FIRE PROTECTORS

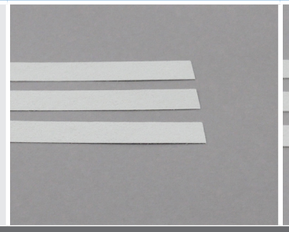
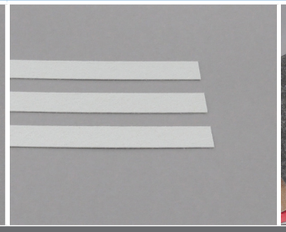
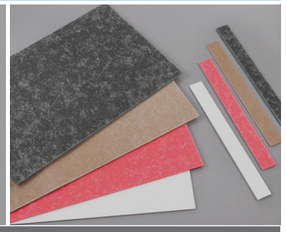
Saving Lives – Saving Assets

Product Overview

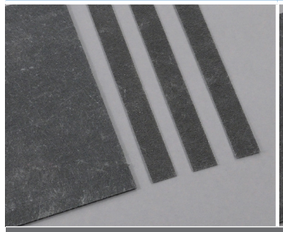
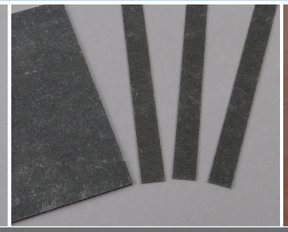
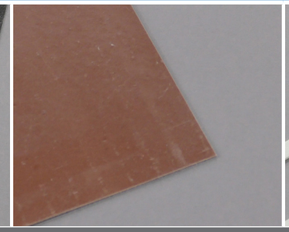
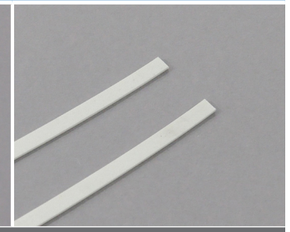
Interdens®, Exterdens®, Palusol®, Palusol® SW

A brand of MBCC GROUP

Interdens®

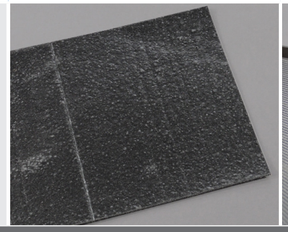
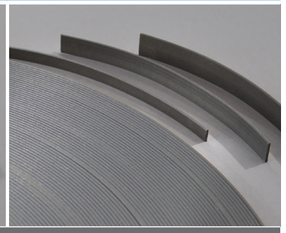
Product	Interdens® Type 5	Interdens® Type 15	Interdens® Type 36
			
Material Properties			
Chemical Basis	Phosphate	Phosphate	Phosphate
Matrix	Thermoset, glass fiber reinforced	Thermoset, glass fiber reinforced	Thermoset, glass fiber reinforced
Mechanical Characteristic	semi-rigid	semi-rigid	semi-rigid
Nominal Thickness	0,6 mm	1,0 mm	2,0 mm (4,0 mm**)
Color*	white	white, brown, black	white, red, brown, black
Application	Interior	Interior	Interior
Activation Temperature	ca. 150°C (Phase 1) ca. 300°C (Phase 2)	ca. 150°C (Phase 1) ca. 300°C (Phase 2)	ca. 150°C (Phase 1) ca. 300°C (Phase 2)
Expansion Ratio (350°C)	approx. 50 (without load)	approx. 50 (without load)	approx. 75 (without load)
Expansion Pressure (300°C)	Pressureless	Pressureless	Pressureless
Fire Classification	Class E (EN 13501-1)	Class E (EN 13501-1)	Class E (EN 13501-1)
Form of Delivery (Standard)			
Dimension	Sheets: L x W 2040 mm x 1000 mm 1000 mm x 500 mm**	Sheets: L x W 2040 mm x 1000 mm 1000 mm x 500 mm**	Sheets: L x W 2040 mm x 1000 mm 1000/1020 mm x 500 mm** 1020 mm x 1000 mm**
Weight	ca. 0,5 kg/m²	ca. 1,0 kg/m²	ca. 2,1 kg/m²
Application			
Main Application	Hardware protection, Glazing	Hardware protection, Glazing	Hardware protection, Glazing

L = length, W = width
* Color variation cannot be excluded
** on request

Interdens® Heatseal	Interdens® Heatseal Plus	Interdens® FM-1	Interdens® F
			
Graphite	Graphite	Phosphate	Phosphate
Thermoset, glass fiber reinforced	Thermoset, glass fiber reinforced	Thermoset, glass fiber reinforced	Thermoplast
semi-rigid	semi-rigid	flexible	flexible
2,0 mm	1,0 mm	2,0 mm	2,0 mm
anthracite	anthracite	brown	white
Interior	Interior	Interior	Interior
ca. 150°C	ca. 150°C	ca. 150°C (Phase 1) ca. 300°C (Phase 2)	ca. 150°C (Phase 1) ca. 300°C (Phase 2)
approx. 15 (with load 100g)	approx. 15 (with load 100g)	approx. 20 (without load)	approx. 20 (without load)
approx. 1,1 N/mm²	approx. 1,1 N/mm²	Pressureless	Pressureless
Class E (EN 13501-1)	Class E (EN 13501-1)	Class M1 (NFP P 92-503)	Class E (EN 13501-1)
Sheets: L x W 2125 mm x 1030 mm	Sheets: L x W 2125 mm x 1030 mm	Reel: L x W 20 m x 500 mm	Reel: L x W 100 m x 10 mm self-adhesive (SA)
ca. 1,6 kg/m²	ca. 0,75 kg/m²	ca. 28,5 kg/PC*	ca. 2,66 kg/PC*
Perimeter sealing	Perimeter sealing	Perimeter sealing, Glazing	Perimeter sealing, Glazing

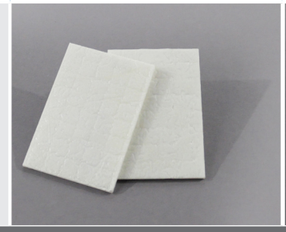
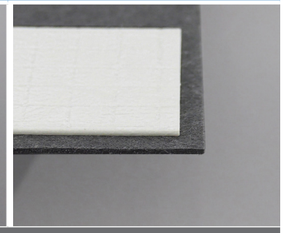
*PC=Sales Unit (Pieces)
For further product information please request Technical Data Sheet.
® = registered trademark of Wolman Wood and Fire Protection GmbH

Exterdens®

Product	Exterdens® F-M1	Exterdens® FB
		
Material Properties		
Chemical Basis	Graphite	Graphite
Matrix	Thermoset, glass fiber reinforced	Thermoplast
Mechanical Characteristic	flexible	flexible
Nominal Thickness	2,0 mm	2,0 mm
Color*	anthracite	anthracite
Application	Interior & Exterior	Interior & Exterior
Reaction Temperature	ca. 150°C	ca. 200°C
Expansion Ratio (350°C)	ca. 10 (without load)	ca. 25 (without load)
Expansion Pressure (300°C)	ca. 0,6 N/mm²	ca. 1,0 N/mm²
Fire Classification	Class M1 (NFP P 92-503)	Class E (EN 13501-1)
Form of Delivery (Standard)		
Dimension	Reel: L x W 20 m x 500 mm	Reel: L x W 100 m x 10 mm 100 m x 16 mm 100 m x 20 mm 100 m x 30 mm self-adhesive (SA)
Weight	ca. 32,0 kg/PC**	10 mm - ca. 2,8 kg/PC** 16 mm - ca. 4,5 kg/PC** 20 mm - ca. 5,6 kg/PC**
Application		
Main Application	Perimeter sealing	Perimeter sealing

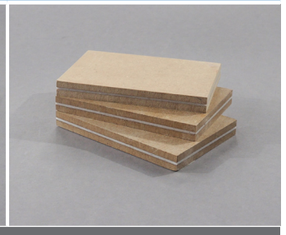
L = length, W = width
* Color variation cannot be excluded
**PC=Sales Unit (pieces)

Palusol®

Product	Palusol® 100	Palusol® 104	Interdens® Palusol®
			
Material Properties			
Chemical Basis	Sodium Silicate	Sodium Silicate	Sodium Silicate/ Graphite
Matrix	physically cross-linked silicate structure	physically cross-linked silicate structure	Sandwich Palusol 100/ Interdens® Heatseal
Mechanical Characteristic	semi-rigid, deformable "cold flow"	semi-rigid, deformable "cold flow"	semi-rigid
Nominal Thickness	ca. 1,9 mm	ca. 3,6 mm	ca. 3,9 mm
Color*	white	white	white /anthracite
Application	Interior	Interior	Interior
Reaction Temperature	ca. 100°C	ca. 100°C	ca. 100°C & 150°C
Expansion Ratio (350°C)	approx. 6 (with load 100g)	approx. 6 (with load 100g)	approx. 9 (with load 100g)
Expansion Pressure (300°C)	ca. 1,4 N/mm²	ca. 1,4 N/mm²	ca. 1,2 N/mm²
Fire Classification	Klasse A2-s1,d0 (EN 13501-1)	Klasse A2-s1,d0 (EN 13501-1)	-
Form of Delivery (Standard)			
Dimension	Sheets: L x W 2100 mm x 1100 mm 2150 mm x 1100 mm	Sheets: L x W 2100 mm x 1100 mm	Sheets: L x W 2100 mm x 1030 mm
Weight	ca. 3 kg/m²	ca. 6 kg/m²	ca. 4,5 kg/m²
Application			
Main Application	Perimeter sealing	Perimeter sealing	Perimeter sealing

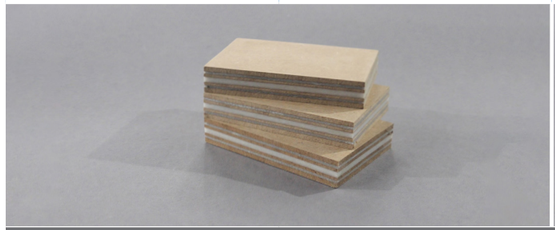
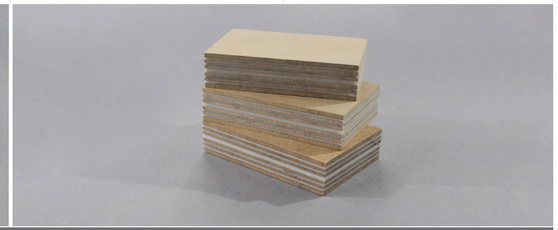
L = length, W = width
* Color variation cannot be excluded

Palusol® SW

Product	Palusol® SW 2	Palusol® SW 3	Palusol® SW 4
			
Material Properties			
Length [mm]	2150	2150	2150
Width [mm]	1100	1100	1100
Thickness [mm]	5	6,8	10,1
Weight [kg/Sheet]	15	22	27
Sheets/Pallet	30	30	25

Palusol® SW 45-1	Palusol® SW 45-1 XL	Palusol® SW 60-1	Palusol® SW 60-1 XL
2150	2460	2150	2460
1100	1100	1100	1100
14,9	14,9	14,4	14,4
42	48	42	49
23	15	23	16

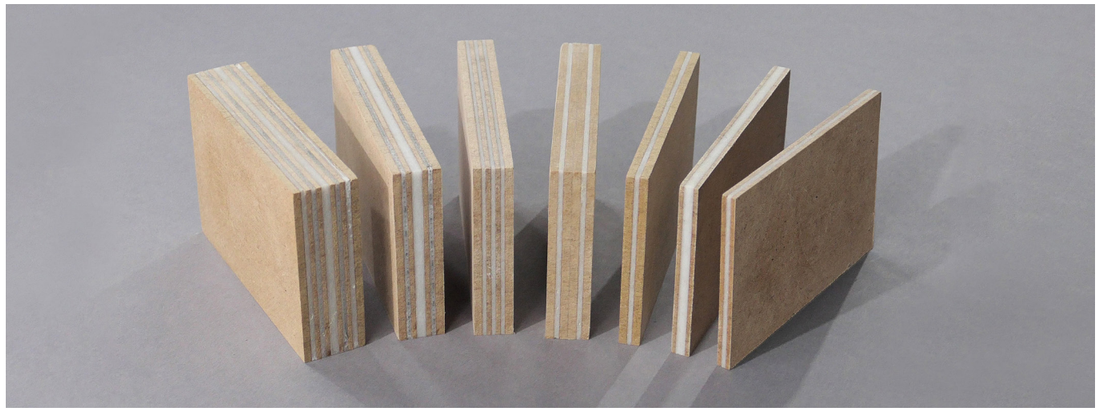
Product	Palusol® SW 20-1	Palusol® SW 20-1 S	Palusol® SW 20-1 XL
Material Properties			
Length [mm]	2150	2150	2460
Width [mm]	1100	970	1100
Thickness [mm]	7,4	7,4	7,4
Weight [kg/Sheet]	21	19	21
Sheets/Pallet	45	45	30

Palusol® SWR 90-1	Palusol® SWR 90-1 XL	Palusol® SWR 90-2	Palusol® SWR 90-2 XL
			
2150	2460	2150	2460
1100	1100	1100	1100
16,0	16,0	22,9	22,9
49	57	70	82
20	14	14	10

*Nominal values
SW:Sandwich
SWR: Sandwich Reinforced (with steel mesh)

Wooden Fire Door Assemblies with Palusol® SW

20 min	Stile & Rail Wood Panel Doors, Laminated Core Panel and Flush Doors						
Type of Door	Panel Type	Palusol® SW Core	Swing Type	Maximum Dimensions			Latching*
				Width	Length	Thickness	
Standard Single or Multi Panel Stile & Rail	Flat or Raised	1 x Palusol SW 20-1	Single Swing	3'6" (1067 mm) 4'0" (1219 mm	9'0" (2743 mm) 8'0" (2438 mm)	1-3/4" (44,5 mm)	**Single Point** Mortised or Cylindrical
	"Glazed 'Z' Channel or Steel vision Kit Max. area of single glazing 1296 sq.in"	1 x Palusol SW 45-1 or 2 x Palusol SW 20-1					
	Glazed "Clip System" Max. area of single glazing 2656/2752 sq.in	Solid Wood SCL Engineered Wood (MDF)	Pairs	8'0" (2438 mm)	8'0" (2438 mm)		**3 or 4 Point** Active: Mortised or Cylindrical Inactive: Mortised (Manual or Automatic) or Surface Mounted Flush Bolts
	Flat or Raised or Glazed 'Z' Channel or Steel vision Kit (Max. area of single glazing 1296 sq.in)	1 x Palusol SW 20-1		7'0" (2134 mm) 8'0" (2438 mm)	8'0" (2438 mm) 7'0" (2134 mm)		
Full Arch Single or Multi Panel Stile & Rail	Flat or Raised	1 x Palusol SW 45-1	Single Swing	3'6" (1067 mm)	9'0" (2743 mm)		**Single Point** Mortised or Cylindrical
Double Egress Single or Multi Panel Stile & Rail	Flat or Raised	1 x Palusol SW 45-1 or 2 x Palusol SW 20-1	Pairs	7'0" (2134 mm)	8'0" (2438 mm)		**4 Point** Concealed or Surface Mounted
Flush Door	Flush	1 x Palusol SW 20-1 or SCL / MDF core	Single	3'6" (1067 mm) 4'0" (1219 mm)	9'0" (2743 mm) 8'0" (2438 mm)		**Single Point** Mortised or Cylindrical
			Pairs	8'0" (2438 mm)	8'0" (2438 mm)		
		1 x Palusol SW 20-1	Single *Standard Pairs, Double Egress Pairs not permitted*	3'0" (941 mm)	7'0" (2134 mm)	"1-3/8" (35 mm)	

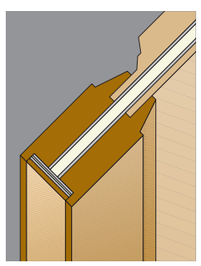


45 min	Stile & Rail Laminated Core Panel and Flush Doors						
Type of Door	Panel Type	Palusol® SW Core	Swing Type	Maximum Dimensions			Latching*
				Width	Length	Thickness	
Standard Single or Multi Panel Stile & Rail	Raised	1 x Palusol SW 20-1	Single Swing	3'6" (1067 mm) 4'0" (1219 mm)	8'0" (2438 mm) 7'0" (2134 mm)	1-3/4" (44,5 mm)	**Single Point or 2 Point** Mortised or Cylindrical
	Glazed Clip system Max. area of single glazing 2656/2752 sq.in	1 x Palusol SW 60-1 or 3 x Palusol SW 20-1					
	Glazed 'Z' Channel or Steel Vision Kit Max. area of single glazing 1296 sq.in	1 x Palusol SW 45-1 or 2 x Palusol SW 20-1					
	Flat or Raised	1 x Palusol SW 60-1		4'0" (1219 mm)	8'0" (2438 mm)		
		1 x Palusol SWR 90-1		3'6" (1067 mm)	9'0" (2743 mm)		
	Flat or Raised	1 x Palusol SW 45-1 or 2 x Palusol SW 20-1	Single Swing	3'6" (1067 mm) 4'0" (1219 mm)	8'0" (2438 mm) 7'0" (2134 mm)		
			Pairs (Max. area of single glazing 2656 sq.in)	7'0" (2134 mm) 8'0" (2438 mm)	8'0" (2438 mm) 7'0" (2134 mm)		**3 or 4 Point** Active: Mortised or Cylindrical Inactive: Mortised (Manual or Automatic) or Surface Mounted Flush Bolts
	Glazed Clip system	1 x Palusol SW 60-1 or 3 x Palusol SW 20-1	Pairs (Max. area of single glazing 2752 sq.in)	8'0" (2438 mm)	8'0" (2438 mm)		
	Flat or Raised	1 x SW 60-1	Single Swing	4'0" (1219 mm)	10'0" (3048 mm)	2-1/4" (57,2 mm	2 Point (Surface Mounted)
			Pairs	8'0" (2438 mm)	10'0" (3048 mm)		**4 Point** (Surface Mounted)
			Note: Any 1-3/4" thick doors can be increased to 2" or 2-1/4" by adding face material thickness				
Full Arch Single or Multi Panel Stile & Rail	Flush, Flat or Raised	1 x Palusol SWR 90-1	Single Swing	3'6" (1067 mm)	9'0" (2743 mm)	1-3/4" (44,5 mm)	**Single Point** Mortised or Cylindrical
Double Egress Single or Multi Panel Stile & Rail	Flush, Flat or Raised	1 x Palusol SW 60-1	Pairs	7'0" (2134 mm)	8'0" (2438 mm)		**4 Point** Concealed or Surface Mounted
2 x Flush Door (Door installed in a communicating Frame)	Flush	1 x Palusol SW 20-1 (2 slabs must be installed into the same communicating door frame to achieve 45 min rating)"	Single Swing	3'0" (914 mm)	7'0" (2134 mm)	1-3/8" (35 mm)	**Single Point** Mortised or Cylindrical

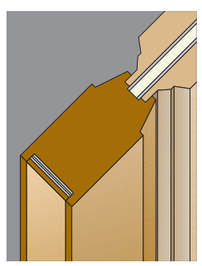
Wooden Fire Door Assemblies with Palusol® SW

60 min	Stile & Rail Wood Panel Doors, Laminated Core Panel and Flush Doors						
Type of Door	**Panel Type**	**Palusol® SW Core**	**Swing Type**	**Maximum Dimensions**			**Latching***
				Width	**Length**	**Thickness**	
Single or Multi Panel Stile & Rail	Raised	1 x Palusol SW 45-1 or 2 x Palusol SW 20-1 or 1 x Palusol SW 3 (SW 2/20-1/3 Protection)	Single	3'6" (1067 mm) 4'0" (1219 mm)	8'0" (2438 mm) 7'0" (2134 mm)	1-3/4" (44,5 mm)	**Single Point** 2 Point Mortised or Cylindrical
	Flat or Raised, Glazed 'Z' Channel or Steel Vision Kit Max area of glazing panel 1296 sq.in.	1 x Palusol SW 60-1 or 3 x Palusol SW 20-1					
		1 x Palusol SWR 90-1		4'0" (1219 mm) 3'6" (1067 mm)	8'0" (2438 mm) 9'0" (2743 mm)		
			Pairs	"7'0" (2134 mm) 8'0" (2438 mm)"	"8'0" (2438 mm) 7'0" (2134 mm)"		**3 or 4 Point** Active: Mortised or Cylindrical Inactive: Mortised (Manual or Automatic) or Surface Mounted Flush Bolts
	Raised			8'0" (2438 mm)	10'0" (3048 mm)	2-1/4" (57,2 mm)	
			Single	4'0" (2438 mm)	10'0" (3048 mm)		**2 Point**
				Note: Any 1-3/4" thick doors can be increased to 2-1/4" by add face material thickness			
Full Arch Single or Multi Panel Stile & Rail	Flat or Raised	1 x Palusol SWR 90-1	Single	3'6" (1067 mm)	9'0" (2743 mm)	1-3/4" (44,5 mm)	**Single Point** Mortised or Cylindrical
Double Egress Single or Multi Panel Stile & Rail"	Flat or Raised	1 x Palusol SWR 90-2	Pairs	7'0" (2134 mm)	8'0" (2438 mm)		**4 Point** Concealed or Surface Mounted
Flush Door	Flush milled with V-Grooves	1 x Palusol SW 3	Single	3'6" (1067 mm) 4'0" (1219 mm)	8'0" (2438 mm) 7'0" (2134 mm)		**Single Point** Mortised or Cylindrical

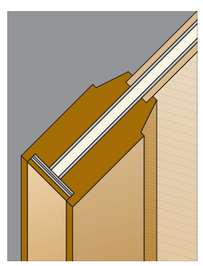
Door construction examples using Palusol® SW



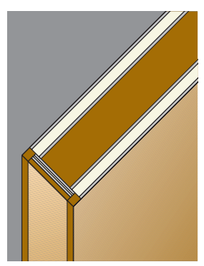
Panel door applications (full panel or multi panel) for raised or flat configurations



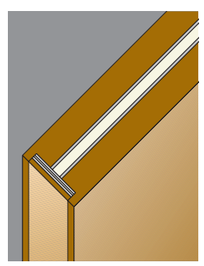
Stile and rail panel door applications



Flat panel applications



Improving existing door designs for fire requirements



Flush door applications (multi function doors)

90 min	Stile & Rail Wood Panel Doors, Laminated Core Panel and Flush Doors						
Type of Door	**Panel Type**	**Palusol® SW Core**	**Swing Type**	**Maximum Dimensions**			**Latching***
				Width	**Length**	**Thickness**	
Single or Multi Panel Stile & Rail with Concealed Vertical Rod Exit Device	Flat or Raised	1 x SWR 90-2	Single	3'0" (914 mm)	8'0" (2438 mm)	2-1/4" (57,2 mm)	**2 Point** Concealed or Surface Mounted
Single or Multi Panel Stile & Rail	Raised	1 x Palusol SWR 90-1 plus 1 x Palusol SW 3 laminated on either side		4'0" (1219 mm)	10'0" (3048 mm)		
	Flat or Raised, Glazed 'Z' Channel Max area of galzing panel 600 sq.in. or Steel Vision Kit Max area of galzing panel 1080 sq.in.	1 x Palusol SWR 90-1		3'6" (1067 mm) 4'0" (1219 mm)	8'0" (2438 mm) 7'0" (2134 mm)	1-3/4" (44,5 mm)	**Single Point** Mortised or Cylindrical
		1 x Palusol SWR 90-2		3'6" (1067 mm)	9'0" (2743 mm)		
		1 x Palusol SWR 90-2	Pair	6'0" (1829 mm)	8'0" (2438 mm)		**3 Point** Active: Mortised or Cylindrical Inactive: Mortised (Manual or Automatic) or Surface Mounted Flush Bolts*
Flush Door	Flush	1 x Palusol SWR 90-2		7'0" (2134 mm)	8'0" (2438 mm) 7'0" (2134 mm)		**4 Point** Active: Mortised or Cylindrical Inactive: Mortised (Manual or Automatic) or Surface Mounted Flush Bolts
Double Egress & Single or Multi Panel Stile & Rail	Raised	1 x Palusol SWR 90-1 plus 1 x Palusol SW 3 laminated on either side		8'0" (2438 mm)	10'0" (3048 mm)	2-1/4" (57,2 mm)	**4 Point** Concealed or Surface Mounted"
Single or Multi Panel Stile & Rail with Concealed Vertical Rod Exit Device	Flat or Raised	1 x SWR 90-2		6'0" (1829 mm)	8'0" (2438 mm)		

* For further details about the Hardware Components / Glazings review Machining Report

Note:
Doors over 3'6" in width or 8'0" in height require a spliced core
All door assemblies ate certified for Shallow Arch door construction
All door constructions can be built as flush doors using flush faces, and flush doors can be V-Grooved as per Manufacturing Specifications

Certified by:

Intertek

QAI Quality Auditing Institute

FSC www.fsc.org FSC® C006099

Das Zeichen für verantwortungsvolle Waldwirtschaft

CE

Status of Fire Door Listing 01/22

A Wide Range of Fire Protection Solutions

Interdens® and Exterdens®

Graphite and phosphate fire protection technologies that deliver a three dimensional intumescent reaction with minimal pressure. Interdens® and Exterdens® are the preferred solutions for hardware applications including door fittings and hinges.

Wolmanit® Firestop and Wolmanit® Antiflamm

Innovative fire protection for wood and wood-based materials. Two different systems, fire protection impregnation and intumescent paint, effectively improve the fire protection properties of wood and wood-based materials. Wolmanit® Firestop and Wolmanit® Antiflamm are used to protect facades, wood paneling, exhibition construction as well as wooden surfaces in public transportation.

Flamastic® Customized Solutions

For challenging fields of application and safety in all areas. Fire Protectors develops individual application-specific solutions in the form of pastes, granules and molded parts based on intumescent as well as ablation technology. Flamastic® customized solutions are used for example in electromobility.

Palusol® and Palusol® SW

An innovative solution utilizing silicate based technology. Palusol® reacts at the early stages of a fire. This low response temperature combined with a cooling effect differentiates this product. Palusol® and Palusol® SW are most commonly used in the construction of fire doors, safes and ventilation grilles.

KBS® – Cable Fire Protection and Penetration Sealing

Proven structural fire protection for maximum safety. The fire protection systems include extensively tested, certified and approved cable fire protection coatings as well as a variety of cables, pipes and combination insulation systems. KBS® cable fire protection and sealing solutions are succesfully used in numerous applications of structural fire protection.

FIRE PROTECTORS IS NOW PART OF Sika

www.fire-protectors.com

This information corresponds to the current state of our knowledge. It is intended to provide information about our products and their possible applications and therefore does not have the meaning of guaranteeing certain properties of the products or their suitability for a specific application and is not complete instructions for use. They also do not constitute a guarantee of quality and durability. Any existing industrial property rights of third be taken into account. The use and processing of our products are beyond our control and are the sole responsibility of the user. The user is not exempt from checking the suitability and application possibilities for the intended purpose. The following shall apply in addition General Terms and Conditions of Sale as amended from time to time shall apply.

For further information:

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