

MATERIAL PROPERTIES DATA SHEET

SOLID | DIGITAL



The Digital print decor range is available for the high pressure decorative laminates produced by Arpa Industriale. They consist of a surface of decorative paper(s) impregnated with aminoplastic resins and a core made of layers of kraft paper 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. These thin laminates are normally intended for bonding to supporting substrates, normally wood based, to produce panels by the composite manufacturers.

		Decor Norm	Digital Print EN 438-4	
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	± 0.20 for thickness 2.0 ≤ t < 3.0
			mm	± 0.30 for thickness 3.0 ≤ t < 5.0
			mm	± 0.40 for thickness 5.0 ≤ t < 8.0
			mm	± 0.50 for thickness 8.0 ≤ t < 1.0
			mm	± 0.60 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	≤ 8 for thickness 2.0 t < 6.0	
		mm/m	≤ 5 for thickness 6.0 ≤ t < 10.0	
		mm/m	≤ 3 for thickness 10.0 ≤ t	
GENERAL PROPERTIES				
Resistance to surface wear	EN 438-2.10	Initial Point	Revolutions	≥ 100
		Wear value	Revolutions	≥ 200
Resistance to immersion in boiling water	EN 438-2.12	Mass increase - 2 ≤ t < 5 mm	%	≤ 5.0
		Mass increase - 5 ≤ t mm	%	≤ 2.0
		Thickness increase - 2 ≤ t < 5 mm	%	≤ 6.0
		Thickness increase - 5 ≤ t mm	%	≤ 2.0
		Appearance - Gloss Finish	Rating	≥ 1
Appearance - Other finish	Rating	≥ 1		
Resistance to water vapour	EN 438-2.14	Appearance	Rating	≥ 1
Resistance to dry heat (180°C/20')	EN 438-2.16	Appearance - Gloss Finish	Rating	≥ 1
		Appearance - Other finish	Rating	≥ 1
Resistance to wet heat (100°C)	EN 12721:1997	Appearance - Gloss Finish	Rating	≥ 1
		Appearance - Other finish	Rating	≥ 1
Dimensional stability at elevated temperatures	EN 438-2.17	Cumulative dimensional change - 2 ≤ t < 5 mm	Longitudinal %	≤ 0.40
		Cumulative dimensional change - 5 ≤ t mm	Longitudinal %	≤ 0.30
		Cumulative dimensional change - 2 ≤ t < 5 mm	Transversal %	≤ 0.80
		Cumulative dimensional change - 5 ≤ t mm	Transversal %	≤ 0.60
Resistance to impact with large diameter ball	EN 438-2.21	Drop height/Indentation diameter - 2 ≤ t < 6 mm	mm	h 1400 / d ≤ 10
		Drop height/Indentation diameter - 6 ≤ t mm	mm	h 1800 / d ≤ 10
Resistance to crazing	EN 438-2.24	Appearance	Rating	≥ 4
Resistance to scratching	EN 438-2.25	Appearance	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	≥ 4
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 ³	≥ 1.35
FIRE PERFORMANCES				
Reaction to fire / CGS and ACS types	EN 13501	Classification - t ≥ 6 mm	Classification	C-s1,d0 (metal frame)
Reaction to fire / CGF and ACF types	EN 13501	Classification - 3 mm and 4 mm	Classification	C-s2,d0 (metal frame and wood frame)
		Classification - t ≥ 6 mm	Classification	B-s1,d0 (metal frame and wood frame)
OTHER PROPERTIES				
Thermal resistance / conductivity	EN 12664	Thermal resistance / conductivity	W/mK	0.2 to 0.5
Formaldehyde emission	EN 717-1	Chamber method	mg/m ³ ppm	0.020 - 0.035 0.015 - 0.030
	EN 717-2	Gas analysis	mg/(m ² x h)	0.2 - 0.4
	EN 13986	Formaldehyde emission classification	Classification	E1
Hygiene	NSF	NSF/ANSI 35	passing/not passing	passing
Volatile Organic Chemical Emissions	Greenguard Certification Low Chemical Emission UL 2818 according to EPA TO-17 e ASTM D 6196 EPA TO-11A e ASTM D 5197	Individual VOCs	TLV	≤ 0.1
		Formaldehyde	ppm	≤ 0.025
		Total VOC	mg/m ³	≤ 0.25
		Total Aldehydes	ppm	≤ 0.05
		4-Phenylcyclohexene	mg/m ³	≤ 0.0033
Total respirable particles	mg/m ³	≤ 0.025		
Contact with food - Overall migration	EN 1186-3 EN 1186-3 EN 1186-14 EN 1186-14	3% acetic acid 24h at 40°C	mg/dm ²	< 10
		50% ethanol 24h at 40°C	mg/dm ²	< 10
		95% ethanol 24h at 40°C	mg/dm ²	< 10
		isooctane 24h at 40°C	mg/dm ²	< 10
Contact with food - Formaldehyde specific migration	EN 13130-23	acetic acid 3% 24h at 40°C	mg/kg	< 15
Evaluation of micro-organisms action	EN ISO 846	Microbial growth - Smooth finish	Classification	0 - no microbial growth
		Microbial growth - Textured finish	Classification	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.

Note to digital printing decoratives
 For the chemical-physical characteristics of digital printing, the laminates with these decors may present a limitation in the applications, such as the repeated and intense contact with water or vapour. Customers are asked to contact the Customer Service Arpa Industriale to evaluate the best solution.

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.