



AIREX® T90

Easy Processing Structural FST Foam

Characteristic

- Superior FST Properties (FAR 25.853; NF 16.101; DIN 5510)
- Excellent fatigue strength
- Easy to process with all types of resin and lamination processes
- Excellent long term thermal stability up to 100°C (212°F)
- Best thermal stability in process up to 150°C (302 °F)
- High compression strength and modulus
- Very low variance of the mechanical values
- Good adhesion (skin-to-core bond)
- Excellent 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, superstructure
- **Industrial**
Cover, containers, x-ray tables, sporting good
- **Architecture and Construction:**
Roofs, claddings, domes, portable building

Processing

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

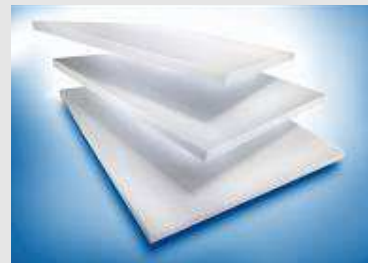
Description:

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 without after expansion or out-gassing. 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.



| Typical properties AIREX® T90 | | Unit (metrical) | Value ¹⁾ | T90.100 | T90.150 | T90.210 ³⁾ |
|---|----------------------|-------------------|------------------------------|------------------|------------------|-----------------------|
| Density | ISO 845 | kg/m ³ | Average <i>Typ. range</i> | 110 105 - 115 | 150 145 - 155 | 210 200 - 220 |
| Compressive strength perpendicular to the plane | ISO 844 | N/mm ² | Average <i>Minimum</i> | 1.4 1.2 | 2.0 1.8 | 3.5 |
| Compressive modulus perpendicular to the plane | DIN 53421 | N/mm ² | Average <i>Minimum</i> | 85 75 | 90 80 | 160 |
| Tensile strength perpendicular to the plane | ASTM C297 | N/mm ² | Average <i>Minimum</i> | 2.2 1.6 | | |
| Tensile modulus perpendicular to the plane | ASTM C297 | N/mm ² | Average <i>Minimum</i> | 120 90 | | |
| Shear strength | ISO 1922 | N/mm ² | Average <i>Minimum</i> | 0.8 0.7 | 1.0 0.7 | 1.85 |
| Shear modulus | ISO 1922 | N/mm ² | Average <i>Minimum</i> | 20 18 | 30 25 | 50 |
| Shear elongation at break | ISO 1922 | % | Average <i>Minimum</i> | 10 5 | 2.5 2 | 5 |
| Thermal conductivity at room temperature | ISO 8301 | W/m.K | Average | 0.033 | 0.036 | 0.041 |
| Standard sheet | Width ²⁾ | mm ± 5 | | 610 | 610 | 610 |
| | Length ²⁾ | mm ± 5 | | 1220 | 1220 | 1220 |
| | Thickness | mm ± 0.5 | | 5 to 100 | 5 to 100 | 5 to 100 |

Finishing Options, other dimensions and closer tolerances upon request

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

²⁾ Alternative width 1220 mm, alternative length 2440 mm

³⁾ Preliminary Data

| Fire performance | Standard | | T90.100 | T90.150 | T90.210 |
|------------------|------------------------|---------------|--|---------|---------|
| Aircraft | FAR 25.853/ABD0031 | Flammability | passed | passed | ongoing |
| | FAR 25.853/ABD0031 | Smoke density | passed | passed | ongoing |
| | FAR 25.853/ABD0031 | Toxicity | passed | passed | ongoing |
| Rail | DIN 5510/2 | Flammability | S4 | S4 | ongoing |
| | DIN 5510/2 | Smoke density | SR2 | SR2 | ongoing |
| | DIN 5510/2 | Dripping | ST2 | ST2 | ongoing |
| | DIN 5510/2/DIN 53438-2 | Edge flaming | K1 | K1 | ongoing |
| Rail | NF F16-101 | Flammability | M1 | | M1 |
| | NF F16-101 | Smoke density | 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.

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| Typical properties AIREX® T90 | | Unit (imperial) | Value ¹⁾ | T90.100 | T90.150 | T90.210 ³⁾ |
|--|----------------------|--------------------|------------------------------|------------------|------------------|-----------------------|
| Density | ISO 845 | lb/ft ³ | Average <i>Typ. range</i> | 6.8 6.6 – 7.2 | 10 9.1 – 9.7 | 13 12.5 – 13.7 |
| Compressive strength perpendicular to the plane | ISO 844 | psi | Average <i>Minimum</i> | 203 174 | 290 261 | 508 |
| Compressive modulus perpendicular to the plane | DIN 53421 | psi | Average <i>Minimum</i> | 12'330 10'875 | 13'053 11'600 | 23'210 |
| Tensile strength perpendicular to the plane | ASTM C297 | psi | Average <i>Minimum</i> | 319 232 | | |
| Tensile modulus perpendicular to the plane | ASTM C297 | psi | Average <i>Minimum</i> | 17'400 13'050 | | |
| Shear strength | ISO 1922 | psi | Average <i>Minimum</i> | 116 102 | 145 102 | 268 |
| Shear modulus | ISO 1922 | psi | Average <i>Minimum</i> | 2'900 2'610 | 4'350 3'625 | 7'250 |
| Shear elongation at break | ISO 1922 | % | Average <i>Minimum</i> | 10 5 | 2.5 2 | 2.5 |
| Thermal conductivity at room temperature | ISO 8301 | W/m.K | Average | 0.035 | 0.039 | 0.041 |
| Standard sheet | Width ²⁾ | mm ± 5 | | 610 | 610 | 610 |
| | Length ²⁾ | mm ± 5 | | 1220 | 1220 | 1220 |
| | Thicknes | mm ± 0.5 | | 5 to 100 | 5 to 100 | 5 to 100 |

Finishing Options, other dimensions and closer tolerances upon request

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

²⁾ Alternative width 1220 mm, alternative length 2440 mm

³⁾ Preliminary Data

| Fire performance | Standard | | T90.100 | T90.150 | T90.210 |
|------------------|------------------------|---------------|--|---------|---------|
| Aircraft | FAR 25.853/ABD0031 | Flammability | passed | passed | ongoing |
| | FAR 25.853/ABD0031 | Smoke density | passed | passed | ongoing |
| | FAR 25.853/ABD0031 | Toxicity | passed | passed | ongoing |
| Rail | DIN 5510/2 | Flammability | S4 | S4 | ongoing |
| | DIN 5510/2 | Smoke density | SR2 | SR2 | ongoing |
| | DIN 5510/2 | Dripping | ST2 | ST2 | ongoing |
| | DIN 5510/2/DIN 53438-2 | Edge flaming | K1 | K1 | ongoing |
| Rail | NF F16-101 | Flammability | M1 | | M1 |
| | NF F16-101 | Smoke density | F1 | | F1 |
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