AIREX® T92

GM--TDS-121

Structural and Sustainable

DATA SHEET 01.2025 - Replaces 09.2024

DESCRIPTION

AIREX® T92 is a closed-cell, thermoplastic and recyclable polymer foam with recycled content, very good mechanical properties, and an outstanding price / performance ratio.

It has an extraordinary resistance to fatigue, is chemically stable and has negligible water absorption. It is thermally stable during high temperature processing and post curing without after expansion or out-gassing. AIREX® T92 is designed for easy use with all resin systems and processing technologies.

AIREX® T92 is ideally suited as a core material for a wide variety of lightweight sandwich structures subjected to static and dynamic loads and/or exposed to elevated temperatures during manufacturing.

CHARACTERISTICS

- Easy to process with all types of resin and lamination processes
- High process temperature up to 150 °C (302 °F)
- Outstanding fatigue strength
- Best-in-class resin uptake with AIREX® Seal*X*[1)]
- Very high chemical stability
- 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 (up to 100 % recycled PET)
- Highly consistent material properties independent from variance in color
- Comprehensive material traceability (machine-readable batch information on each foam sheet)

APPLICATIONS

- **Renewable energy:** Blades (shear webs & shells), nacelles
- **Marine:** Decks, hull sides, superstructures, bulkheads, transoms, interiors
- **Industrial:** Covers, containers, local reinforcements, x-ray tables, sporting goods
- **Automotive:** Truck body parts, floors

PROCESSING[2)]

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

[1)] AIREX® Seal*X* is a controlled surface treatment for minimum resin consumption

[2)] for details, please refer to AIREX® Processing Guidelines

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AIREX®

3A COMPOSITES CORE MATERIALS

MECHANICAL PROPERTIES

Typical properties		Unit (metric)	Value[1]	AIREX® T92.60	AIREX® T92.80	AIREX® T92.100	AIREX® T92.110	AIREX® T92.130	AIREX® T92.150	AIREX® T92.200	AIREX® T92.230	AIREX® T92.280[3]
Density[5]	ISO 845	kg/m³	Nominal *Typ. range*	65 *60 - 78*	85 *80 - 90*	100 *95 - 105*	110 *100 - 115*	135 *127 - 142*	150 *143 - 155*	210 *200 - 220*	230 *220 - 240*	280 *260 - 295*
Compressive strength perpendicular to the plane	ISO 844 ASTM C365	N/mm²	Typical *Minimum*	0.85 *0.75*	1.3 *1.1*	1.6 *1.35*	1.7 *1.5*	2.3 *1.9*	2.6 *2.3*	3.8 *3.2*	5.0 *4.3*	6.2 *5.6*
Compressive modulus perpendicular to the plane	ASTM C365	N/mm²	Typical *Minimum*	55 *45*	75 *60*	90 *65*	95 *70*	110 *90*	130 *110*	180 *150*	215 *180*	250 *230*
	ISO 844 B	N/mm²	Typical	70	90	100	110	135	150	205	230	280
Tensile strength perpendicular to the plane	ASTM C297	N/mm²	Typical *Minimum*	1.5 *1.3*	1.9 *1.4*	2.3 *1.5*	2.3 *1.55*	2.35 *1.85*	2.5 *2.0*	2.85 *2.3*	3.1 *2.5*	*tbd*
Tensile modulus perpendicular to the plane	ASTM C297	N/mm²	Typical *Minimum*	85 *75*	90 *80*	110 *90*	115 *95*	170 *130*	180 *150*	230 *190*	250 *200*	*tbd*
Shear strength (both directions)	ISO 1922	N/mm²	Typical *Minimum*	0.55 *0.46*	0.72 *0.65*	0.9 *0.75*	0.95 *0.80*	1.3 *1.1*	1.5 *1.25*	2.0 *1.6*	2.2 *1.7*	2.5 *1.9*
Shear modulus (both directions)	ISO 1922	N/mm²	Typical *Minimum*	15 *12*	22 *16*	24 *20*	26 *22*	33 *27*	42 *36*	55 *48*	68 *60*	78 *70*
Shear elongation (both directions)	ISO 1922	%	Typical *Minimum*	25 *15*	*23* *12*	20 *10*	15 *10*	12 *8*	10 *5*	6 *4*	5 *3*	3 *2*
Thermal conductivity at 10 °C	EN 12667	W/m.K	Typical	0.037	0.030	0.034	0.035	0.037	tbd	0.045	tbd	tbd
Colour	Visual			variable[6]								
Standard sheet	Width[2]	mm ± 5		1220	1220	1220	1220	1220	1220	1220	1220	1005
	Length[2]	mm ± 5		2440	2440	2440	2440	2440	2440	2440	2440	2440
	Thickness[4]	mm ± 0.5		2 to 100	2 to 100	2 to 100	2 to 100	2 to 100	5 to 100	5 to 100	5 to 100	5 to 100

Finishing Options, other dimensions and closer tolerances upon request. [1] Statistical minimum values; test sample thickness 20 mm except thermal conductivity (50 mm). [2] Alternative width 610 mm, alternative length 1220 mm. [3] Preliminary data. [4] Sheets with thickness lower than 5 mm has stricter tolerance of +/-0.2 mm and dedicated for micro-sandwich applications; they are marked as AIREX® TM92. [5] Seal*X* adds approx. 2 kg/m³. [6] Depends on raw material batch.

The data provided gives approximate values for the nominal density and DNV-GL minimum values according to DNV-GL type approval certificate. Typical values are based on statistics over time. 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.

AIREX®

3A COMPOSITES CORE MATERIALS

MECHANICAL PROPERTIES

Typical properties		Unit (imperial)	Value[1]	AIREX® T92.60	AIREX® T92.80	AIREX® T92.100	AIREX® T92.110	AIREX® T92.130	AIREX® T92.150	AIREX® T92.200	AIREX® T92.230	AIREX® T92.280[3]
Density[5]	ISO 845	lb/ft³	Nominal *Typ. range*	4.1 *3.7 - 4.9*	5.3 *5.0 - 5.6*	6.2 *5.9 - 6.6*	6.8 *6.2 - 7.1*	8.4 *7.9 - 8.9*	9.4 *8.9 - 9.7*	13 *12.5 - 13.7*	14.3 *13.7 - 240*	17.5 *16.2 - 18.4*
Compressive strength perpendicular to the plane	ISO 844 ASTM C365	psi	Typical *Minimum*	123 *109*	188 *160*	232 *195*	246 *217*	340 *275*	380 *330*	551 *464*	725 *625*	900 *810*
Compressive modulus perpendicular to the plane	ASTM C365	psi	Typical *Minimum*	7'980 *6'530*	10'880 *8'700*	13'050 *9'425*	13'780 *10'150*	15'950 *13'050*	18'850 *15'950*	26'100 *21'750*	31'185 *26'100*	36'250 *33'350*
	ISO 844 B	psi	Typical	10'150	13'050	14'500	15'950	19'580	21'750	29'730	33'360	40'610
Tensile strength perpendicular to the plane	ASTM C297	psi	Typical *Minimum*	218 *189*	275 *203*	330 *218*	333 *225*	340 *270*	360 *290*	413 *330*	450 *360*	tbd
Tensile modulus perpendicular to the plane	ASTM C297	psi	Typical *Minimum*	12'330 *10'880*	13'050 *11'600*	15'950 *13'050*	16'680 *13'780*	24'660 *18'850*	26'110 *21'760*	33'360 *27'550*	36'260 *29'000*	*tbd*
Shear strength (both directions)	ISO 1922	psi	Typical *Minimum*	80 *67*	104 *94*	130 *109*	137 *116*	190 *160*	218 *180*	290 *230*	320 *245*	360 *275*
Shear modulus (both directions)	ISO 1922	psi	Typical *Minimum*	2'180 *1'740*	3'190 *2'320*	3'480 *2'900*	3'770 *3'190*	4'785 *3'625*	6'090 *5'220*	7'975 *6'960*	9'860 *8'700*	11'310 *10'150*
Shear elongation (both directions)	ISO 1922	%	Typical *Minimum*	25 *15*	23 *12*	20 *10*	15 *10*	12 *8*	10 *5*	6 *4*	5 *3*	3 *2*
Thermal conductivity at 50 °F	EN 12667	Btu.in/hr.ft².F	Typical	0.257	0.208	0.236	0.243	0.257	tbd	0.312	tbd	tbd
Colour	Visual			variable[6]								
Standard sheet	Width[2]	in ± 0.2		48	48	48	48	48	48	48	48	40
	Length[2]	in ± 0.2		96	96	96	96	96	96	96	96	96
	Thickness[4]	in ± 0.02		⅛ to 4	⅛ to 4	⅛ to 4	⅛ to 4	⅛ to 4	⅛ to 4	⅛ to 4	⅛ to 4	0.2 to 2

Finishing Options, other dimensions and closer tolerances upon request. [1] Statistical minimum values; test sample thickness 3/4" except thermal conductivity 2". [2] Alternative width 24", alternative length 48". [3] Preliminary data. [4] Sheets with thickness lower than 5 mm has stricter tolerance of +/-0.2 mm and dedicated for micro-sandwich applications; they are marked as AIREX® TM92. [5] Seal*X* adds approx. 0.12 lb/ft³. [6] Depends on raw material batch.

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