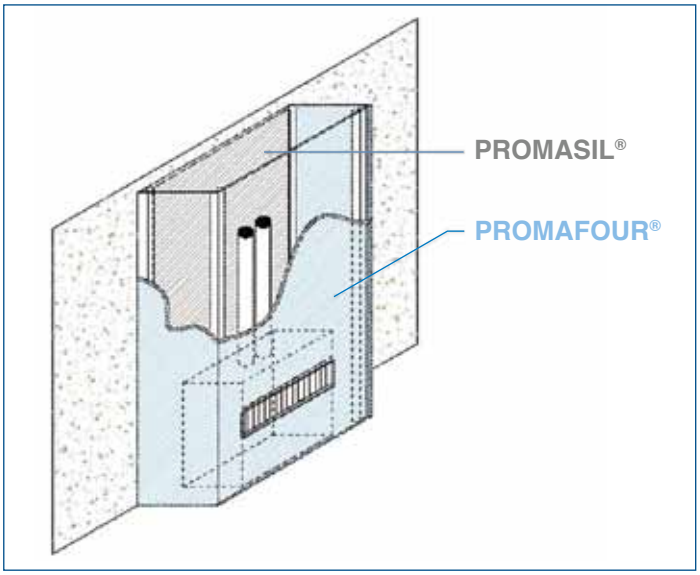
Promat

Insulation for fires and stoves

Promat is the specialist in passive fire protection and high temperature insulation for the building and manufacturing industry.

Promat nv has developed a wide range of refractory insulation materials for fires and stoves. Most of these products are manufactured in one of the Promat factories worldwide and kept in stock to provide a quick service to our customers.
The Promat nv – HTI Service center can supply all our products cut to size. Furthermore you can call in our technical staff at any time to provide a solution for all your high temperature insulation issues and give you more information on the products we supply.

Often a fire or stove is opted for because of the cosiness it creates. Moreover it also happens to be a good choice with regard to rational energy consumption. Fires and stoves operate on solid fuel (wood, briquets, etc.) and nowadays also frequently on gas.
The nature of the fuel is also an indication for the kind of problems, one might expect. A misapplication of building materials next to a fireplace can cause fire or burns. Woody materials can ignite under the influence of heat and depending on the way of heating of the occupant, a fire can still start even after years of heating.
Also aesthetical aspects play an important part. Pick out materials which don't deform, crack or split under the influence of heat. In other words: it is important to use refractory and insulating materials, which remain unaffected under the influence of high temperatures.
Below we will present a number of refractory and high temperature insulation products, which are developed especially for these applications.



PROMAFOUR® 400

the ideal solution for mantelpieces

PROMAFOUR® 400 is specifically designed for chimney casings and/or casings for double-walled chimney-ducts in stainless steel.

DESCRIPTION

PROMAFOUR® 400 is a incombustible, refractory insulation and construction board based on calcium silicate, selected fibres and additifs.

The large-sized PROMAFOUR® 400 boards provide a good thermal insulation up to 400°C. In case of smaller dimensions, the boards can be used in applications where the limit of 400°C is exceeded considerably.

PROMAFOUR® 400 is an outstanding material for the construction of mantelpieces. The boards can be cut to size and assembled very easily by means of regular woodworking machinery and combined with other standard building materials if necessary. **PROMAFOUR® 400** can be applied in a cheap and fast way, thanks to the large dimensions of the boards.

PROMAFOUR® 400 boards are dimensionally stable and have a good thermal resistance, which reduces the risk of cracking to a minimum.

PROMAFOUR® 400 boards have a very good thermal conductivity, as a result of which the heat, which is released through the chimney and behind and on top of the fire, can be reused in an efficient way.

PROMAFOUR® 400 boards have a very good heat storage capacity, as a result of which they can accumulate a lot of heat, that will be released again when the fire has cooled down.

PROMAFOUR® 400 boards can be painted or wallpapered and thanks to their excellent mechanical strength, all kinds of objects can be hung on a mantelpiece, with **PROMAFOUR® 400** boards.
At your request, our technical staff is always ready to offer more detailed advice with regard to the installation of the **PROMAFOUR® 400** boards, the right means of attachment, paint and other linings.

ADVANTAGES AND PROPERTIES

- Large-sized board (2500 x 1250 mm)
- High mechanical strength
- Dimensionally stable up to 400°C
- Easy processing and connecting
- Cheap and quick assembling
- Very good resistance to humidity
- Incombustible
- Good thermal resistance with slight risk of cracking
- Good thermal insulation
- High fire resistance

Standard sizes

Dimensions	2500/3000 x 1250 mm	
Thickness	10 - 15 - 20 - 25 mm	
Tolerance	Dimension:	+ - 2,5 mm
	Thickness: 10mm	+ - 10%
	15-20 mm	+ - 1,0 mm
	25 mm	+ - 1,5 mm

Other dimensions and cut to size boards are available upon request.

PROMASIL®

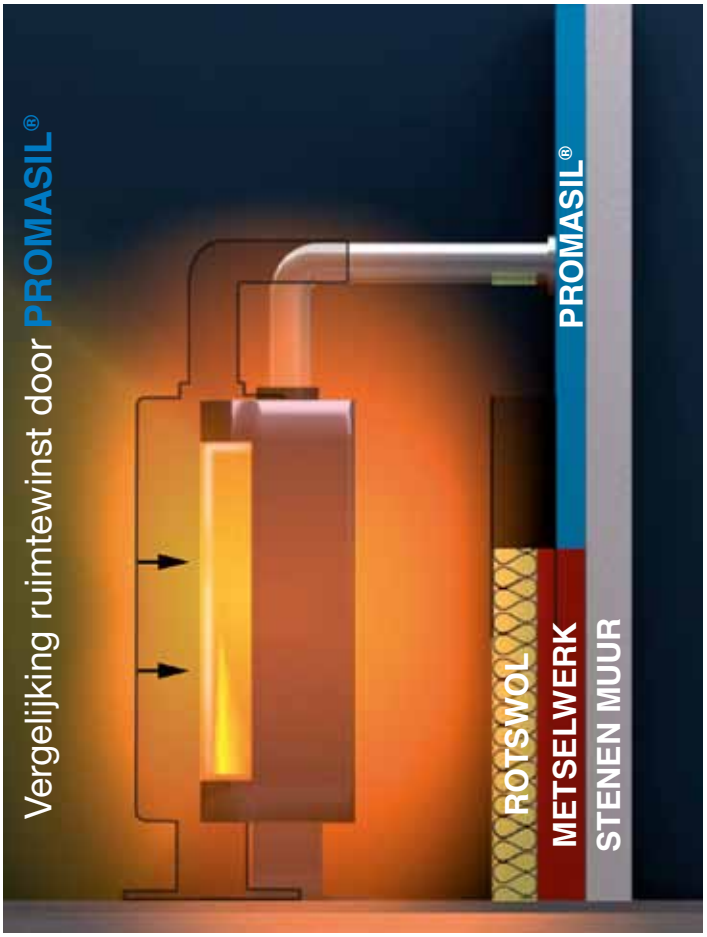
the ideal construction material for rear linings

The temperature of the brick wall at the rear of a fire or stove may not exceed 85°C (DIN 18 895). **PROMASIL®** is the ideal construction material for this application.

DESCRIPTION

PROMASIL® is a lightweight calcium silicate insulation board, which effects a decrease of temperature below 85°C,even at small thicknesses.

PROMASIL® is available in several thicknesses and can be worked easily by means of regular woodworking machinery. The boards can be fixed to the wall with **ALSIFLEX® 1000** refractory glue.



PROMASIL® has a better insulating effect than common mineral or glass wool boards, as a result of which the space to be foreseen for the insulation can be reduced with up to 20 mm. The thickness of the board depends on the type of fire or stove and has to be minimum 30 mm against a brick wall and 50 mm against a timber wall. It is advisable to keep the cavity between the partition and the wall well ventilated.

PROMASIL® doesn't contain any binding agent, which evaporates at high temperatures. Even at these extreme conditions **PROMASIL®** maintains its mechanical strength, which guarantees the operational safety of the insulation and at the same time the fire safety in the long run

PROMASIL® products are available as boards, segments and semi-annular pipe sections for the protection of curved surfaces.

ADVANTAGES AND PROPERTIES

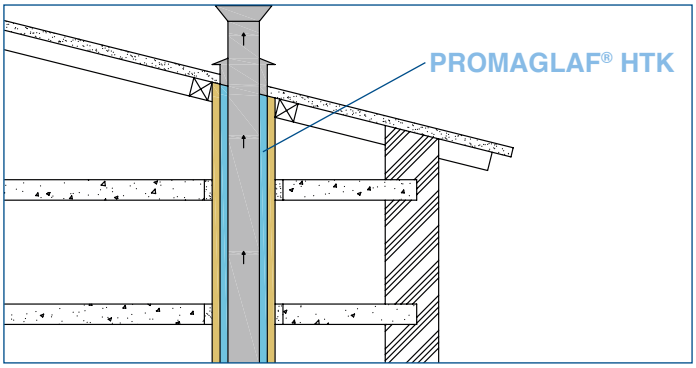
- High mechanical strength and excellent thermal insulation at high temperatures
- Dimensionally stable up to 950°C
- Easy processing and connecting
- Very good resistance to humidity
- Incombustible
- Excellent thermal insulation
- High fire resistance
- Available in several thicknesses
- Lightweight insulation board

Independent tests at SINTEF have revealed that, according to the Norwegian legislation, 50 mm of **PROMASIL®** is sufficient as rear insulation. The increase of temperature will be the same as in a brick wall. The test report is available on request.

PROMAGLAF® HTK

blankets for the insulation of smoke evacuation ducts and fireplace inserts

For the insulation of smoke evacuation ducts and fireplace inserts we recommend PROMAGLAF® HTK blankets



DESCRIPTION

PROMAGLAF® HTK is a biosoluble glass fibre blanket (earth-alkali silicate fibres) and doesn't belong to the group of ceramic fibres. The blankets don't contain any binding agent, which evaporates at high temperatures.

PROMAGLAF® HTK blankets are available in a density of 96 kg/m³ and 128 kg/m³. The blankets have a high thermal resistance up to 1260°C.

Thanks to their high flexibility **PROMAGLAF® HTK** blankets can be applied very easily, either mechanically or by means of **ALSIFLEX® 1000** refractory glue. The blankets can also be used to "wrap up" the back and sides of the insert before placing it into the gap of the mantelpiece.

Finally **PROMAGLAF® HTK** blankets are very suitable to fill up and insulate places, which are difficult to reach.

MICATECH®

insulation for fires and stoves

MICATECH® is a compressed, vermiculite based, board, which is available in a range of densities starting from 600 kg/m³.

DESCRIPTION

MICATECH® boards can be used up to 1050°C. They have a good mechanical strength and give an excellent high thermal shock resistance. Therefore they are very suitable as front insulation in fireplaces or stoves. As the boards expand under the influence of rapid heating, it is recommended to place them in a loose way and to provide expansion joints. **MICATECH®** can be processed and cut to size very easily by means of regular woodworking machinery.

PROMAGLAF® textiles

PROMAGLAF® textiles is a range of braided, knitted and twisted ropes, tapes, sleeves and fabrics.

DESCRIPTION

PROMAGLAF® textiles, based on high temperature glass fibres, can be applied up to 500°C.

PROMAGLAF® textiles are very elastic and flexible.

As a joint sealing for stove-doors we recommend **PROMAGLAF®** twisted ropes. These ropes are very tensile and flexible and available in several widths and thicknesses, with and without adhesive layer.

ALSIFLEX® glue 1000

Cylinders 310 ml

Tubes van 17 ml

Cylinders 15 ml

The Promat range contains a ready for use glue, which resists to high temperatures up to 1000°C for quick fastening and glueing of boards and ropes.

DESCRIPTION

ALSIFLEX® glue 1000 is the appropriate product for glueing together f.i. sealing ropes and cast iron or steel as well as insulating materials based on glass fibre, mineral wool and calcium silicate with metal, stone or plasterboard.

Technical data

PROMAFOUR® 400

Colour		White/beige
Classification temperature		400°C
Building material class DIN 4102		A1, non-combustible
Density		900 kg/m³
Thermal conductivity at	20°C	0,17 W/mk
	100°C	0,19 W/mk
	200°C	0,21 W/mk
	300°C	0,23 W/mk
	400°C	0,25 W/mk
Shrinkage at 400°C after 24h		0,15 % in longitudinal and lateral direction
Specific heat capacity C		0,92 KJ/kgK
Thermal expansion		6,6 10^{-6} m/mK
Alkalinity		12
Chemical resistance		chemically inert, resistant to weak acids
Compressive strength		9,3 N/mm²

PROMASIL® 1000

Colour	White
Building material class DIN 4102	A1, non-combustible
Classification temperature	1000°C
Density	245 kg/m³
Compressive strength	>1,2N/mm²
Specific heat capacity C	0,88 kJ/kgK
Thermal conductivity at 200°C	<0,10 W/mk
Shrinkage at 500°C	<0,1%

MICATECH®

Colour		ochre
Classification temperature		1050°C
Density		600-700 kg/m³
Compressive strength		4,5 N/mm²
Specific heat capacity C		0,8 kJ/kgK
Shrinkage after 12h at 1000°C		1%
Thermal conductivity at	200°C	0,17W/mK
	400°C	0,20W/mK
	600°C	0,22W/mK

PROMAGLAF® HTK

Colour	White	
Classification temperature	1000 °C	
Density	96-128 kg/m³	
Shrinkage after 24h at		
900°C	1,00%	
1100°C	1,50%	
1260°C	-	
Thermal conductivity at	96 kg/m³	128kg/m³
200°C	0,07W/mK	0,06W/mK
400°C	0,11W/mK	0,1W/mK
600°C	0,17W/mk	0,15W/mK
800°C	0,25W/mK	0,2W/mK
1000°C	0,32W/mK	0,27W/mK
Chemical analysis		
SIO2	50-65%	
Zr02	<1%	
MgO + CaO	20-39%	
Al2O3	<1%	

PROMAFOUR® 400

fixing, processing and finishing

ASSEMBLING

PROMAFOUR® 400 boards can be fixed on any kind of structure, such as stainless steel or light galvanized profiles, by means of staples, screws or nails, depending on the nature of the structure and the available equipment.
When used for casings, the staples are simply shot into the edge of the adjacent board. The boards can be cut to size by means of the common equipment, as described below.
When installing boards for high temperature insulation purposes, special attention should be given to the connections, which at any time shall allow thermal expansion and/or shrinkage.

FIXING

The dimensions mentioned below are meant as directives.
Explanation of the abbreviatons:
L = length of the fixing medium
A = centre-to-centre distance
r = distance to the edge of the board
d = thickness of the board
R = crown width of the staple

ON LIGHT PROFILES (thickness of the steel < 0,75 mm)

Gypsum - S-point screws
L = d + 15 mm
A = 250 mm, r = 20 mm
(the boards have to be milled in advance to allow the screws to be driven in deep enough)

Hi-Lo S-point screws with self-drilling head (thickness of the steel < 2 mm)
Hi-Lo Teks-point screw with self-drilling head
L = d + 15 mm
A = 250 mm, r = 15 mm

IN CONCRETE

In vertical applications (only to prevent the board from sliding off).
always use metal dowels + M6 screws
A = 250 of 500 mm, depending on the application
r = 20 mm

In horizontal applications (only to prevent the board from pulling of
always use metal dowels + M6 screws
A = 250 of 500 mm, depending on the application

IN THE EDGE OF THE BOARD

Staples
R = 10 mm when d ≥ 8 mm
R = 20 mm when d = 6 mm
L = 2 to 3 x d (min. 40 mm)
A = 100 mm
The thickness of the board, the staples are shot into, has to be 12 mm minimum.

Hi-Lo S-point screw with self-drilling head
L = d + 25 mm
A = 250 mm, r = 15 mm
The thickness of the board, the screws are fixed into, has to be 12 mm minimum.

FINISHING

Filling

Joints don't always need to be filled, though usually it is necessary to obtain a smooth finishing.

The distances between the fixing points have to be respected meticulously to prevent the joints from cracking. Besides we recommend to place the longitudinal joints on the supporting profiles. The crosscut joints have to be staggered in order to create a "brick pattern".

In order to facilitate the filling, **PROMAFOUR® 400** boards are available with bevelled edges. It is necessary to use joint tape, which has to be well embedded in the **Promat® Filler** and finished afterwards with two layers of the same product. Avoid air locks between the board and the joint tape. The edges can be bevelled by means of a wood rasp, rough sandpaper or an electrical plane with Widia knives.

The fixing points (screws, nails or staples) have to be countersunk into the surface of the board (2 to 3 mm) and treated with an anti-corrosion agent. They can also be finished with **Promat® Filler** afterwards.

When observing the directions for use, the filling can be carried out as usual (using up ± 0,3 kg/m²). The joints may not be wet and in closed areas a stabilisation period should be observed before starting the filling, especially when a sub floor is to be installed.

When covering large surfaces special measures have to be taken (extension joints, ...).

DISTANCES BETWEEN FIXING POINTS

The distances between the fixing points mentioned above, are only valid under normal operating conditions. They only apply to the mechanical characteristics and the behaviour of the boards. The rigidity of the structure itself isn't mentioned here, although it may have a big influence on the movement of the boards, in other words on possible cracking of the joints.

PROMAFOUR® 400 boards can be worked easily by means of regular woodworking machinery. For frequent use we recommend machines with hard metal tips.

The boards can be fixed by means of regular electric screw guns or drills with variable speed and special accessory. The boards can be cut to size both manually and mechanically. Small adjustments can be made with a jigsaw or a hand-held circular saw with dust suction. On large building sites removable circular saws with detachables dust suction systems are used. For accurate cutting and large volumes, a fixed sawing machine with integrated dust suction is needed.

Promat can handle all your sawing orders thanks to an optimized sawing program.

PROMAFOUR® 400

wallpapering and painting

PRELIMINARY TREATMENT

In order to obtain a partial neutralisation of its alkalinity and to reduce the deposition of dust and the absorptive power of the board surface, an alkali-resistant primer should be applied on the entire surface.

WALLPAPERING

After the adequate preliminary treatment, any kind of wallpaper, both normal or structured wallpaper and vinyl, glass fibre, etc. can be applied by means of the right glue.

PAINTING

PROMAFOUR® 400 boards can be painted in the usual manner when observing the recommendations with regard to the preliminary treatment.
The type of paint to be used depends on the application (inside or outside) and on the nature of the board and its finishing.

PROMASIL®
fixing and processing

The surface has to be dry as well as dust- and grease-free. A smooth surface simplifies the application. Place the stove and lign up.

Apply the **PROMASIL®** boards and press slightly.
The working time depends on the temperature and humidity and comes to approx. 3 min.

Remove the packaging and dust the **PROMASIL®** boards. Cut the boards to size and apply the glue by means of a spatula with serrated edge (thickness 3 mm). Also glue the edges of the board.

PROMASIL® boards can be finished by means of traditional materials.

Verdeler

Promat

High Temperature Insulation

Promat n.v.
Kuiermansstraat 1, 1880 Kapelle-op-den-Bos, Belgium
Tel. **+32 15 71 21 86** Fax **+32 15 71 26 90**
E-mail **info-hti@promat.be** Website **www.promat-hti.be**

an Etex GROUP company