

MATERIAL PROPERTIES DATA SHEET



THIN | METALLI

High pressure decorative laminates (HPL), according to EN 438-8:2009 with a surface consisting of a thin metal layer and a core of cellulosic fibrous layers 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.

The surface performance and appearance of these thin metal laminates are equivalent to that of the thin metal layer.

Their use is suitable and recommended for vertical application.

Metalli laminates are available in the types: standard MTS 1 mm thick and postforming MTP 0,8 mm thick.

	EN 438 classification		MTS	MTP
	Standard		EN 438-8	

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	1,0 ± 0,18	0,8 ± 0,15
	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	≤ 100	

GENERAL PROPERTIES

Resistance to immersion in boiling water	EN 438-2.12	Appearance	Core delamination	passed, no delamination	
Resistance to water vapour	EN 438-2.14	Appearance	Rating	≥ 3	
Dimensional stability at elevated temperatures	EN 438-2.17	Cumulative dimensional change	Longitudinal %	≤ 0,75	
		Cumulative dimensional change	Transversal %	≤ 1,25	
Resistance to scratching	EN 438-2.25	Appearance	Rating	≥ 1	
Resistance to staining	EN 438-2.26	Appearance - Group 1 & 2	Rating	≥ 4	
		Appearance - Group 3	Rating	≥ 4	
Light fastness (Xenon-arc)	EN 438-2.27	Contrast	Grey scale rating	≥ 4	
Formability	EN 438-2.32	Radius	L (parallel to fibre direction) mm	n. a.	≤ 8
		Radius	T (right angles to fibre direction) mm	n. a.	≤ 16
Resistance to blistering	EN 438-2.34	Time to blister	Seconds	n. a.	≥ 15
Density	EN ISO 1183	Density	g/cm ³	≥ 1,35	≥ 1,35

FIRE PERFORMANCES

Reaction to fire	The Reaction to Fire of applied laminate is related to the final composite panel where the laminate is bonded to a substrate. The results may be different depending on the substrates, the glue and the bonding techniques applied. The Reaction to Fire testing of the composite panel is under the responsibility of the panel manufacturer.				
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OTHER PROPERTIES

Thermal resistance / conductivity	EN 12664	Thermal resistance / conductivity	W/mK	210	
Formaldehyde emission	EN 717 - 1 and 2	Formaldehyde emission	Rating	Class E1	

Remarks

- Avoid application in extremely wet areas or in presence of elevated temperatures.
- ARPA Metalli are conductive. Grounding is recommended.
- Alu 2002 has a directional decor.
- **Balancing.** The physical-mechanical properties of Metalli HPLs are different from traditional grade HPLs. Basically the same laminate should be used on both faces of the composite panel for proper balancing, but preliminary testing with ARPA Standard HPLs may confirm the reaching of the same results of metal laminates.
- **Hot Postformig.** The irradiation with infrared lamps or hot bars of ARPA Metal Postforming HPL shall be directed to the sanded back. The recommended postforming temperature is about 130°C. Lower and higher temperatures may cause cracking and blistering respectively. Before the industrial applications, it is highly recommended performing some trials to check the suitable device setting.

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. Pay close attention to heating in case of postforming. The Customer has to test the postforming process conditions and carry a trial prior to go in a full scale production. 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

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.