



Promat

PROMADUR® & PROMADUR® Top Coat
Product Data Sheet





General recommendations for application

PROMADUR® is a technical coating. It must be applied with care and only by professionals.

Normally PROMADUR® is applied by brush or roller (short pile lambswool rollers) or, for very large surfaces, with airless spray equipment (recommended tip size: 0.015").

Stir the product before application. The product is ready for use, maximum dilution with 3% water. Clean tools immediately after use with warm water.

Conditions for application and during drying time:

- temperature > +6°C, relative humidity < 80%
- moisture content of wood or wooden materials < 15%

Always check the surface for appropriate adhesion: it should be free from dirt, dust, grease, wax, mould, oil, glues or any materials which can compromise the adhesion. It is recommended to treat a small trial area, in case of unknown ingredients of the wooden materials.

PROMADUR® must be fully dry before top coating.

NOTE: Due to the physical properties of some raw materials, the high thickness applied, and the morphology of the different supports, it is possible, in some rare cases, that the appearance of some minor issues might occur in the final aspect of the product. This could include small droplets, white reflexions, irregular patterns or similar. PROMADUR is a hi-performing technical product with high transparency, but not a product for pure aesthetical purposes.

PROMADUR®

Product description

PROMADUR® is a single pack water-borne, solvent free transparent intumescent coating for fire protection to timber structures.

PROMADUR® is the latest generation of fire resistant reactive paint to achieve fire ratings on wood and structural timber elements. Thanks to its extremely good transparency, the surface of the wooden materials remains visible, keeping the esthetical aspect of the natural timber.

In case of fire PROMADUR® expands creating a protective insulating foam which protects the substrate from the contact with air (oxygen), decreasing the combustibility, and slow down the transfer of energy (heat) from the fire to the timber elements, increasing the fire resistance.

PROMADUR® is designed for indoor use. Top coating is not necessary in normal conditions. The application of PROMADUR® Top Coat is recommended to increase resistance to humidity and mechanical performances (including abrasion resistance).

PROMADUR® is eco-friendly, due to extremely low VOC contents (< 1 g/l) and free from formaldehyde in the formulation.

PROMADUR® has a long durability and pass the 33 years test according to Czech protocol I (Arrhenia - 30°C) without losing fire performance and without change in the color shade.

Uses

Fire resistance of loadbearing timber elements (columns, beams, floors and walls) can be increased applying PROMADUR®. The fire resistance of protected elements depends on the section, the shape, the different types of wood timber (solid timber, sawn, planed or in pole form, glued laminated timber or wood based structural products, wood-based panels jointed together with adhesives or mechanical fasteners) and the quantity of the protective coating applied. Depending on the above factors, PROMADUR® increases the fire rating of timber elements up to extremely high fire resistance classes (R 120 or even more).

PROMADUR® can be used also to decrease the combustibility of timber surfaces. Timber protected with PROMADUR® is classified up to B-s1, d0 according to EN 13501 (SBI-test), which is the best possible performance for combustible materials.

PROMADUR® can be applied to a wide range of buildings, such as hotels, restaurants, schools, public buildings, museum, library, offices and private houses.

Performances

Fire reaction

Solid wood, particle boards and plywood for construction (with a minimum thickness of 10mm), even with very low density (minimum: 337 kg/m³), can be protected with PROMADUR® and PROMADUR® Topcoat obtaining the classification B-s1, d0.

Fire resistance

Fire rating of protected timber elements must be calculated based on the dept of char obtained from the value of $t_r \rightarrow t_{ch}$ (start of charring) and $k\beta$ (charring rate), from fire tests EN 13381-7, as required by the Eurocode EC 1995-1-2. (see "How to calculate the fire rating of a protected timber loadbearing Element" for further explanation).

PROMADUR® is a protective coating, so it contributes to the fire resistance of loadbearing structures. The contribution must be evaluated with specific fire tests and assessments, according to EN 13381-7. To be noted that the fire rating of any timber element is always a combination of the original fire resistance of the unprotected element and the contribution of the protective material, as specified by the EC 1995-1-2. Therefore, timber elements protected with PROMADUR® can reach R 120 or more.

Contact the local Promat Office for any details and explanations.



How to calculate the fire rating of a protected timber loadbearing element

The Eurocode 5 (EC 1995-1-2) provides procedures for calculating the fire resistance of structural timber elements with surfaces initially protected from fire exposure.

The Eurocode 5 procedure divides the rated time periods into different intervals, with different charring rates, depending on the behavior of the protective material as protective material.

To calculate the fire resistance of a protected element, it's necessary to know some parameters:

The most important parameters are:

- **charring depth**: distance from the original surface of the timber member to the char line.
- **failure time t_f** : time at which failure of the fire protection system occurs, due to detachment of a significant area or sudden significant temperature rise upon the initially protected timber surface.
- **start of charring t_{ch}** : start of charring at the surface of a timber member.
- **charring rate β** : speed of charring of a timber element when exposed to ISO 834 fire.

β_o	mm/min	One-dimensional charring rate according to EN 1995-1-2.
β_n	mm/min	Notional charring (bi-dimensional - two or more side exposed) rate according to EN 1995-1-2.
β_2 or β''	mm/min	Charring rate behind a fire protection system according to EN 1995-1-2.
k_β		Ratio of carbonization speed = β''/β_o for one dimensional or β''/β_n for notional.

For surfaces protected by fire protective products, it should be considered that:

- the start of charring is delayed until time t_{ch} ;
- charring may commence prior to failure of the fire protection, but at a lower rate than the charring rates of the unprotected timber (values are given in EC 1995-1-12) until failure time t_f of the fire protection;
- after failure time t_f of the fire protection, the charring rate is increased until when the charring depth is equals either the charring depth of the same member without fire protection or 25mm, whichever is the lesser;
- during this final stage, the charring rate reverts to the value for the initially unprotected wood member (β_o if monodirectional as floors or walls or β_n if bi-directional as beams or columns).

The test methods to determine the above parameters are given in EN 13381-7 (Test methods for determining the contribution to the fire resistance of structural members - Part 7: Applied protection to timber members).

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 resistance values

Beams and Columns

PROMADUR® 1.120g/m²: Time to the protective material failure: $t_f \rightarrow t_{ch} = 17$ min
Ratio of carbonisation speed of protected to unprotected structure $k_{\beta} = \beta''/\beta'$:
 $k_{\beta} = 0.71$

PROMADUR® 468g/m²: Time to the protective material failure: $t_f \rightarrow t_{ch} = 13$ min
Ratio of carbonisation speed of protected to unprotected structure $k_{\beta} = \beta''/\beta'$:
 $k_{\beta} = 0.95$

PROMADUR® 181g/m²: Time to the protective material failure: $t_f \rightarrow t_{ch} = 7$ min
Ratio of carbonisation speed of protected to unprotected structure $k_{\beta} = \beta''/\beta'$:
Up to 30 minutes $k_{\beta} = 0.91$
More than 30 minutes $k_{\beta} = 1$

Ceilings and walls

PROMADUR® 468g/m²: Time of the fire protective system failure: $t_f \rightarrow t_{ch} = 12$ min
Ratio of carbonisation speed of protected to unprotected structure $k_{\beta} = \beta''/\beta'$:
 $k_{\beta} = 0.91$

PROMADUR® 181g/m²: Time of the fire protective system failure: $t_f \rightarrow t_{ch} = 6$ min
Ratio of carbonisation speed of protected to unprotected structure $k_{\beta} = \beta''/\beta'$:
Up to 15 minutes $k_{\beta} = 0.72$
More than 15 minutes $k_{\beta} = 1$

Technical data

Colour:	transparent
Density (g/cm ³):	1.30 +/- 0.05
Viscosity at 20°C:	500 - 3.500mPa.s (20°C)
Solubility in water:	soluble
pH	3-6
Application temperature:	between +6°C and +35°C
Application data:	up to 470 gr/m ² in one coat
Conversion:	<ul style="list-style-type: none"> ➤ 1.000 microns DFT = 1.400 microns WFT ➤ 1Kg/m² = 700 microns DFT

Drying times

As per all the paints and coatings, the drying time depends on ambient temperature and relative humidity.

Drying times at approx. +20°C and a relative humidity of approx. 65% is 24 hours per layer. When dry, surface treated with PROMADUR® can be cleaned with a dry and smooth cloth. Do not clean with water, solvent or acid or alkaline cleaner.

Note: PROMADUR® becomes transparent after drying fully and it is sensible to pressure within the first weeks after application. The film could become soft again when it gets in contact with humidity, if not protected with topcoat.

Finishing and top coat

PROMADUR® is tested as a full cycle of intumescent paint and finishing by colorless PROMADUR® Top Coat (approximately 80 - 100g/m²). The top coat can be applied after intumescent coating is fully dry. PROMADUR® Top Coat can increase humidity resistance and mechanical performances (including abrasion resistance).

Surface preparation

When necessary, an appropriate primer must be applied (please consult your local Promat office).

Supply and storage

12,5kg plastic pails/pallet. The product has a shelf life of 12 months in closed original pails above +5°C up to 35°C. Keep above frost temperature. This product is not flammable.

Environment, Health and Safety

Please always request the most recent safety data sheet before using the product.

PROMADUR® Top Coat

Description

PROMADUR® Top Coat is a single component, solvent base transparent top coat, specifically designed to improve the humidity resistance and the mechanical performances of PROMADUR®, without decreasing the fire rating of the protected timber elements.

PROMADUR® Top Coat is free from aromatic substances, fast drying and very easy to apply. PROMADUR® Top Coat has no negative effect on the expansion of intumescent coatings.

Application

PROMADUR® Top Coat is a technical coating. It must be applied with care and only by professionals. PROMADUR® Top Coat can be applied only when PROMADUR® is fully dried. Stir the product before application. The product is ready for use, maximum dilution with 3% solvent.

The temperature of material and surface must be $> +15^{\circ}\text{C}$ and the relative humidity during application and drying must be below 70%

PROMADUR® Top Coat is applied by brush or roller (short piled velour or mohair) or, for very large surfaces, with airless spray equipment (tip size recommended: 0.011").

Technical data

Colour:	transparent
Density (g/cm ³):	1.17 +/- 0.02
Viscosity at 20°C:	≥ 60 seconds (ISO 2341-93 6mm)
Flash point	32°C
Application temperature:	$> +15^{\circ}\text{C}$
Application data:	up to 100g/m ² in one coat

Drying times

As with all the paint coatings, the drying time depends on this ambient conditions and relative humidity.

Drying times of PROMADUR® Top Coat is at approx. $+ 20^{\circ}\text{C}$ and a relative humidity of approx. 65% are:

- dust-dry after approximately 30 minutes
- fully dry after approximately 10 hours

Note: PROMADUR® Top Coat becomes transparent when completely dry and is sensible to pressure within the first weeks after application.

Supply and storage

5kg metal pails. The product has a shelf life of 9 months in closed original pails above $+5^{\circ}\text{C}$ up to 30°C . Opened pails must be sealed carefully after use. This product is flammable.

Environment, Health and Safety

Please request always for the most recent safety data sheet before using the product.

Head Office

Promat International N.V.

Bormstraat 24
2830 Tisselt
Belgium
T +32 1 571 33 51
F +32 1 571 82 29
E info@promat.be
www.promat.be

Asia Pacific Headquarters, Malaysia

Promat International (Asia Pacific) Ltd.

Unit 19-02-01 -Level 2 PNB
Damansara
No.19 Lorong Dungun - Damansara
Heights
50490 Kuala Lumpur
T +60 3 2095 5111
F +60 3 2095 6111
E info@promat-ap.com
www.promat-ap.com

Australia

Promat Australia Pty. Ltd.

1 Scotland Road
SA 5031 Mile End South
T 1800 Promat (776 628)
F +61 8 8352 1014
E mail@promat.com.au
www.promat-ap.com

Austria

Etex Building Performance GmbH

St.-Peter-Straße 25
A-4021 Linz
T +43 732 - 6912 - 0
F +43 732 - 6912 - 3740
E info.at@etexgroup.com
www.promat.at

Belgium

Etex Building Performance NV

Bormstraat 24
2830 Tisselt
T +32 1 571 93 51
F +32 1 571 82 29
E info@promat.be
www.promat.be

China

Promat China Ltd.

Room 506, Block A, Qi Lin Plaza
13-35 Pan Fu Road
510180 Guangzhou
T +86 20 8136 1167
F +86 20 8136 1372
E info@promat.com.cn
www.promat.com.cn

Czech Republic

Promat s.r.o.

Kkalova 22/784
16000 Praha 6 - Bubeneč
T +420 2 2439 0811
F +420 2 3333 3576
E promat@promatpraha.cz
www.promatpraha.cz

Denmark

Promat-Etex Building Performance

Etex Nordic A/S
Kometvej 36
6230 Røddekro
T +45 7366 1999
E promat-dk@etexgroup.com
www.promat.nu

France

Promat

BP 66 Rue de L'Amandier
78540 Vernouillet
T +33 1 3979 6160
F +33 1 3971 1660
E info@promat.fr
www.promat.fr

Germany

Etex Building Performance GmbH

Postfach 10 15 64
40835 Ratingen
T +49 2102 493 0
F +49 2102 493 111
E mail@promat.de
www.promat.de

Hong Kong

Promat International (Asia Pacific) Ltd.

Room 1010, C.C. Wu Building
302-308 Hennessy Road, Wanchai
T +852 2836 3692
F +852 2834 4313
E apromath@promat.com.hk
www.promat.com.hk

India

Promat (Malaysia) Sdn. Bhd. (India Representative Office)

610-611, Ansal Imperial Tower
C-Block, Community Centre
Naraina Vihar, Naraina
110028 New Delhi
T +91 11 2577 8413
F +91 11 2577 8414
E info-india@promat-asia.com
www.promat-ap.com

Italy

Etex Building Performance S.p.A.

Via Perlasca 14
27010 Vellezzo Bellini (PV)
T +39 0382 45751
F +39 0382 926 900
E info@promat.it
www.promat.it

Japan

Promat Japan Corporation

Pacific Marks Shinjuku 4-15-7
Nishi-Shinjuku, Shinjuku-Ku
160-0023 Tokyo

Malaysia

Promat (Malaysia) Sdn. Bhd.

Unit 19-02-01 - Level 2 PNB
Damansara
No.19 Lorong Dungun
Damansara Heights
50490 Kuala Lumpur
T +60 3 2095 8555
F +60 3 2095 2111
E info@promat-ap.com
www.promat-ap.com

Netherlands

Etex BP B.V.

Vleugelboot 22
3991 CL Houten
PO Box 475
T +31 30 241 0770
F +31 30 241 0771
E info@promat.nl
www.promat.nl

Poland

Promat TOP Sp. z o. o.

ul. Przeclawska 8
03 879 Warszawa
T +48 22 212 2280
F +48 22 212 2290
E top@promatop.pl
www.promatop.pl

Russia

Promat

Pr. Vernadskogo 84/2
119606, Russia
T +7 (495) 246 01 01
F +7(495) 246 01 92
E sales@promat.ru
www.promat.ru

Singapore

Promat Building System Pte. Ltd.

10 Science Park Road
Science Park II
117684 Singapore
T +65 6776 7635
F +65 6776 7624
E info@promat.com.sg
www.promat-ap.com

South East Europe

Headquarters, Slovenia

Promat d.o.o.

Kidričeva 56b
4220 Škofja Loka, Slovenia
T +386 4 51 51 451
F +386 4 51 51 450
E info@promat-see.com
www.promat-see.com

South Korea

Promat International (Asia Pacific) Ltd.

(Korea Branch Office)
Room 406, 811-2 - Yeoksam-dong
Gangnam-gu
135080 Seoul
T +82 70 7794 8216
E apromath@promat.com.hk
www.promat-ap.com

Spain

Promat Ibérica S.A.

C/Velazquez, 47 - 6° izda
28001 Madrid
T +34 91 781 1550
F +34 91 575 1597
E info@promat.es
www.promat.es

Switzerland

Promat AG

Stationsstrasse 1
8545 Rickenbach-Sulz
T +41 52 320 9400
F +41 52 320 9402
E office@promat.ch
www.promat.ch

United Arab Emirates

Promat Fire Protection LLC

Plot no. 597-921,
Dubai Investment Park 2
PO Box 123945, Dubai
T +971 4 8850 3070
F +971 4 8853 588
www.promatfp.ae

United Kingdom

Etex Building Performance Ltd

Gordano House, Marsh Lane,
Easton-in-Gordano,
Bristol BS20 ONE
T +44 (0800) 373 636
E marketinguk@promat.co.uk
www.promat.co.uk

USA

Promat Inc.

1731 Fred Lawson Drive
TN 37801 Maryville
T +1 865 681 0155
F +1 865 681 0016
E sales@promat.us
www.promat.us