

Decorative laminate consisting of cellulose layers impregnated with thermosetting resins and a radiation cured acrylic surface, all bonded together by means of the simultaneous application of heat and pressure within a high pressure lamination process.

PROPERTY	TEST METHOD	PROPERTY or ATTRIBUTE	UNITS	LAMINATE TYPE			
				black-bronwn core		coloured core	
				Requirement	Typical performance	Requirement	Typical performance
Thickness	EN 438:2016 - 2.5	thickness (t)	mm	$0,9 \leq t \leq 1,0 \pm 0,10$ $t = 1,2 \pm 0,15$ $t = 10 \pm 0,50$ $t = 12 \pm 0,60$		$t = 0,9 \pm 0,15$ $t = 1,0 \pm 0,15$ $t = 1,2 \pm 0,18$ $t = 10 \pm 0,70$ $t = 12 \pm 0,80$	
Flatness	EN 438:2016 - 2.9	maximum deviation *	mm/m	$t = 0,9 \rightarrow 60$ $t = 1,2 \rightarrow 60$ $t = 10 \rightarrow 5,0$ $t = 12 \rightarrow 3,0$		$t = 0,9 \rightarrow 100$ $t = 1,0 \rightarrow 100$ $t = 1,2 \rightarrow 100$ $t = 10 \rightarrow 8,0$ $t = 12 \rightarrow 5,0$	
Length and width	EN 438:2016 - 2.6	Length and width	mm	+ 10 / - 0			
Straightness of edges	EN 438:2016 - 2.7	Straightness of edges	mm/m	≤ 1,5			
Squareness	EN 438:2016 - 2.8	Squareness	mm/m	≤ 1,5			
Resistance to surface wear	EN 438:2016 - 2.10	wear resistance	revolutions Initial point	150	200	150	200
Resistance to immersion in boiling water	EN 438:2016 - 2.12	mass increase	% (max) $2 \text{ mm} \leq t < 5 \text{ mm}$ $t \geq 5 \text{ mm}$	5 2	2 1	5 3	3 2
		thickness increase	% (max) $2 \text{ mm} \leq t < 5 \text{ mm}$ $t \geq 5 \text{ mm}$	6 2	2 1	6 4	3 2
		appearance	rating (min)	4	5	4	5
Resistance to water vapour	EN 438:2016 - 2.14	appearance	rating (min)	4	5	4	5
Resistance to dry heat (160 °C)	EN 438:2016 - 2.16	appearance	rating (min)	4	5	4	5
Resistance to wet heat	EN 438:2016 - 2.18	appearance	Rating (min)	4	5	4	5
Stability at elevated temperature	EN 438:2016 - 2.17	cumulative dimensional change	% (max.) L $t < 2 \text{ mm T}$	0,55 1,05	0,40 0,80	0,80 1,40	0,50 1,00
			$2 \text{ mm} \leq t < 5 \text{ mm}$ L T				
			$t \geq 5 \text{ mm}$ L T				
Resistance to crazing (thick laminates)	EN 438:2016 - 2.24	appearance	rating (min)	4	4	surface 4 core 3 ^a	surface 5 core 3 ^a
Resistance to scratching	EN 438:2015 - 2.25	appearance	rating (min)	2	5	2	5

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				black-bronwn core		coloured core	
				Requirement	Typical performance	Requirement	Typical performance
Res. to impact by small-diameter ball	EN 438:2016 - 2.20	spring force	N (min)	20	25	20	25
Resistance to staining	EN 438:2016 - 2.26	appearance	rating (min) Groups 1 and 2 Group 3	5 4	5 4	5 4	5 4
Light fastness (xenon arc)	EN 438:2016 - 2.27	contrast	grey scale rating (min)	4	4	surface 4 core 3 ^b	surface 4 core 3 ^b
Flexural strength	EN ISO 178	stress	stress MPa (min)	80	110	80	110
Flexural modulus (E)	EN ISO 178	stress	stress MPa (min)	9000	9000	9000	9000
Volume electrical resistance	EN 61340-4-1	RV (23° C / 50% RH)	Ohm	/	1x10 ⁹ - 1x10 ¹¹	/	1x10 ⁹ - 1x10 ¹¹
Density	ISO 1183-1	density	g/cm ³ (min)	1,35	1,5	1,4	1,5

^aextraneous darkening and/or photocromism are due to the shock effect of accelerated exposure and are not characteristics of natural exposure.

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NOTES:

1) after the edge-finishing of POLARIS panels, when carefully inspecting the side profile of the decorative layer (at a close distance and at specific viewing angles) a thin line of chromatic discontinuity can be visible on certain colors. This specific feature is an intrinsic peculiarity of the product.

2) attention to the directionality of the finish

3) the particular technology may cause tonality variations between different batches

* provided that the laminate is stored in the manner and conditions recommended by the manufacturer

OTHER PROPERTIES

PROPERTY	TEST METHOD/REFERENCE STANDARD	CLASSIFICATION
Nanoparticles	2011/696/EU	<i>Polaris is not a nanomaterial</i>
formaldehyde emission	EN 717-2	0,2 mg/m ² h <i>E1 classification</i>
VOC emission	AFNOR NF EN ISO 16000-9	A+
contact with foodstuff	Reg. EU 10/2011 - Reg. EU 174/2015	<i>suitable for applications in areas in contact with foodstuffs</i>
Antibacterial activity	ISO 22196:2011 (Measurement of antibacterial activity on plastics and other non-porous surfaces)	without the use of any antimicrobial pesticide, after 24 hours the growth reduction rate of the microbes inoculated on the decorative surface is > 99.9%

Polaris isn't a treated article according to EPA's wording. The bacterial growth reduction rate has been measured taking as a "blank" a polypropylene specimen to act as a reference material.

FIRE PERFORMANCE

TEST METHOD	STANDARD	thickness	CLASSIFICATION		
			black/brown core		coloured core
			F1 (flame retardant)	Standard	Fullcolour
Heat release	IMO Res. MSC 307 (88) Part 5	1,0 mm	Pass	/	/
Small flame and radiant panel	UNI 8457-UNI 9174-UNI 9177	0,9 mm	/	Class 1*	/
		1,0 mm	/	/	Class 1*
Reaction to fire	EN 13501-1	12 mm	/	C-s1,d1 (metal frame)	/
		≥ 2 mm	D-s2,d1 (metal frame)	/	/
Fire behaviour of materials and components	UNI EN 45545-2	1,0 mm	R1 HL1 - HL2 HL3	/	/

* glued on non-combustible backing board with polyurethane adhesive

Note: Fire test performance will depend on the Standard required by the application field, on the laminate thickness and construction, type and thickness of the substrate and adhesive used. The fire classification of the composite panel is under the responsibility of the manufacturer of the final composite.