

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			BTS	BCS	
		Standard			EN 438-9	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 ²	≤ 10			
DIMENSIONAL TOLERANCES							
Dimensional tolerances	EN 438-2.5	Thickness tolerance	mm	1,0 ≤ t < 2,0: ± 0,18	NA		
			mm	2,0 ≤ t < 3,0: ± 0,25	2,0 ≤ t < 3,0: ± 0,25		
			mm	3,0 ≤ t < 5,0: ± 0,40	3,0 ≤ t < 5,0: ± 0,40		
			mm	5,0 ≤ t < 8,0: ± 0,50	5,0 ≤ t < 8,0: ± 0,50		
			mm	8,0 ≤ t < 12,0: ± 0,70	8,0 ≤ t < 12,0: ± 0,70		
			mm	12,0 ≤ t < 16,0: ± 0,80	12,0 ≤ t < 16,0: ± 0,80		
		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	t < 2,0: ≤ 100	NA	
mm/m	NA			2,0 ≤ t < 6,0: ≤ 12,0			
mm/m	NA			6,0 ≤ t < 10,0: ≤ 8,0			
mm/m	NA			10,0 ≤ t: ≤ 5,0			
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	Mass increase - 2 ≤ t < 5 mm	%	NA			
		Mass increase - 5 ≤ t mm	%	NA			
		Thickness increase - 2 ≤ t < 5 mm	%	NA			
		Thickness increase - 5 ≤ t mm	%	NA			
		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 - 2 ≤ t < 5 mm	Longitudinal %	NA			
		Cumulative dimensional change - 5 ≤ t mm	Longitudinal %	NA			
		Cumulative dimensional change - t < 2 mm	Transversal %	≤ 1,40			
		Cumulative dimensional change - 2 ≤ t < 5 mm	Transversal %	NA			
		Cumulative dimensional change - 5 ≤ t mm	Transversal %	NA			
Resistance to crazing	EN 438-2.24	Appearance	Rating	NA			
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			
Flexural Modulus	EN ISO 178	Stress	Mpa	NA			
Flexural strength	EN ISO 178	Stress	Mpa	NA			
Density	EN ISO 1183	Density	g/cm ³	≥ 1,40			
FIRE PERFORMANCES							
Reaction to fire	Unicolor laminates are suitable for the production of interior decorations and furniture for which, normally, reaction to fire testing is not requested. The reaction to fire of supported laminates is related to the final composite panel. 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 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 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 migratio	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			

Disclaimer

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