

## LAMCO HPL COMPACT (CGS-CGF)

Self-supporting material (from 2 mm) consisting of layers of kraft paper impregnated with phenolic 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 (9 MPa) and heat (150 °C). This material is produced in conformity to EN 438-4:2005.

PROPERTY	TEST METHOD (EN 438: 2005)	PROPERTY OR ATTRIBUTE	UNIT	VALUES CGS	VALUES CGF
<b>Thickness ± 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 between supplier and customer					
<b>Flatness</b>	EN 438-2.9	maximum deviation	mm/mtl ( 1 side dec.)	50 ( $2,0 \leq t \leq 4,0$ )	50 ( $2,0 \leq t \leq 4,0$ )
			mm/mtl (2 side dec.)	8,0 ( $2,0 \leq t < 6,0$ ) 5,0 ( $6,0 \leq t < 10,0$ ) 3,0 ( $10,0 \leq t$ )	8,0 ( $2,0 \leq t < 6,0$ ) 5,0 ( $6,0 \leq t < 10,0$ ) 3,0 ( $10,0 \leq t$ )
<b>Resistance to surface wear</b>	EN 438-2.10	wear resistance	rvs	IP $\geq 150$ A $\geq 350$	IP $\geq 150$ A $\geq 350$
<b>Resistance to immersion in boiling water</b>	EN 438-2.12	mass increase	%	$\leq 5$ ( $2 \leq t < 5$ ) $\leq 2$ ( $5 \leq t$ )	$\leq 7$ ( $2 \leq t < 5$ ) $\leq 3$ ( $5 \leq t$ )
		thickness increase	%	$\leq 6$ ( $2 \leq t < 5$ ) $\leq 2$ ( $5 \leq t$ )	$\leq 9$ ( $2 \leq t < 5$ ) $\leq 6$ ( $5 \leq t$ )
		appear. gloss finish appear. other finish	rating	$\geq 3$ $\geq 4$	$\geq 3$ $\geq 4$
<b>Resistance to dry heat (180 °C)</b>	EN 438-2.16	appear. gloss finish appear. other finish	rating	$\geq 3$ $\geq 4$	$\geq 3$ $\geq 4$
<b>Resistance to wet heat (100 °C)</b>	EN 12721	appear. gloss finish appear. other finish	rating	$\geq 3$ $\geq 4$	$\geq 3$ $\geq 4$
<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>Res. 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>Resistance to crazing</b>	EN 438-2.24	appearance	rating	$\geq 4$	$\geq 4$
<b>Resistance to scratching<sup>(1)</sup></b>	EN 438-2.25	smooth finishes	rating	$\geq 2$	$\geq 2$
		texture finishes	rating	$\geq 3$	$\geq 3$

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<b>Resistance to staining</b>	EN 438-2.26	appear. groups 1-2 appear. groups 3	rating	5 ≥ 4	5 ≥ 4
<b>Lightfastness</b>	EN 438-2.27	contrast	grey scale rating	≥ 4	≥ 4
<b>Resistance to cigarette burns</b>	EN 438-2.30	appearance	rating	≥ 3	≥ 3
<b>Resistance to water vapour</b>	EN 438-2.14	appear. gloss finish appear. other finish	rating	≥ 3 ≥ 4	≥ 3 ≥ 4
<b>Electrical resistance</b>	NF PA 99	-	Ohm	$10^8 - 10^{11}$	$10^8 - 10^{11}$
<b>Thermal conductivity</b>	DIN 52 612	-	W/m . °K	0,25	0,25
<b>Coefficient of linear thermal expansion</b>	ASTM D 696	-	°C -1	L = $1,6 \times 10^{-5}$ ca. T = $3,5 \times 10^{-5}$ ca.	L = $1,6 \times 10^{-5}$ ca. T = $3,5 \times 10^{-5}$ ca.
<b>Tensile strenght</b>	EN ISO 527-2	stress	Mpa	L ≥ 100 T ≥ 70	L ≥ 100 T ≥ 70
<b>Flexural strenght</b>	EN ISO 178	stress	Mpa	L ≥ 100 T ≥ 90	L ≥ 100 T ≥ 90
<b>Flexural modulus (E)</b>	EN ISO 178	stress	Mpa	L ≥ 10.000 T ≥ 9.000	L ≥ 10.000 T ≥ 9.000
<b>Density</b>	ISO 1183	density	gr/cm <sup>3</sup>	≥ 1,40	≥ 1,40

(1) Resistance to scratching is depending from finish and colour.

Note: The colour of individual lots may vary as a result of the technology and tyte of pigment used. Pay attention to the direction of the texture.

### FIRE PERFORMANCE

TEST METHOD	STANDARD	CLASSIFICATION	
		CGF	CGS
<b>Small flame and radiant panel</b>	UNI 8457 UNI 9174 UNI 9177	class 1	class 2
	UNI CEI 11170-3	class 1A	/
<b>Spread of flame</b>	BS 476-7	class 1	class 2
<b>Brandschacht</b>	DIN 4102-1	B1	B2
<b>Epiradiateur</b>	NF P 92-501	M1	M2
<b>Smoke dendity and toxicity</b>	NF F 16-101	min F2	min F2
	UNI CEI 11170-3		
<b>Reaction to fire</b>	EN 13501-1	(t ≥ 3) B-s2,d0 <sup>(2)</sup>	(t ≥ 6) C,s2-d0 <sup>(2)</sup>

(2) The laminate manufacturer should be contacted for details of fire test reports and certifications held, and for information on fire test methods and specifications.

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