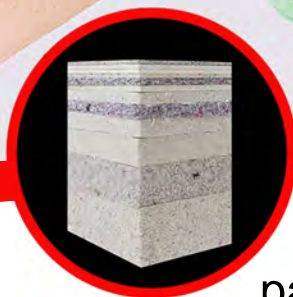




**LENDERINK**  
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**GREENboard**  
**FIRE RETARDED**



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

## SAFETY FIRST

**GREENboard 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 F16-1011, EN 13501-1 and EN 45545-2.

**EN 45545-2:** As a standalone foam, GREENboard FR complies with hazard level HL.2, 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, GREENboard FR in combination with phenolic or aluminum 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. GREENboard FR70 with a thickness of 25mm 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 GREENboard FR is not combustible, 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 GREENboard FR150, for example, the value is 23 MJ/KG.

**Halogen-free:** For this fire-retardant version of GREENboard FR, we only use halogen free, flame-retardant additives.

In a fire, GREENboard 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, GREENboard 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, and modular housing.

# GREENboard **FIRE RETARDED**

## TECHNICAL DATA

			FR70	FR100	FR150
Density	ISO 845	kg/m <sup>3</sup>	70 (1)	100 (1)	150 (2)
		lb/ft <sup>3</sup>	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 <sup>3</sup>	ISO 1922	MPa	0.55	0.8	1.3
		psi	80	115	190
Shear Modulus <sup>3</sup>	ISO 1922	MPa	12	20	40
		psi	1'740	2'900	5'800
Shear Strain <sup>3</sup>	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/ FT.hr.°F	0.236	0.236	0.284

## FIRE PERFORMANCE

Flammability Smoke Density *	NF F16-101	M1 <sup>(5)</sup>	M1 <sup>(5)</sup>	M1 <sup>(5)</sup>
	NF F16-101	F1	F1	F1
FST *	EN 45545-2 (7)	Conform (6)	Conform	Conform
Contribution to Fire Smoke Production Flaming Droplets	EN 13501-1(9)	B <sup>(10)</sup>	C <sup>(10)</sup>	C(10)
	EN 13501-1(9)	s1 <sup>(10)</sup>	s1 <sup>(10)</sup>	s2 <sup>(10)</sup>
	EN 13501-1(9)	d0 <sup>(10)</sup>	d0 <sup>(10)</sup>	d0 <sup>(10)</sup>

## TOLERANCES

		Length	Width	Diagonal	Thickness
Dimensions (11)	mm	2448	1008	(12)	5-200mm <sup>(13)(14)</sup>
	inch	96.38	39.68	(12)	0.2 - 7.87
At Room Temperature	mm	+/- 5	+/- 5	≤ 4	≤ 100mm. +/- 0.5
	inch	+/- 0.2	+/- 0.2	≤ 0.16	≤ 100mm. +/- 1 ≤ 3.94. +/- 0.02 ≤ 3.94. +/- 0.04



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