



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 the same colour producing a uniformly coloured laminate. Unicolor is available in the types: BTS less than 2 mm thick and BCS having thickness 2 mm or greater.

	EN 438 classification		BCS
	Standard		EN 438-9

PROPERTIES	TEST METHOD	PROPERTY OR ATTRIBUTE	UNIT	
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**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	± 0.25 for thickness 2.0 ≤ t < 3.0
			mm	± 0.40 for thickness 3.0 ≤ t < 5.0
			mm	± 0.50 for thickness 5.0 ≤ t < 8.0
			mm	± 0.70 for thickness 8.0 ≤ t < 12.0
			mm	± 0.80 for thickness 12.0 ≤ t < 16.0
	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	≤ 12,0 for thickness 2,0 ≤ t < 6,0
mm/m			≤ 8,0 for thickness 6,0 ≤ t < 10,0	
mm/m			≤ 5,0 for thickness 10,0 ≤ t	

**GENERAL PROPERTIES**

Resistance to surface wear	EN 438-2.10	Initial Point Wear value	Revolutions Revolutions	≥ 150 ≥ 350
Resistance to immersion in boiling water	EN 438-2.12	Mass increase - 2 ≤ t < 5 mm	%	≤ 5
		Mass increase - 5 ≤ t mm	%	≤ 3
		Thickness increase - 2 ≤ t < 5 mm	%	≤ 6
		Thickness increase - 5 ≤ t mm	%	≤ 4
		Appearance - Gloss Finish Appearance - Other finish	Rating Rating	≥ 3 ≥ 4
Resistance to water vapour	EN 438-2.14	Appearance - Gloss Finish Appearance - Other finish	Rating Rating	≥ 3 ≥ 4
		Resistance to dry heat (180°C/20')	EN 438-2.16	Appearance - Gloss Finish Appearance - Other finish
Dimensional stability at elevated temperatures	EN 438-2.17	Cumulative dimensional change - 2 ≤ t < 5 mm	Longitudinal %	≤ 0,60
		Cumulative dimensional change - 5 ≤ t mm	Longitudinal %	≤ 1,00
		Cumulative dimensional change - 2 ≤ t < 5 mm	Transversal %	≤ 0,50
		Cumulative dimensional change - 5 ≤ t mm	Transversal %	≤ 0,80
Resistance to crazing	EN 438-2.24	Appearance	Rating	Surface ≥ 4 Core ≥ 3
Resistance to scratching	EN 438-2.25	Appearance - Smooth Finishes Appearance - Textured Finishes	Rating Rating	≥ 2 ≥ 3
		Resistance to staining	EN 438-2.26	Appearance - Group 1 & 2 Appearance - Group 3
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
Flexural Modulus	EN ISO 178	Stress	Mpa	≥ 9000
Flexural strength	EN ISO 178	Stress	Mpa	≥ 80
Density	EN ISO 1183	Density	g/cm <sup>3</sup>	≥ 1,40

**FIRE PERFORMANCES**

Reaction to fire	The reaction to fire of Solid Unicolor is related to the final application. The fire performance evaluation depends on the current rules and the adopted test method for the specified field of application.			
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**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**

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