

Promat

PROMATECT®-H
Calcium Silicate Board

www.promat-tunnel.com



PROMATECT®-H RWS-HCM board – product properties

PROMATECT®-H RWS-HCM board is a non combustible matrix engineered mineral board reinforced with selected fibres and fillers. It does not contain formaldehyde or Magnesium Oxy-Chlorides.

Material properties

Generic description	PROMATECT®-H RWS-HCM board
Surface condition	Front face: smooth Back face: sanded
Alkalinity	pH 12
Coefficient of expansion	-6.4×10^{-6} m/mk
Water vapour diffusion resistance factor, μ	5
Thickness tolerance	From ± 0.5 mm (standard thickness boards)
Dimension tolerance	± 3 mm (standard dimension boards)

Physical performance

Property	Test method	Test results
Density	BS EN 323	Dry 105°C: $870\text{kg/m}^3 \pm 15\%$ 23°C, 50% RH: $940\text{kg/m}^3 \pm 15\%$
Modulus of elasticity, E	BS EN 310	Longitudinal 4995N/mm^2 Transverse 4389N/mm^2
Flexural strength, F_{rupture}	BS EN 310	Longitudinal 10N/mm^2 Transverse 6N/mm^2
Tensile strength, T_{rupture}	BS 5669: Part 1	Longitudinal 7.14N/mm^2 Transverse 4.94N/mm^2
Compressive strength	BS 5669: Part 1	11.36N/mm^2
Combustibility	AS 1530: Part 1 DIN 4102: Part 1 EN 13501-1 (A1)	Non combustible
Surface burning	BS 476: Part 7 AS 1530: Part 3	Class 1 Class 0,0,0,0
Thermal conductivity	ASTM C518	$0.242\text{W/m}^\circ\text{K}$
Moisture content	BS EN 322	6%

Fixing

Screw pull out resistance	RAMPA (Type B 3815) screw inserts Screw depth of 15mm on board face: 330N
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Standard dimension

Thickness	Length x Width
8mm \pm 0.5	2440mm x 1220mm, 2500mm x 1250mm
10mm \pm 0.5	2440mm x 1220mm, 3000mm or 2500mm x 1250mm
12mm \pm 1.0	2440mm x 1220mm, 3000mm or 2500mm x 1250mm
15mm \pm 1.0	2440mm x 1220mm, 3000mm or 2500mm x 1250mm
18mm \pm 1.0	2440mm x 1220mm, 3000mm or 2500mm x 1250mm
20mm \pm 1.0	2440mm x 1220mm, 3000mm or 2500mm x 1250mm
25mm \pm 1.5	2440mm x 1220mm, 3000mm or 2500mm x 1250mm
27.5mm \pm 1.5	2440mm x 1220mm, 3000mm or 2500mm x 1250mm

PROMATECT®-H RWS-HCM board is off-white in colour. The front face is smooth and is suitable for any forms of architectural/finishing treatment; the reverse face is sanded.

PROMATECT®-H RWS-HCM board is resistant to effects of moisture and will not physically deteriorate in a damp or humid environment. Whilst its performance characteristics are not degraded by moisture or aging under normal tunnel operating conditions, PROMATECT®-H RWS-HCM board is not designed for application in areas subject to continual damp or high temperatures.

Application

- Lining for tunnel structure fire protection
- Cladding to steel ducts, self-supporting ducts
- Cable and services enclosure
- Fire exit door

Health and safety

When machining the PROMATECT®-H RWS-HCM product, airborne dust may be released, which may be hazardous to health. Do not inhale the dust. Avoid contact with skin and eyes. Use dust extraction equipment. Respect regulatory occupational exposure limits for total inhalable and respirable dust. Safety data sheet is available from Promat and, as with any other material, should be read before working with the product.

PROMATECT®-H RWS-HCM product is not classified as a dangerous substance so no special provisions are required regarding the transportation and the disposal of the product to landfill. The product can be placed in on-site rubbish skips with other general building waste which should then be disposed by a registered contractor in the appropriate and approved manner.

Disclaimer

PROMATECT®-H RWS-HCM board is used in the higher temperature tunnel fire curves such as RWS and HCM. Where the specification calls for lower temperature fire curves, e.g. RABT, HC and ISO, the board used is standard grade PROMATECT®-H.

All properties herein are mean values given for information and guidance only. If certain properties are critical for a particular application, it is advisable to consult Promat. PROMATECT®-H RWS-HCM board is manufactured under a quality management system certified in accordance with ISO 9001: 2008. The product has passed the site audit in accordance with the environmental standards of ISO 14001: 2004 and occupational health and safety requirements of OHSAS 18001: 2007.



Introduction

PROMATECT®-H is a non-combustible matrix engineered mineral board reinforced with selected fibres and fillers. It is formulated without the use of formaldehyde.

PROMATECT®-H is off-white in colour and has a smooth finish on one face with a sanded reverse face. The board can be left undecorated or easily finished with paints.

PROMATECT®-H is resistant to the effects of moisture and will not physically deteriorate when used in damp or humid conditions. Performance characteristics are not degraded by age or moisture.

Advantages

- Resistant to the effects of moisture
- Not physically deteriorate when used in damp or humid conditions
- Performance characteristics are not degraded by age or moisture.

Applications

- Tunnel lining, concrete floor and wall upgrading
- M&E services enclosure
- Access panels and hatches, fire doors
- Structural steel protection
- Membrane ceilings
- Cladding to steel ducts, self-supporting ducts

Quality assurance

Promat products are manufactured to stringent quality control systems to assure that our customers receive materials made to the highest standards.

Operating to these standards means that all activities, which have a bearing upon quality, are set out in written procedures.

Systematic and thorough checks are made on all materials and their usage. Test equipment is subjected to regular checks and is referred back to national standards.

The information given in this data sheet is based on actual tests and is believed to be typical of the product. No guarantee of results is implied however, since conditions of use are beyond our control.

Fire protection thickness

Fire protection thickness requirements are often specified in the owner operator's engineering codes of practice.

Alternatively, please consult Promat

General technical properties

Product generic description	non-combustible, fire resisting calcium silicate board		
		DIN 4102, Part 1	
Combustibility	DIN 4102, Part 1 BS 476, Part 4 EN 13051-1:A1 (Classification Report WFRGent 11527C)	Non-combustible	
Board format (length x width)	mm	1250 x 2500	
Tolerance on length and width	mm	± 0.3	
Board thickness	mm	6, 8, 10, 12, 15, 20, 25	
Tolerances on thickness	mm	6 - 12 mm	± 0.5
		15 - 20 mm	± 1.0
		> 20mm	± 1.5
Density (nominal, oven dry)	Kg/m ³	ca. 870	
Alkalinity (approximate)	pH	12	
Thermal conductivity λ	W/m ² K	ca.0.175 (at 20°C)	
Water absorption	g/cm ³	0.50	
Moisture diffusion resistance	μ	ca. 20	
Typical moisture content (at EMC*)	%	5 - 10	
Surface conditions	Front face: smooth, unsanded Back face: textured and or sanded Colour: beige - white		
Storage	Store on flat surface, in a dry area.		

All physical and mechanical values are averages based on standard production and tested according to internal procedures. The typical values are given for guidance. The figures can change dependent on the test methods used. If a particular value is of prime importance for a specification, please consult Promat Technical Department.

Typical mechanical properties

Bending strength (longitudinal direction)	N/mm ²	7.6
Tensile strength (longitudinal direction)	N/mm ²	4.8
Compressive strength (perpendicular to the surface)	N/mm ²	9.3
Screw pull out resistance: screw into board surface - 15mm deep	quick fix screw - 3.9 x 55	624N
	quick fix screw - 4.0 x 40	584N
	quick fix screw - 4.5 x 50	581N
	timber screw - 3.9 x 55	550N
	screw inserts (Rampa)	350N
Bolt pull through resistance (board thickness = 25mm)	Bolt M8, washer diameter 30mm	3.220N

Formats & weights

Thickness (mm)	Dry weight (Kg/m ²)	Weight (Kg/m ²) at 20°C, 65% RH
6	ca. 5.4	ca. 5.7
8	ca. 7.2	ca. 7.6
10	ca. 9.0	ca. 9.5
12	ca. 10.8	ca. 11.5
15	ca. 13.1	ca. 13.9
20	ca. 17.4	ca. 18.5
25	ca. 21.8	ca. 23.1

* Project specific thickness can be manufactured in 1mm increments. Please contact Promat for further information

* EMC: Equilibrium moisture content.

Processing & machining

When machining the product with power tools, do not breathe dust and respect the regulatory occupational exposure limits for total inhalable and respirable dust. Wear safety goggles. Avoid contact with skin and eyes. Use dust extraction. In case of insufficient ventilation, wear suitable respiratory equipment to avoid health effects.

Waste disposal

Refer to local legislation

If not available: The board is not classified as a dangerous substance and no special provisions are required regarding the carriage and disposal of the product to landfill. They can be placed in an on-site skip with other general building waste.

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