoke & toxicity (FST) properties.

It has very good mechanical properties and 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. T90 is designed for easy use with all resin systems and processing technologies.

AIREX® T90 is the ideal core material for structural sandwich applications requiring high fire resistance.

[www.corematerials.3AComposites.com](http://www.corematerials.3AComposites.com)



Europe / Middle East / India / Africa:

**Airex AG**  
5643 Sins, Switzerland  
Tel +41 41 789 66 00  
Fax +41 41 789 66 60  
[corematerials@3AComposites.com](mailto:corematerials@3AComposites.com)

North America / South America:

**Baltek Inc.**  
High Point, NC 27261, USA  
Tel +1 336 398 1900  
Fax +1 336 398 1901  
[corematerials.americas@3AComposites.com](mailto:corematerials.americas@3AComposites.com)

Asia / Australia / New Zealand:

**3A Composites (China) Ltd.**  
201201 Shanghai, China  
Tel +86 21 585 86 006  
Fax +86 21 338 27 298  
[corematerials.asia@3AComposites.com](mailto:corematerials.asia@3AComposites.com)

Typical properties for AIREX® T90		Unit (metrical)	Value <sup>1)</sup>	T90.60	T90.100	T90.150	T90.210
Density	ISO 845	kg/m <sup>3</sup>	Average <i>Typ. range</i>	65 60 - 70	110 105 - 115	145 140 - 150	210 200 - 220
Compressive strength perpendicular to the plane	ISO 844	N/mm <sup>2</sup>	Average <i>Minimum</i>	0.80 0.7	1.4 1.2	2.2 2.0	3.5 3.2
Compressive modulus perpendicular to the plane	DIN 53421	N/mm <sup>2</sup>	Average <i>Minimum</i>	50 35	85 75	115 100	170 145
Tensile strength perpendicular to the plane	ASTM C297	N/mm <sup>2</sup>	Average <i>Minimum</i>	1.5 1.2	2.2 1.6	2.7 2.2	3.0 2.4
Tensile modulus perpendicular to the plane	ASTM C297	N/mm <sup>2</sup>	Average <i>Minimum</i>	85 70	120 90	170 140	225 180
Shear strength	ISO 1922	N/mm <sup>2</sup>	Average <i>Minimum</i>	0.46 0.4	0.8 0.7	1.2 1.1	1.85 1.5
Shear modulus	ISO 1922	N/mm <sup>2</sup>	Average <i>Minimum</i>	12 10.5	20 18	30 26	50 44
Shear elongation at break	ISO 1922	%	Average <i>Minimum</i>	12 8	10 5	8 4	5 3
Thermal conductivity at room temperature	ISO 8301	W/m.K	Average	0.033	0.033	0.036	0.041
Standard sheet	Width <sup>2)</sup>	mm ± 5		610	610	610	610
	Length <sup>2)</sup>	mm ± 5		1220	1220	1220	1220
	Thickness	mm ± 0.5		5 to 100	5 to 100	5 to 100	5 to 100

Finishing Options, other dimensions and closer tolerances upon request

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

<sup>2)</sup> Alternative width 1220 mm, alternative length 2440 mm

Fire performance	Standard		T90.60	T90.100	T90.150	T90.210
Aircraft	FAR 25.853/ABD0031	Flammability	passed	passed	passed	passed
	FAR 25.853/ABD0031	Smoke density	passed	passed	passed	passed
	FAR 25.853/ABD0031	Toxicity	passed	passed	passed	passed
Rail	DIN 5510/2	Flammability	S4	S4	S4	S4
	DIN 5510/2	Smoke density	SR2	SR2	SR2	SR2
	DIN 5510/2	Dripping	ST2	ST2	ST2	ST2
	DIN 5510/2 / DIN 53438-2	Edge flaming	K1	K1	K1	
	DIN 5510/2	Toxicity (FED)	<0.1	<0.1	<0.1	<0.1
Rail	NF F16-101	Flammability	M2	M1	M1	M1
	NF F16-101	Smoke density	F1	F1	F1	F1
Rail	CEN TS 45545-2 (Nov. 2006)		Certification depending on sandwich design			

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.

Typical properties for AIREX® T90		Unit (metrical)	Value <sup>1)</sup>	T90.60	T90.100	T90.150	T90.210
Density	ISO 845	lb/ft <sup>3</sup>	Average <i>Typ. range</i>	4.1 3.7 - 4.4	6.8 6.6 - 7.2	9.1 8.7 - 9.4	13 12.5 - 13.7
Compressive strength perpendicular to the plane	ISO 844	psi	Average <i>Minimum</i>	116 102	203 174	319 290	508 464
Compressive modulus perpendicular to the plane	DIN 53421	psi	Average <i>Minimum</i>	7'250 5'075	12'330 10'875	16'680 14'500	24'650 21'025
Tensile strength perpendicular to the plane	ASTM C297	psi	Average <i>Minimum</i>	218 174	319 232	392 319	435 350
Tensile modulus perpendicular to the plane	ASTM C297	psi	Average <i>Minimum</i>	12'325 10'150	17'400 13'050	24'650 20'300	32'630 26'100
Shear strength	ISO 1922	psi	Average <i>Minimum</i>	67 58	116 102	174 160	268 215
Shear modulus	ISO 1922	psi	Average <i>Minimum</i>	1'740 1'520	2'900 2'610	4'350 3'770	7'250 6'380
Shear elongation at break	ISO 1922	%	Average <i>Minimum</i>	12 8	10 5	8 4	5 3
Thermal conductivity at room temperature	ISO 8301	W/m.K	Average	0.033	0.033	0.036	0.041
Standard sheet	Width <sup>2)</sup>	mm ± 5		610	610	610	610
	Length <sup>2)</sup>	mm ± 5		1220	1220	1220	1220
	Thickness	mm ± 0.5		5 to 100	5 to 100	5 to 100	5 to 100

Finishing Options, other dimensions and closer tolerances upon request

<sup>1)</sup> Minimum values acc. DNV definition; test sample thickness 20 mm (3/4") except compressive modulus 40 mm (1 1/2")

<sup>2)</sup> Alternative width 1220 mm, alternative length 2440 mm

Fire performance	Standard		T90.60	T90.100	T90.150	T90.210
Aircraft	FAR 25.853/ABD0031	Flammability	passed	passed	passed	passed
	FAR 25.853/ABD0031	Smoke density	passed	passed	passed	passed
	FAR 25.853/ABD0031	Toxicity	passed	passed	passed	passed
Rail	DIN 5510/2	Flammability	S4	S4	S4	S4
	DIN 5510/2	Smoke density	SR2	SR2	SR2	SR2
	DIN 5510/2	Dripping	ST2	ST2	ST2	ST2
	DIN 5510/2 / DIN 53438-2	Edge flaming	K1	K1	K1	
	DIN 5510/2	Toxicity (FED)	<0.1	<0.1	<0.1	<0.1
Rail	NF F16-101	Flammability	M2	M1	M1	M1
	NF F16-101	Smoke density	F1	F1	F1	F1
Rail	CEN TS 45545-2 (Nov. 2006)		Certification depending on sandwich design			

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