

**LAMCO HPL COMPACT EXTERIOR GRADE**

Self-supporting material (from 2 mm) suitable for exteriors. It consists of core layers of kraft paper impregnated with thermosetting resins and an outer layer - on one or both sides - of decorative paper impregnated with aminoplastic resins; all bonded together by means of high pressure ( $\geq 7\text{Mpa}$ ) and heat ( $\geq 135^\circ\text{C}$ ). It is available in the standard and flame retardant versions (where fire retardant additives are mixed to kraft paper). This material is produced in conformity to EN 438-6.

PROPERTY	TEST METHOD (EN 438-2: 2016)	PROPERTY OR ATTRIBUTE	UNIT	VALUES EGS-EDS	VALUES EGF-EDF
<b>Thickness <math>\pm</math> tolerance</b>	EN 438-2.5	thickness (t)	mm	$2,0 \leq t < 3,0$	$\pm 0,20$
				$3,0 \leq t < 5,0$	$\pm 0,30$
				$5,0 \leq t < 8,0$	$\pm 0,40$
				$8,0 \leq t < 12,0$	$\pm 0,50$
				$12,0 \leq t < 16,0$	$\pm 0,60$
				$16,0 \leq t < 20,0$	$\pm 0,70$
				$20,0 \leq t < 25,0$	$\pm 0,80$
				$25,0 \leq t$ to be agreed	
<b>Flatness<sup>(1)</sup></b>	EN 438-2.9	maximum deviation	mm/m	8,0 ( $2,0 \leq t < 6,0$ )	8,0 ( $2,0 \leq t < 6,0$ )
				5,0 ( $6,0 \leq t < 10,0$ )	5,0 ( $6,0 \leq t < 10,0$ )
				3,0 ( $10,0 \leq t$ )	3,0 ( $10,0 \leq t$ )
<b>Resistance to wet conditions</b>	EN 438-2.15	mass increase	%	$\leq 7$ ( $2 \leq t < 5$ ) $\leq 5$ ( $5 \leq t$ )	$\leq 10$ ( $2 \leq t < 5$ ) $\leq 8$ ( $5 \leq t$ )
		surface appearance	rating	$\geq 4$	$\geq 4$
		edge appearance	rating	$\geq 3$	$\geq 3$
<b>Dimensional stability at elevated temperature</b>	EN 438-2.17	cumulative dimensional change	% long.	( $2 \leq t \leq 5$ ) 0,40	( $2 \leq t \leq 5$ ) 0,40
			% transv.	0,80	0,80
			% long.	( $5 \leq t$ ) 0,30	( $5 \leq t$ ) 0,30
			% transv.	0,60	0,60
<b>Resistance to impact by large diameter ball</b>	EN 438-2.21	drop height	mm (min.)	1400 ( $2 \leq t < 6$ ) 1800 ( $6 \leq t$ )	1400 ( $2 \leq t < 6$ ) 1800 ( $6 \leq t$ )
		indentation diameter	mm (max)	10	10
<b>Thermal conductivity</b>	EN 12664	-	W/(m·K)	0,30	0,50
<b>Flexural strenght</b>	EN ISO 178	stress	Mpa	$\geq 80^{(2)}$	$\geq 80^{(2)}$
<b>Flexural modulus (E)</b>	EN ISO 178	stress	Mpa	$\geq 9000^{(2)}$	$\geq 9000^{(2)}$
<b>Density</b>	ISO 1183-1	density	gr/cm <sup>3</sup>	$\geq 1,35$	$\geq 1,40$

(1) Laminates with two decorative faces. Provided that the laminates are stored in the manner and conditions recommended in our Manual of technical information.

(2) Both in longitudinal and cross-longitudinal direction.

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**WEATHER RESISTANCE REQUIREMENTS**

PROPERTY	TEST METHOD (EN 438-2: 2016)	PROPERTY OR ATTRIBUTE	UNIT	VALUES EGS-EGF	VALUES EDS-EDF
Resistance to climatic shock	EN 438-2.19	appearance	rating	≥ 4	≥ 4
		flexural strenght index Ds	–	≥ 0,80	≥ 0,80
		flexural modulus index Dm	–	≥ 0,80	≥ 0,80
Resistance to UV light	EN 438-2.28	contrast	grey scale rating	N.A.	≥ 3 after 1500 hours exposure
		appearance	rating	N.A.	≥ 4 after 1500 hours exposure
Resistance to artificial weathering (including light fastness)	EN 438-2.29	contrast	grey scale rating	≥ 3 (after 325 MJ/m <sup>2</sup> radiant exposure)	≥ 3 (after 650 MJ/m <sup>2</sup> radiant exposure)
		appearance	rating	≥ 4 (after 325 MJ/m <sup>2</sup> radiant exposure)	≥ 4 (after 650 MJ/m <sup>2</sup> radiant exposure)

**Notes**

- The colour of the decorative surface of different lots may slightly vary as a result of the technology and type of used pigments.
- Cores may show slight variations in tonality due both to the raw material used and to the working process. To mitigate this effect good results can be achieved following the istructions at point 5.3 of our Manual of techical information.

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**FIRE PERFORMANCE<sup>(1)</sup>**

TEST METHOD	STANDARD	CLASSIFICATION	
		EGF - EDF	EGS - EDS
Reaction to fire SBI (EN 13823)	EN 13501-1	(t ≥ 6) B-s1,d0 (any kind of frame)	(t ≥ 6) C,s1-d0 (aluminium frame)
Small flame and radiant panel	UNI 8457 UNI 9174 UNI 9177	class 1	class 2
Spread of flame	BS 476-7	class 1	class 2
Brandschacht	DIN 4102-1	B1	B2
Epiradiateur	NF P 92-501	M1	M2
Smoke density and toxicity	NF F 16-101	F2 or better	—

Fire behaviour depends on the thickness and fitting of the HPL, on the technical characteristics of the substrate and adhesives. Please, contact our technical service for more details regarding fire test reports and certifications held, and for information on fire test methods and specifications.

Flame-retardant additives used in our Exterior-grade Compact laminates are not halogen based and remain effective throughout the service life of the product.

Always follow general recommendations that you'll be able to find in our Manual of Technical Information.