TECHNICAL DATA

ArmaPET® Struct FR

ArmaPET Struct is the versatile and durable solution for structural sandwich applications, with a more environmentally responsible approach.

// Halogen-free product allows for low smoke and toxicity and enhances public safety
// Exceeds the requirements of a large variety of international fire safety standards
// Superior impact resistance ensures long-term performance, fewer repairs and easy maintenance
// Sustainable PET solution, based on 100% recyclable material, allows for an eco-friendly way of travelling

www.armacell-core-foams.com

armacell®
ArmaPET®

FIRE-RETARDANT STRUCTURAL FOAM CORE

ARMAPET STRUCT FR

With this **fire-retardant, self-extinguishing** version of ArmaPET Struct, we offer a structural foam core designed for applications with particularly stringent fire protection requirements.

SAFETY FIRST

ArmaPET Struct FR fire-retardant versions have been designed for but are not limited to the transportation and construction sectors and are certified according to the relevant fire safety standards, including NF F16-101, EN 13501-1 and EN 45545-2.

// EN 45545-2
As a standalone foam, ArmaPET Struct FR complies with hazard level **HL2**, which covers 85 to 90% of all rail applications.
However, EN45545-2 does not require testing of the individual components, but in the final sandwich set-up. ArmaPET Struct FR in combination with phenolic or aluminium skins, for example, can be certified for levels up to **HL3**.

// EN 13501-1
SBI product classification can be influenced by the combination of density and thickness. ArmaPET Struct FR70 with a thickness of 25 mm achieves fire **class D**, whereas the same material with a thickness of 10 mm, achieves **class B**.

// Calorific value
Calorific value means the amount of heat released during complete combustion. The more heat is contributed to the fire, the faster the fire spreads. Consequently, the lower the material's calorific value, the better. Even though ArmaPET is not incombustible, its calorific value is lower than that of other materials currently on the market, which means it contributes less to the spread of a fire. For ArmaPET Struct FR150, for example, the value is **23 MJ/kg**.

// Halogen-free
For this fire-retardant version of ArmaPET Struct, we only use **halogen-free, flame-retardant additives**.

In a fire, ArmaPET Struct FR, with its very low smoke generation and reduced smoke toxicity, improves fire safety in terms of escape time and potential health damage.

APPLICATIONS

In addition to its excellent fire safety performance, ArmaPET Struct FR provides a durable final product solution with high impact resistance for long-term performance, fewer repairs and easy maintenance.

TRANSPORTATION: body structure / floor / door / interior of tram, train, bus or coach

CONSTRUCTION: building envelope / domes / modular housing

Technical Data

ArmaPET Struct FR

			FR70	FR100	FR150
Density	**ISO 845**	kg/m³	70 [1]	100 [1]	150 [2]
		lb/ft³	4.4 [1]	6.2 [1]	9.4 [2]
Compression Strength	**ISO 844**	MPa	0.8	1.5	2.3
		psi	115	220	335
Compression Modulus	**ISO 844**	MPa	150	180	260
		psi	21'750	26'100	37'700
Shear Strength [3]	**ISO 1922**	MPa	0.55	0.8	1.3
		psi	80	115	190
Shear Modulus [3]	**ISO 1922**	MPa	12	20	40
		psi	1'740	2'900	5'800
Shear Strain [3]	**ISO 1922**	%	20	15	10
		%	20	15	10
Tensile Strength	**ASTM C 297**	MPa	1.6	2.4	2.9
		psi	230	350	420
Tensile Modulus	**ASTM C 297**	MPa	60	105	160
		psi	8'700	15'225	23'200
Thermal Conductivity *	**at 23 °C**	W/(m·K)	0.034	0.034	0.041
	at 73.4 °F	BTU.in/ FT².hr.°F	0.236	0.236	0.284

Fire Performance [4]

		FR70	FR100	FR150
Flammability	**NF F16-101**	M1 [5]	M1 [6]	M1 [6]
Smoke Density *	**NF F16-101**	F1	F1	F1
FST *	**EN 45545-2 [7]**	conform [8]	conform	conform
Contribution to fire	**EN 13501-1 [9]**	B [10]	C [10]	C [10]
Smoke Production	**EN 13501-1 [9]**	s1 [10]	s1 [10]	s2 [10]
Flaming Droplets	**EN 13501-1 [9]**	d0 [10]	d0 [10]	d0 [10]

Tolerances

		Length	Width	Diagonal	Thickness
Dimensions [11]	mm	2448	1008	[12]	10-150 mm
	inch	96.38	39.68	[12]	0.39 - 5.9
At room temperature	mm	+/- 5	+/- 5	≤ 4	≤ 100mm: +/- 0.5 ≥ 100mm: +/- 1
	inch	+/- 0.2	+/- 0.2	≤ 0.16	≤ 3.94: +/- 0.02 ≥ 3.94: +/- 0.04

(*) Based on single test results, to be used for information only.
(1) Tolerances: +/- 5 kg/m³, +/- 0.3 lb/ft³
(2) Tolerances: +/- 5 %
(3) // direction (parallel to the weld)
(4) For detailed test results and certificates please contact us.
(5) 10 to 25 mm, 0.39 to 0.79 inch.
(6) As of 15 mm, 0.59 inch.
(7) Final sandwich design to be tested.
(8) FR70 tested as standalone foam: HL2, R10
(9) Classified as per EN 13501-1. Tested as per EN 13823.
(10) At 10 mm.
(11) Standard dimension. Further dimensions on special request.
(12) Depending on length and width combination.

All values are average production figures.
Minimum values on request.
Our products are CFC / HFC free.
Only halogen-free flame retarded additives.
Physical properties are not affected by variances in colour.
Customs tariff code: 39.21.19.00

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ABOUT ARMACELL

As the inventors of flexible foam for equipment insulation and a leading provider of engineered foams, Armacell develops innovative and safe thermal, acoustic and mechanical solutions that create sustainable value for its customers. Armacell's products significantly contribute to global energy efficiency making a difference around the world every day. With 3,200 employees and 27 production plants in 19 countries, the company operates two main businesses, Advanced Insulation and Engineered Foams. Armacell focuses on insulation materials for technical equipment, high-performance foams for high-tech and lightweight applications and next generation aerogel blanket technology.

For more company information, please visit:
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