FENIX NTM® NANOTECH MATT MATERIAL FOR INTERIOR DESIGN

made in Italy by Arpa industriale

MATERIAL PROPERTIES DATA SHEET | SOLID

FENIX NTM® is an innovative material created for interior design by Arpa Industriale. It is produced by the simultaneous application of heat (approx. 150 °C) and high specific pressure (>7MPa) in order to have a homogeneous non-porous high density product.
The core structure of FENIX NTM is composed of paper impregnated with thermosetting resins. Its external surface involves the use of nanotechnology and its colour is obtained through next generation acrylic resins cured by Electron Beam Curing process.
FENIX NTM SOLID is available in the Standard and Flame Retardant types.

fenixntm.com
Rev07-E-25-10-2017

				SOLID	SOLID FR	SOLID MATCHED COLOUR CORE
PROPERTIES	**TEST METHOD**	**PROPERTY OR ATTRIBUTE**	**UNIT**	**INDICATIVE VALUES**		
GENERAL PROPERTIES						
Surface quality	EN 438-2:2016 cl.4	Spots, dirt and similar surface defects	mm^2/m^2	≤ 1		
		Fibres, hair and scratches	mm/m^2	≤ 10		
Dimensional tolerances	EN 438-2:2016 cl.5	Thickness tolerance	mm	4,0 ± 0,30 6,0 ± 0,40 8,0 ± 0,50 10,0 ± 0,50 12,0 ± 0,60		4,0 ± 0,40 6,0 ± 0,50 8,0 ± 0,70 10,0 ± 0,70 12,0 ± 0,80
	EN 438-2:2016 cl.6	Length and width	mm	+ 10 / - 0		
	EN 438-2:2016 cl.7	Straightness of edges	mm/m	≤ 1,5		
	EN 438-2:2016 cl.8	Squareness	mm/m	≤ 1,5		
	EN 438-2:2016 cl.9	Flatness (measured on full-size sheet)	mm/m	4,0 mm: ≤ 8,0 6,0 - 8,0 mm ≤ 5,0 10,0 - 12,0 mm ≤ 3,0		4,0 mm: ≤ 12,0 6,0 - 8,0 mm ≤ 8,0 10,0 - 12,0 mm ≤ 5,0
SURFACE PROPERTIES						
Resistance to surface wear	EN 438-2:2016 cl.10	Initial Point	Revolutions	200		
Resistance to water vapour	EN 438-2:2016 cl.14	Appearance	Rating	5		
Resistance to dry heat (160 °C/20')	EN 438-2:2016 cl.16	Appearance	Rating	5		
Resistance to wet heat (100 °C/20')	EN 438-2:2016 par.18	Appearance	Rating	5		
Resistance to scratching	EN 438-2:2016 cl.25	Appearance	Rating	5		
Resistance to staining	EN 438-2:2016 cl.26	Appearance - Group 1 and 2	Rating	5		
		Appearance - Group 3	Rating	4		
Light fastness (Xenon-arc)	EN 438-2:2016 cl.27	Contrast	Grey scale rating	4		4 surface 3 core
Resistance to microscratches	EN 438-2:2016 cl.30	Method A - gloss change mean value	%	5,2		
		Metodo B - surface visual assessment	Class	5		
Resistance to cigarette burns	EN 438-2:2005 cl..30	Appearance	Rating	4		
Surface specular reflectance	ISO 2813	Surface specular reflectance	Gloss unit	indicative values 0,2 at 20°, 1,5 at 60°, 10 at 85°		
Acids resistance	SEFA 8-PL-2010 method 8.1	Chemical Spot Test	passing/not passing	passed		
PHYSICAL PROPERTIES						
Density	EN ISO 1183	Density	g/cm^3	1,4		
Resistance to immersion in boiling water	EN 438-2:2016 cl.12	Mass increase	%	4,0 mm: 5,0 6,0 - 8,0 - 10,0 - 12,0 mm: 2,0	4,0 mm: 7,0 6,0 - 8,0 - 10,0 - 12,0 mm: 3,0	4,0 mm: 5,0 6,0 - 8,0 - 10,0 - 12,0 mm: 3,0
		Thickness increase	%	4,0 mm: 6,0 6,0 - 8,0 - 10,0 - 12,0 mm: 2,0	4,0 mm: 9,0 6,0 - 8,0 - 10,0 - 12,0 mm: 6,0	4,0 mm: 6,0 6,0 - 8,0 - 10,0 - 12,0 mm: 4,0
		Appearance	Rating	5		
Dimensional stability at high temperatures	EN 438-2:2016 cl.17	Cumulative dimensional change	Longitudinal %	4,0 mm: 0,4 6,0 - 8,0 - 10,0 - 12,0 mm: 0,3		4,0 mm: 0,6 6,0 - 8,0 - 10,0 - 12,0 mm: 0,5
		Cumulative dimensional change	Transversal %	4,0 mm: 0,8 6,0 - 8,0 - 10,0 - 12,0 mm: 0,6		4,0 mm: 1,0 6,0 - 8,0 - 10,0 - 12,0 mm: 0,8
Resistance to impact with large diameter ball	EN 438-2:2016 cl.21	Drop height	mm	4,0 mm: 1400 6,0 - 8,0 - 10,0 - 12,0 mm: 2000		n.a.
		Indentation diameter	mm	4,0 mm: 8 6,0 - 8,0 - 10,0 - 12,0 mm: 7		n.a.
Resistance to crazing	EN 438-2:2016 cl.24	Appearance	Rating	4		5 surface 3 core
Flexural Modulus	EN ISO 178	Stress	Mpa	9000		
Flexural strength	EN ISO 178	Stress	Mpa	110		
Electrostatic property	EN 61340-4-1	Point to point resistance	Ω	$1 \times 10^{10} \div 1 \times 10^{11}$		
		Vertical resistance	Ω	$1 \times 10^{10} \div 1 \times 10^{11}$		
OTHER PROPERTIES						
ENVIRONMENTAL PROPERTIES						
Formaldehyde emission	EN ISO 12460-3 *(ex EN717-2)*	Gas analysis	$mg/(m^2 \times h)$	0,2		
	EN 13986	Formaldehyde emission rating	rating	E1		
Reaction to fire	EN 13501	Fenix NTM thickness 10 mm and 12 mm	Class	C s1 d0 (metal frame)	---	--
		Fenix NTM FR thickness 4 mm, 6 mm e 8 mm, brown core only	Class	---	C s1 d0 (metal frame)	--
		Fenix NTM FR thickness 10 mm and 12 mm, brown core only	Class	---	B s1 d0 (metal frame)	--
Reaction to fire	ASTM E84	Fenix NTM thickness 10 mm and 12 mm	Class	B	---	--
		Fenix NTM FR thickness 10 mm and 12 mm brown core only	Class	---	A	--
Evaluation of micro-organisms action	JIS Z 2801	Antimicrobial activity after 24h at 35°C	bacterial viability: - Log reduction - reduction %	> 2,4 > 99,9		
Volatile Organic Chemical Emissions	Greenguard Gold Certification Low Chemical Emission UL 2818	Individual VOCs	TLV	≤ 0,01		
		Formaldehyde	ppm	≤ 0,0073		
		Total VOCs	mg/m^3	≤ 0,22		
		Total Aldehydes	ppm	≤ 0,043		
		1-Methyl-2-pyrrolidinine	mg/m^3	≤ 0,16		
FOOD AND HYGIENE PROPERTIES						
Hygiene	NSF	NSF/ANSI 35	passing/not passing	passed		
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	mg/dm^3	< 10		
	EN 1186-14	95% ethanol 24h at 40°C	mg/dm^4	< 10		
	EN 1186-14	isooctane 24h at 40°C	mg/dm^5	< 10		
Contact with food - Formaldehyde specific migration	EN 13130-23	3% acetic acid 24h at 40°C	mg/kg	< 15		

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.
FENIX NTM panels covered with the protective film shall be stored in a clean, dry place at room temperature (15-22°C), avoiding weathering and UV exposure.
The protective film must be removed from the surface of FENIX NTM after the application and before putting into use the finite element. 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 FENIX NTM covered with the protective film, nor for the consequences for non-recommended applications.

FENIX NTM® NANOTECH MATT MATERIAL FOR INTERIOR DESIGN

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MATERIAL PROPERTIES DATA SHEET | THIN

FENIX NTM® is an innovative material created for interior design by Arpa Industriale. It is produced by the simultaneous application of heat (approx. 150 °C) and high specific pressure (> 7 MPa) in order to have a homogeneous non-porous high density product.
The core structure of FENIX NTM is composed of paper impregnated with thermosetting resins. Its external surface involves the use of nanotechnology and its colour is obtained through next generation acrylic resins cured by Electron Beam Curing process.
FENIX NTM 0,9 mm is available in the Standard and Flame Retardant types.

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				0,9 mm STANDARD and FR 1,2 mm STANDARD	1,0 mm MATCHED COLOUR CORE 1,2 mm MATCHED COLOUR CORE
PROPERTIES	**TEST METHOD**	**PROPERTY OR ATTRIBUTE**	**UNIT**	**INDICATIVE VALUES**	
GENERAL PROPERTIES					
Surface quality	EN 438-2:2016 cl.4	Spots, dirt and similar surface defects	mm^2/m^2	≤ 1	
		Fibres, hair and scratches	mm/m^2	≤ 10	
Dimensional tolerances	EN 438-2:2016 cl.5	Thickness tolerance	mm	0,9 ± 0,10 1,2 ± 0,10	1,0 ± 0,15 1,2 ± 0,18
	EN 438-2:2016 cl.6	Length and width	mm	+ 10 / - 0	
	EN 438-2:2016 cl.7	Straightness of edges	mm/m	≤ 1,5	
	EN 438-2:2016 cl.8	Squareness	mm/m	≤ 1,5	
	EN 438-2:2016 cl.9	Flatness (measured on full-size sheet)	mm/m	≤ 60	≤ 100
SURFACE PROPERTIES					
Resistance to surface wear	EN 438-2:2016 cl.10	Initial Point	Revolutions	200	
Resistance to water vapour	EN 438-2:2016 cl.14	Appearance	Rating	5	
Resistance to dry heat (160 °C/20')	EN 438-2:2016 cl.16	Appearance	Rating	5	
Resistance to wet heat (100 °C/20')	EN 438-2:2016 par.18	Appearance	Rating	5	
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Resistance to staining	EN 438-2:2016 cl.26	Appearance - Group 1 and 2	Rating	5	
		Appearance - Group 3	Rating	4	
Light fastness (Xenon-arc)	EN 438-2:2016 cl.27	Contrast	Grey scale rating	4	
Resistance to microscratches	EN 438-2:2016 cl.30	Method A - gloss change mean value	%	5,2	
		Metodo B - surface visual assessment	Class	5	
Resistance to cigarette burns	EN 438-2:2005 cl..30	Appearance	Rating	4	
Surface specular reflectance	ISO 2813	Surface specular reflectance	Gloss unit	indicative values 0,2 at 20°, 1,5 at 60°, 10 at 85°	
Acids resistance	SEFA 8-PL-2010 method 8.1	Chemical Spot Test	passing/not passing	passed	
PHYSICAL PROPERTIES					
Density	EN ISO 1183	Density	g/cm^3	1,4	
Resistance to immersion in boiling water	EN 438-2:2016 cl.12	Appearance	Core	5	
Dimensional stability at high temperatures	EN 438-2:2016 cl.17	Cumulative dimensional change	Longitudinal %	0,55	0,8
		Cumulative dimensional change	Transversal %	1,05	1,4
Resistance to impact with small diameter ball	EN 438-2:2016 cl.20	Spring force	N	23	
Resistance to impact with large diameter ball	EN 438-2:2016 cl.21	Drop height	mm	800	
		Indentation diameter	mm	8	
Resistance to cracking	EN 438-2:2016 cl.23	Appearance	Rating	4	
Electrostatic property	EN 61340-4-1	Point to point resistance	Ω	$1 \times 10^{10} \div 1 \times 10^{11}$	
		Vertical resistance	Ω	$1 \times 10^{10} \div 1 \times 10^{11}$	
OTHER PROPERTIES					
ENVIRONMENTAL PROPERTIES					
Formaldehyde emission	EN ISO 12460-3 *(ex EN717-2)*	Gas analysis	$mg/(m^2 \times h)$	0,2	
	EN 13986	Formaldehyde emission rating	rating	E1	
Reaction to fire	The reaction to fire of applied FENIX NTM is related to the final composite panel where the FENIX NTM 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 panel manufacturer.				
Evaluation of micro-organisms action	JIS Z 2801	Antimicrobial activity after 24h at 35°C	bacterial viability: - Log reduction - reduction %	> 2,4 > 99,9	
Volatile Organic Chemical Emissions	Greenguard Gold Certification Low Chemical Emission UL 2818	Individual VOCs	TLV	≤ 0,01	
		Formaldehyde	ppm	≤ 0,0073	
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		Total Aldehydes	ppm	≤ 0,043	
		1-Methyl-2-pyrrolidinine	mg/m^3	≤ 0,16	
FOOD AND HYGIENE PROPERTIES					
Hygiene	NSF	NSF/ANSI 35	passing/not passing	passed	
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	mg/dm^3	< 10	
	EN 1186-14	95% ethanol 24h at 40°C	mg/dm^4	< 10	
	EN 1186-14	isooctane 24h at 40°C	mg/dm^5	< 10	
Contact with food - Formaldehyde specific migration	EN 13130-23	3% acetic acid 24h at 40°C	mg/kg	< 15	

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