

THIN | STANDARD

High pressure decorative laminates (HPL), less than 2 mm thick, according to EN 438-1:2016, EN 438-2:2016, EN 438-3:2016 and EN 438-8:2009, consisting of a surface of decorative paper(s) impregnated with aminoplastic resins and a core made of layers of kraft paper impregnated with phenolic thermosetting resins. All the layers are bonded together with simultaneous application of heat (approximately 150°C) and high specific pressure (> 7 MPa) to obtain a homogeneous non-porous material with increased density. These thin laminates are normally intended for bonding to supporting substrates, normally wood based, to produce panels by the composite manufacturers. They are available in the standard HGS, ATS and VGS types and in the flame retardant HGF, ATF and VGF types.

	Decor		Plain colours	Printed decors	Iridescent colours	Vertical
	EN 438 classification		HGS - HGF	HGS - HGF	ATS - ATF	VGS - VGF
	Standard		EN 438-3	EN 438-3	EN 438-8	EN 438-3

PROPERTIES	TEST METHOD	PROPERTY OR ATTRIBUTE	UNIT	VALUES
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SURFACE QUALITY

Surface quality	EN 438-2.4	Spots, dirt and similar surface defects	mm ² /m ²	≤ 1
		Fibres, hairs and scratches	mm/m ²	≤ 10

DIMENSIONAL TOLERANCES

Dimensional tolerances	EN 438-2.5	Thickness tolerance	mm	± 0,10 for thickness 0,5 ≤ t ≤ 1,0
			mm	± 0,15 for thickness 1,0 < t < 2,0
	EN 438-2.6	Length and width	mm	+ 10 / - 0
	EN 438-2.7	Straightness of edges	mm/m	≤ 1,5
	EN 438-2.8	Squareness	mm/m	≤ 1,5
EN 438-2.9	Flatness (measured on full-size sheet)	mm/m	≤ 60	

GENERAL PROPERTIES

Resistance to surface wear	EN 438-2.10	Initial Point	Revolutions	≥ 150	≥ 100	n.a.	≥ 50
Resistance to immersion in boiling water	EN 438-2.12	Appearance - Gloss finish	Rating	≥ 3			
		Appearance - Other finish	Rating	≥ 4			
Resistance to water vapour	EN 438-2.14	Appearance - Gloss finish	Rating	≥ 3			
		Appearance - Other finish	Rating	≥ 4			
Resistance to dry heat (160 °C/20')	EN 438-2.16	Appearance - Gloss finish	Rating	≥ 3			
		Appearance - Other finish	Rating	≥ 4			
Resistance to wet heat (100 °C/20')	EN 438-2.18	Appearance - Gloss finish	Rating	≥ 3			
		Appearance - Other finish	Rating	≥ 4			
Dimensional stability at elevated temperatures	EN 438-2.17	Cumulative dimensional change	Longitudinal %	≤ 0,55		≤ 0,75	
		Cumulative dimensional change	Transversal %	≤ 1,05		≤ 1,25	
Resistance to impact with small diameter ball	EN 438-2.20	Spring force	N	≥ 20		≥ 15	
Resistance to impact with large diameter ball	EN 438-2.21	Drop height	mm	≥ 800		n.a.	≥ 600
		Indentation diameter	mm	≤ 10			≤ 10
Resistance to cracking under stress	EN 438-2.23	Appearance	Rating	≥ 4			
Resistance to scratching	EN 438-2.25	Appearance	Rating	≥ 3		≥ 2	
Resistance to staining	EN 438-2.26	Appearance - Group 1 & 2	Rating	≥ 5			
		Appearance - Group 3	Rating	≥ 4			
Light fastness (Xenon-arc)	EN 438-2.27	Contrast	Grey scale rating	≥ 4			
Electrostatic properties	EN 61340-4-1	Point to point resistance	Ω	10 ⁹ ÷ 10 ¹¹			
		Vertical resistance	Ω	10 ⁹ ÷ 10 ¹¹			
Density	EN ISO 1183	Density	g/cm ³	≥ 1,35			

FIRE PERFORMANCES

Reaction to fire
The reaction to fire of Standard Thin is related to the final composite panel where the laminate is bonded to a substrate. Since the test results also depend on the substrate, the adhesive and the bonding technique applied, the composite manufacturer is responsible for the correct execution of the test in accordance with the applicable standards and test methods required for the specific application field.

OTHER PROPERTIES

Thermal resistance / conductivity	EN 12664	Thermal resistance / conductivity	W/mK	0,2 to 0,5			
Hygiene	NSF	NSF/ANSI 35	passing/not passing	pass			
Formaldehyde emission	EN 717- 1	Chamber method	mg/m ³ ppm	0,020 - 0,035 0,015 - 0,030			
	EN ISO 12460-3	Gas analysis	mg/(m ² x h)	0,3 ÷ 0,4			
	EN 13986	Classification	Class	E1			
Volatile Organic Chemical Emissions	Greenguard Certification Low Chemical Emission UL 2818 according to EPA TO-17 e ASTM D 6196 EPA TO-11A e ASTM D 5197	Individual VOCs	TLV	≤ 0,1			
		Formaldehyde	ppm	≤ 0,025			
		Total VOC	mg/m ³	≤ 0,25			
		Total Aldehydes	ppm	≤ 0,05			
		4-Phenylcyclohexene	mg/m ³	≤ 0,0033			
Total respirable particles	mg/m ³	≤ 0,025					
Contact with food - Overall migration	EN 1186-3	3% acetic acid 24h at 40°C	mg/dm ²	< 10			
	EN 1186-3	50% ethanol 24h at 40°C		< 10			
	EN 1186-14	95% ethanol 24h at 40°C		< 10			
	EN 1186-14	isooctane 24h at 40°C		< 10			
Contact with food - Formaldehyde specific migration	EN 13130-23	3% acetic acid 24h at 40°C	mg/kg	< 15			
Evaluation of micro-organisms action	EN ISO 846	Microbial growth - Smooth finish	Rating	0 - no microbial growth			
		Microbial growth - Textured finish	Rating	1 - slight and slow microbial growth			

Note to laminates with adhesive protective film

The protective films are designed for temporary surface protection against dirt, scratches and tool marks; they are not designed for protection against corrosion, humidity or chemicals. The laminates covered with the protective film shall be stored in a clean, dry place at room temperature (optimum 20°C), avoiding weathering and UV exposure. The protective film must be removed from the surface of the laminates after the application and before putting into use the finite element. In any case, the removal must be made within six months from the date of shipment by Arpa Industriale. Arpa Industriale cannot be responsible for the misuse of the laminates covered with the protective film, nor for the consequences for non-recommended applications.

Note to digital printing decoratives

For the chemical-physical characteristics of digital printing, the laminates with these decors may present a limitation in the applications, such as the repeated and intense contact with water or vapour. Customers are asked to contact the Customer Service Arpa Industriale to evaluate the best solution.

Note to surface wear resistance

In the case of structured finishes, the surface wear resistance values may be 10 or more revolutions lower then the nominal values in proportion to how much more is accentuated the shape.

Disclaimer

The Product Technical Sheets provide all the technical information relevant to the performance of the product as tested by Arpa Industriale or certified testing agencies. Arpa Industriale maintains the right to change and alter the product composition and production process and thereby the performance characteristics of the product at all times, as reported to the Arpa Industriale website. Customers and end-users of the product are requested to check for the latest technical information regarding the products performance on the website of Arpa Industriale before application. In any case, Arpa Industriale, in every contractual relationship, will refer only to the technical information published on its website. Arpa Industriale will not assume any liability if the end-user or customer refer to any other technical information of the products.