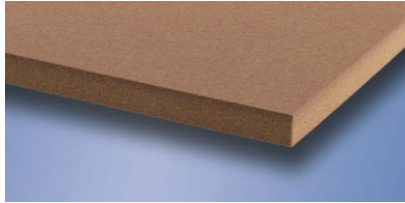


Damage Tolerant Foam

DATA SHEET 07.2011 - Replaces 08.2010

DESCRIPTION



AIREX® R63 is a closed-cell, linear, thermoplastic polymer foam with extremely high damage tolerance.

This one of a kind formula combines very high elongation and excellent bond strength. **AIREX® R63** is cold formable to simple shapes and thermoformable to complex three-dimensional curves, and is non-friable.

AIREX® R63 is an exceptional core material for dynamically loaded and shock absorbing sandwich structures.

CHARACTERISTICS

- Extraordinary impact strength (non-brittle failure mode)
- Very easy to form (cold and hot)
- Dimensionally stable
- Excellent fatigue resistance
- Outstanding core-to-skin adhesion
- Non biodegradable
- Good sound and thermal insulation

APPLICATIONS

- **Marine:** Hull bottoms, hull sides
- **Road and Rail:** Front-ends, side skirts, crash belts
- **Aircraft:** Explosion proof cargo containers
- **Recreation:** Surf boards, canoes, kayaks
- **Industrial:** Containers, shelters, helmets

PROCESSING

- Contact molding (hand/spray)
- Adhesive bonding
- Thermoforming
- Vacuum infusion

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MECHANICAL PROPERTIES						
Typical properties for AIREX® R63		Unit (metric)	Value¹⁾	R63.50	R63.80	R63.140
Density	ISO 845	kg/m ³	Average <i>Typ. Range</i>	60	90 <i>80 - 120</i>	140 <i>125 - 170</i>
Compressive strength perpendicular to the plane	ISO 844	N/mm ²	Average <i>Minimum</i>	0.38	0.90 <i>0.70</i>	1.6 <i>1.3</i>
Compressive modulus perpendicular to the plane	DIN 53421	N/mm ²	Average <i>Minimum</i>	30	56 <i>46</i>	110 <i>100</i>
Tensile strength in the plane	ISO 527 1-2	N/mm ²	Average <i>Minimum</i>	0.90	1.4 <i>1.2</i>	2.4 <i>2.2</i>
Tensile modulus in the plane	ISO 527 1-2	N/mm ²	Average <i>Minimum</i>	30	50 <i>45</i>	90 <i>80</i>
Shear strength	ISO 1922	N/mm ²	Average <i>Minimum</i>	0.50	1.0 <i>0.8</i>	1.85 <i>1.60</i>
Shear modulus	ASTM C393	N/mm ²	Average <i>Minimum</i>	11	21 <i>18</i>	37 <i>35</i>
Shear elongation at break	ISO 1922	%	Average <i>Minimum</i>	70	75 <i>70</i>	80 <i>75</i>
Impact strength	DIN 53453	kJ/m ²	Average	4.0	5.0	6.5
Thermal conductivity at room temperature	ISO 8301	W/m.K	Average	0.034	0.037	0.039
Standard sheet	Width	mm ± 5		1300 to 1400	1200 ²⁾	1050 ²⁾
	Length	mm ± 5		2900 to 3100	2700 ²⁾	2400 ²⁾
	Thickness	mm ± 0.5		5 to 50	3 to 30 ³⁾	3 to 20 ³⁾
Color				brownish yellow	brownish yellow	brownish yellow

Finishing Options, other dimensions and closer tolerances upon request

¹⁾ Minimum values acc. DNV definition; test sample thickness 20 mm except tensile / impact properties (10 mm) and compressive modulus (40 mm)

²⁾ Tolerance for thickness 3 - 9 mm: +/- 10 mm

³⁾ Thicker sheets can be laminated

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® R63		Unit (imperial)	Value¹⁾	R63.50	R63.80	R63.140
Density	ISO 845	lb/ft ³	Average <i>Typ. Range</i>	3.7	5.6 5.0 - 7.5	8.7 7.8 - 10.6
Compressive strength perpendicular to the plane	ISO 844	psi	Average <i>Minimum</i>	55	130 102	230 189
Compressive modulus perpendicular to the plane	DIN 53421	psi	Average <i>Minimum</i>	4'350	8'120 6'670	16'000 14'500
Tensile strength in the plane	ISO 527 1-2	psi	Average <i>Minimum</i>	130	200 174	350 319
Tensile modulus in the plane	ISO 527 1-2	psi	Average <i>Minimum</i>	4'350	7'250 6'525	13'100 11'600
Shear strength	ISO 1922	psi	Average <i>Minimum</i>	72	145 116	270 232
Shear modulus	ASTM C393	psi	Average <i>Minimum</i>	1'600	3'050 2'610	5'370 5'075
Shear elongation at break	ISO 1922	%	Average <i>Minimum</i>	70	75 70	80 75
Impact strength	DIN 53453	ft.lb/in ²	Average	1.9	2.4	3.12
Thermal conductivity at room	ISO 8301	BTU.in/ft ² .hr.°F	Average	0.24	0.26	0.27
Standard sheet	width	mm ± 5		1300 to 1400	1200 ²⁾	1050 ²⁾
	length	mm ± 5		2900 to 3100	2700 ²⁾	2400 ²⁾
	thickness	mm ± 0.5		5 to 50	3 to 30 ³⁾	3 to 20 ³⁾
Color				brownish yellow	brownish yellow	brownish yellow

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