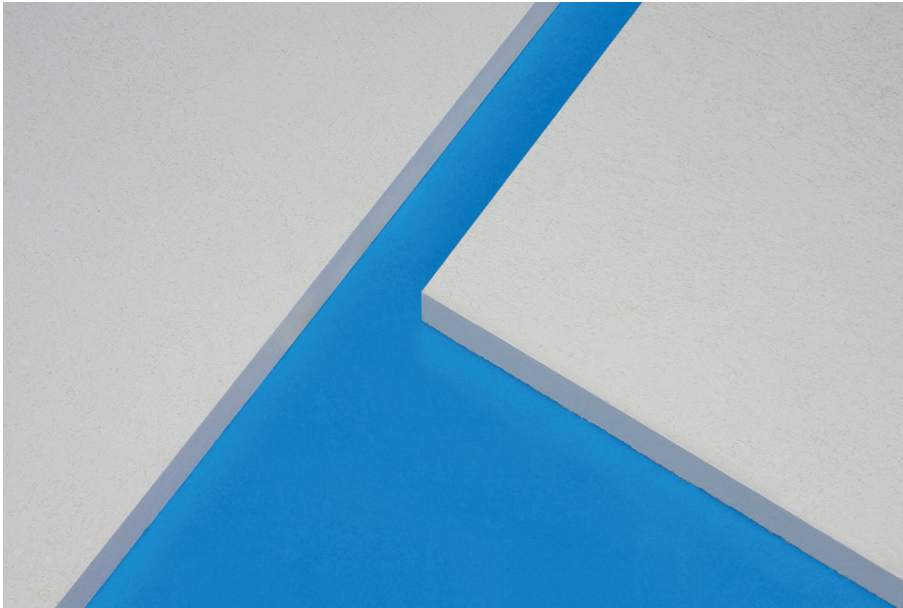


Promat

PROMATECT®-T
Matrix Engineered Mineral Board

www.promat-tunnel.com





Introduction

PROMATECT®-T is part of a new generation of high performance board products with multiple advantages for the protection of concrete structures and the protection of escape routes, fire doors, cable systems and ventilation systems.

Designed to provide protection solutions for use within the most severe of fire scenarios; as defined by the RWS fire curve; PROMATECT®-T provides not just a barrier to the passage of fire, but in a way that ensures the substrate being protected is kept cool in a controlled manner.

Advantages

- Easy to install, the application of Promat®-T can be achieved on existing tunnels without total elimination of the traffic.
- The engineered matrix of Promat®-T allows for reduced fire protection thicknesses (by up to 50%) for equivalent concrete interface temperatures.

Applications

- Tunnel lining, concrete floor and wall upgrading
- M&E services enclosure
- Access panels and hatches, fire door

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.

Simple and easy to install, PROMATECT®-T can be applied within existing tunnels without the need to completely close off all traffic lanes.

The engineered matrix of PROMATECT®-T provides a superior performance that allows for a reduction in the required fire protection thickness for equivalent concrete interface temperatures to much thicker competitor products and systems.

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 data

Product generic description	Calcium silicate-aluminate fire protective board with outstanding performance for protection of concrete and cast iron tunnels.	
Combustibility	EN 13051-1:A1 (Classification Report WFRGent 11536C)	Non-combustible A1
Board format (length x width)	mm	1200 x 2500
Board thickness	mm	15, 20, 25, 30, 35, 40
Tolerances on length and width	mm	± 0.5
Density (nominal, oven dry)	Kg/m ³	ca. 900
Alkalinity (approximate)	pH	10
Thermal conductivity λ (ASTM C518-75)	W/m ² K	ca.0.212 (at 20°C)
Thermal shrinkage	3 hrs 950°C 3 hrs 1250°C	1.7 4.0
Coefficient of expansion α (100 to 20°C)	m/m ² K	-8.3 x 10 ⁻⁶
Water absorption	g/cm ³	0.60
Moisture diffusion resistance	μ	ca. 5
Moisture movement (ambient to saturated)	mm/m	0.84
Typical moisture content (at EMC*)	%	5
Surface condition	Front face: smooth, sanded Back face: lightly honeycombed textured Colour: greywhish white	
Storage	Store on flat surface, in a dry area.	

*EMC = Equilibrium moisture content

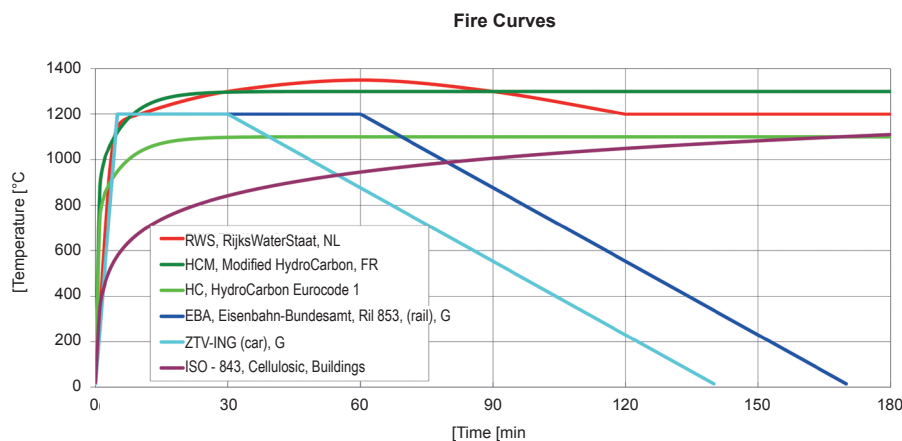
All physical and mechanical values are averages based on standard production and tested according to internal procedures. The typical values are given for guidance. The figures can change dependent on the test methods used. If a particular value is of prime importance for a specification, please consult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

Mechanical properties

(based on average product data)

Bending strength (longitudinal direction)	N/mm ²	4.5
Tensile strength (longitudinal direction)	N/mm ²	1.2
Compressive strength (perpendicular to the surface)	1% deformation (N/mm ²)	1.2
	10% deformation (N/mm ²)	7.8
Screw pull out resistance: screw into board surface	quick fix screw - 5.0 x 50	20mm deep airdry: 657N
		20mm deep saturated: 372N
Bolt pull through resistance (board thickness = 25mm)	Bolt M8, washer diameter 30mm	3.220N

Types of fire exposure



In recent years a great deal of research has taken place internationally to ascertain the types of fire which could occur in tunnel and underground spaces. This research has taken place in both real, disused tunnels and laboratory conditions.

As a consequence of the data obtained from these tests, a series of time/temperature curves for the various exposures have been developed as detailed.

Additional data

Water permeability	The standard board is impermeable according to EN 492 (DIN 492). If the board is continuously exposed to water, a special impregnation has been developed to prevent water absorption and the associated increase in board weight. Accidental exposure to water does not affect the characteristics of the board when dried afterwards.	
Water absorption	g/cm ³	0.6
Moisture Movement	mm/m	Air dry to saturated: 0.84
		Saturated to oven dry: 1.06
		Air dry to oven dry: 0.47
		Oven dry to saturated: 1.19
Coefficient of Thermal Expansion	m/mK	20°C to 105°C 8.3 x 10 ⁻⁶
Thermal shrinkage	%	3 hours at 950°C: 1.5
		3 hours at 1250°C: 4.0
Melting point	°C	>1,400
Abrasion Resistance (taber test - weight loss after 1000 turns)	g/m ²	4,600
Freeze/Thaw Resistance	Using the method for accelerated ageing developed with the STUVA, consisting of 100 cycles of 24 hours per cycle of heat/rain and freeze/thaw, the board does not degrade and retains with its mechanical properties and performance characteristics. A slight flaking of the surface could be possible. If exposed to continuous water soaking and freeze/thaw, Promat recommend the use of impregnated boards. These boards are able to withstand the tests as described in the norm B3303 (designed to testing concrete to freeze/thaw cycles).	

Board weights (Kg/m³)

Thickness (mm)	Dry Weight	Weight (20°C, 65% RH)
15	ca. 14,8	ca. 15,6
20	ca. 19,8	ca. 20,8
25	ca. 24,7	ca. 25,9
30	ca. 29,7	ca. 31,2
35	ca. 34,6	ca. 36,4
40	ca. 39,6	ca. 41,6

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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