

**MATERIAL PROPERTIES DATA SHEET**

**THIN | SOLID CORE**



High pressure decorative laminates (HPL) according to EN 438-9:2010, consisting of a surface of decorative paper(s) impregnated with aminoplastic resins and a core of coloured cellulosic fibrous layers impregnated with 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 and the core layers have different colours to achieve a succession of coloured layers with particular desing effects resulting from routing and engraving.

	EN 438 classification		BTS
	Standard		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 <sup>2</sup> /m <sup>2</sup>	≤ 1
		Fibres, hairs and scratches	mm/m <sup>2</sup>	≤ 10

**DIMENSIONAL TOLERANCES**

Dimensional tolerances	EN 438-2.5	Thickness tolerance	mm	± 0,18 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	≤ 100 for thickness t < 2,0

**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
Dimensional stability at elevated temperatures	EN 438-2.17	Cumulative dimensional change - t < 2 mm	Longitudinal %	≤ 0,80
		Cumulative dimensional change - t < 2 mm	Transversal %	≤ 1,40
Resistance to scratching	EN 438-2.25	Appearance - Smooth Finishes	Rating	≥ 2
		Appearance - Textured 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	Surface ≥ 4 Core ≥ 3
Resistance to cigarette burns	EN 438-2.30	Appearance	Rating	≥ 3
Density	EN ISO 1183	Density	g/cm <sup>3</sup>	≥ 1,40

**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 composite manufacturer.			
------------------	---	--	--	--

**OTHER PROPERTIES**

Thermal resistance / conductivity	EN 12664	Thermal resistance / conductivity	W/mK	0,2 to 0,5
Formaldehyde emission	EN 717- 1 and 2	Formaldehyde emission	Rating	Class E1
Contact with food - Overall migration	EN 1186-3	3% acetic acid 24h at 40°C	mg/dm <sup>2</sup>	< 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 case of thick laminate with the protective film on both sides, it must always be removed from both sides at the same time. 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**

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.