

LAVAGNA and MAGNETICO

High pressure decorative laminates (HPL), less than 2 mm thick, according to EN 438-3 or EN 438-9, 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.

The non-porous surface of these types of laminate makes them suitable to writing for educational purposes and communication with the common chalks or dry wipe board markers.

The Magnetic type includes a thin metal layer in the core which makes it ideal as magnetic labels support and for holding sheets of paper with the use of magnets. The ability to retain the magnets does not change over time.

		Decor			Lavagna	Magnetico
		EN 438 classification			VGS	HTS
		Standard			EN 438-3	EN 438-9
PROPERTIES	TEST METHOD	PROPERTY OR ATTRIBUTE	UNIT	VALUES		
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	≤ 10		
DIMENSIONAL TOLERANCES						
Dimensional tolerances	EN 438-2.5	Thickness tolerance	mm	0,9 ± 0,10	1,0 ± 0,18	
	EN 438-2.6	Length and width	mm	+ 10 / - 0	+ 10 / - 0	
	EN 438-2.7	Straightness of edges	mm/m	≤ 1,5	≤ 1,5	
	EN 438-2.8	Squareness	mm/m	≤ 1,5	≤ 1,5	
	EN 438-2.9	Flatness (measured on full-size sheet)	mm/m	60	100	
GENERAL PROPERTIES						
Resistance to surface wear	EN 438-2.10	Initial Point	Revolutions	≥ 150		
		Wear value	Revolutions	≥ 350		
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 (180°C/20')	EN 438-2.16	Appearance - Gloss finish	Rating	≥ 3		
		Appearance - Other finish	Rating	≥ 4		
Resistance to wet heat (100°)	EN 12721:1997	Appearance - Gloss finish	Rating	≥ 3		
		Appearance - Other finish	Rating	≥ 4		
Dimensional stability at elevated temperatures	EN 438-2.17	Cumulative dimensional change	Longitudinal %	≤ 0,75		
		Cumulative dimensional change	Transversal %	≤ 1,25		
Resistance to impact with small diameter ball	EN 438-2.20	Spring force	N	≥ 15	n.a.	
Resistance to impact with large diameter ball	EN 438-2.21	Drop height	mm	≥ 600	≥ 1000	
		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 - Gloss finish	Rating	≥ 2		
		Appearance - Other finishes	Rating	≥ 3		
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		
Resistance to cigarette burns	EN 438-2.30	Appearance	Rating	≥ 3		
Density	EN ISO 1183	Density	g/cm ³	≥ 1,35		
FIRE PERFORMANCES						
Reaction to fire	The Reaction to Fire of this product is related to the final composite panel where the laminate is bonded to a substrate. The results may be different depending on the substrates and bonding techniques applied. The Reaction to Fire testing of the composite panel is under the responsibility of the panel manufacturer.					
OTHER PROPERTIES						
Thermal resistance / conductivity	EN 12664	Thermal resistance / conductivity	W/mK	0,2 to 0,5		
Formaldehyde emission	EN 717- 1	Chamber method	mg/m ³ ppm	0,020 - 0,035 0,015 - 0,030		
	EN 717- 2	Gas analysis	mg/(m ² x h)	0,2 - 0,4		
	EN 13986	Classification	Classificazione	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 VOCs	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 - nessuna crescita microbica		
		Microbial growth - Textured finish	Rating	1 - leggera e lenta crescita microbica		

Notes to laminate Magnetic

- Considering the wide variety of sizes and magnetic capacities, we recommend to get the suitable kind of magnet that best support the paper sheets holding.
- In order to avoid problems during processing, the cutting and the application of the panel, perfectly sharp tools shall be used to avoid chipping. Before you start cutting, preliminary tests should be performed to identify the gear you need.
- Please note that during the panel cutting or machining, sparks can be given off.
- The dust produced during the cutting should not be mixed with normal powder in the pneumatic lines for the presence of metal particles. Electrical equipment and lighting systems explosion proof must be adopted.

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.

Disclaimer

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