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Promat



Cafco MANDOLITE® CP2

Vermiculite Cement Based Wet Mix Spray

construction applications



www.promat-spray.com

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INTRODUCTION

Cafco MANDOLITE® CP2 is a spray applied, single package factory controlled premix, based on vermiculite and Portland cement, for internal use.

Cafco MANDOLITE® CP2 produces a monolithic coating able to withstand the thermal shocks experienced in a high intensity cellulosic fire. Concrete structures in particular, will be protected from explosive spalling when coated with Cafco MANDOLITE® CP2.

Although low in density, thus significantly reducing dead load, Cafco MANDOLITE® CP2 is highly durable and will not crack or spall under mechanical impact.

Cafco MANDOLITE® CP2 may be applied within environments where limited exposure to the elements is likely throughout the building phase of the project, e.g. perimeter beams.

Cafco MANDOLITE® CP2 is used for application to steel and concrete frames, metal floor or roof decks, and return air plenums. It may be easily removed and reinstated locally when additional fixings are required. Building types that will benefit from the use of Cafco MANDOLITE® CP2, include a wide range of educational, leisure and entertainment centres, commercial or industrial projects.

ADVANTAGES

- Structures protected with Cafco MANDOLITE® CP2 can provide fire resistance for up to 240 minutes.
- Does not release toxic or hazardous fumes.
- Presents no known health hazards either before, during or after application.

QUALITY ASSURANCE

Promat operates a quality system in accordance with BS EN ISO 9001: 2000 and has received full accreditation to these 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.

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PROPERTIES AND PERFORMANCE

Colour and finish	Off-white with a monolithic spray texture
Minimum practical thickness	8mm when unreinforced, 15mm when reinforced
Theoretical coverage	172m ² /tonne at 15mm thickness
Number of coats	One or more as required
Cure	By hydraulic set
Initial set	2 to 6 hours at 20°C and 50% RH
Density	390kg/m ³ ± 15% (when dry and in place)
Bond impact	No cracks or delamination
Air erosion resistance	No erosion to ASTM E859
Deflection effect	No cracks or delaminations within normal code limits
Compressive strength	563kPa (81.6lb/in ²) to ASTM E761
Combustibility	Non-combustible to BS476: Part 4
Flame spread	Class 0 as defined by the Building Regulations
Smoke generation	Does not contribute to smoke generation
Thermal conductivity	0.095W/mK at 20°C
Corrosion resistance	Does not promote corrosion of steel. However, a primed substrate is recommended for long term corrosion resistance. See Preparation
pH value	12.0-12.5
Fire resistance	<p>Structures protected with Cafco MANDOLITE® CP2 have undergone fire resistance tests up to 240 minutes in approved independent laboratories to recognised standards throughout the world, including:</p> <ul style="list-style-type: none"> • UK (BS 476: Parts 20-21: 1987) • Germany (DIN 4102) • USA (ASTM E119 UL263) <p>The tests also comply with International Standard ISO 834</p> <p>Cafco MANDOLITE® CP2 protected structures have been successfully tested under BS 476: Part 21 to failure temperatures of up to 800°C. This allows the specifier the freedom to adopt a fire engineering approach to fire resistance in accordance with BS 5950: Parts 3 and 8, as well as the Fire Appendices of the forthcoming Eurocode</p> <p>The fire resistance test results relate solely to the constructions tested and test conditions imposed. Promat provides computer based thickness calculations to meet specific fire resistance requirement. See FIRE PROTECTION THICKNESS</p>

PREPARATION

Typical substrates	Unprimed and primed steel, concrete frames, metal floor/roof decks and return air plenums
Substrate preparation	<p>The substrate shall be clean, dry and free from dust, loose millscale, loose rust, oil and any other condition preventing good adhesion</p> <p>Cafco MANDOLITE® CP2 can be applied to unprimed or primed steelwork. Prior to the application, incompatible primers should be prepared by the application of CAFCO® SC 125 or CAFCO® SBR Bonding Latex used as a keycoat</p>
Mesh reinforcement	<p>Most fire tests conducted have been carried out without mesh reinforcement, to demonstrate the ability of Cafco MANDOLITE® CP2 to stay in place under the most severe fire conditions. However, for maximum long term in service durability, the use of lightweight mesh reinforcement is recommended where vibration or mechanical damage and the possibility of subsequent de-bonding exist</p>



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FIRE PROTECTION THICKNESS

The thickness of the fire protection for a given period of fire resistance in a cellulosic type fire, relates to the A/V ratio of the section.

All column and beam sections have their own specific A/V ratio. Please consult Promat to establish the A/V ratio for a particular beam or column section. TABLES 1 and 2 ascertain the thickness of Cafco MANDOLITE® CP2 that meets the required period of fire resistance for I-section beams and H-section columns.

For advice on thickness calculations for hollow sections, cellular beams, castellated sections, composite floors, upgrading of concrete slabs and more complex situations, please contact Promat.

TABLE 1 Cafco MANDOLITE® CP2 thicknesses for I-section beams (3-sided exposure). Critical temperature 620°C, continuous concrete topping.

A/V	Thickness for the required fire resistance					
	30 min	60 min	90 min	120 min	180 min	240 min
30	8mm	8mm	9mm	11mm	16mm	21mm
50	8mm	8mm	12mm	15mm	22mm	28mm
70	8mm	10mm	14mm	18mm	26mm	34mm
90	8mm	11mm	16mm	20mm	29mm	38mm
110	8mm	12mm	17mm	22mm	31mm	41mm
130	8mm	13mm	18mm	23mm	33mm	43mm
150	8mm	13mm	19mm	24mm	35mm	45mm
170	8mm	14mm	19mm	25mm	36mm	47mm
190	8mm	14mm	20mm	26mm	37mm	48mm
210	9mm	15mm	20mm	26mm	38mm	49mm
230	9mm	15mm	21mm	27mm	39mm	51mm
250	9mm	15mm	21mm	27mm	39mm	51mm
270	9mm	15mm	21mm	28mm	40mm	52mm
290	9mm	16mm	22mm	28mm	40mm	53mm
310	9mm	16mm	22mm	28mm	41mm	54mm

TABLE 2 Cafco MANDOLITE® CP2 thicknesses for I-section beams and H-section columns (4-sided exposure). Critical temperature 550°C.

A/V	Thickness for the required fire resistance					
	30 min	60 min	90 min	120 min	180 min	240 min
30	8mm	8mm	10mm	13mm	19mm	24mm
50	8mm	10mm	14mm	18mm	25mm	33mm
70	8mm	12mm	16mm	21mm	30mm	38mm
90	8mm	13mm	18mm	23mm	33mm	43mm
110	9mm	14mm	19mm	25mm	35mm	46mm
130	9mm	15mm	20mm	26mm	37mm	48mm
150	10mm	15mm	21mm	27mm	38mm	50mm
170	10mm	16mm	22mm	28mm	40mm	52mm
190	10mm	16mm	22mm	28mm	41mm	53mm
210	10mm	17mm	23mm	29mm	42mm	54mm
230	10mm	17mm	23mm	30mm	42mm	55mm
250	11mm	17mm	24mm	30mm	43mm	56mm
270	11mm	17mm	24mm	30mm	44mm	57mm
290	11mm	18mm	24mm	31mm	44mm	57mm
310	11mm	18mm	24mm	31mm	45mm	58mm

HEALTH AND SAFETY

Adequate ventilation must be provided during use.

Avoid contact with the skin and eyes by using eye protection, gloves, barrier cream and a face mask.

If the product comes into contact with the skin, wash immediately with soap and water. If the eyes are affected, flush with plenty of water and seek medical attention immediately.

A safety data sheet is available from Promat upon request.

Promat activities are conducted with due regard to all statutory requirements with appropriate safeguards against exposing employees and the public to health and safety risks.



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APPLICATION

Initial steps	Application of Cafco MANDOLITE® CP2 must be carried out by an applicator recognised by Promat
Methods	Mix Cafco MANDOLITE® CP2 with potable water in a suitable mixer and apply by a spraying machine approved by Promat Cafco MANDOLITE® CP2 may be centrally pumped vertically or horizontally, enabling all spray plant and material storage to be contained in one area
Limitations	Cafco MANDOLITE® CP2 may be applied when the substrate and air temperatures are at least 2°C and rising, but should not be applied if the substrate or air temperatures are less than 4°C and falling. Maximum substrate and air temperature is 45°C Substrate temperature should be at least 2°C above dew point temperature

TOP COATING

Cafco TOPCOAT® 200 may be used as protection from frequent wash down, long term chemical spills, or for improved resistance to fungal, algal and bacterial growth.

PACKAGING

12.5kg bags.

STORAGE

Off the ground and kept dry until ready for use.

SHELF LIFE

Maximum 12 months.

ENVIRONMENTAL

- Do not discharge into drains, watercourses or soil.
- Not readily biodegradable.
- Not expected to bioaccumulate.
- Not expected to be toxic to aquatic life except at high concentrations.

HEAD OFFICE, BELGIUM

Promat International N.V.
Bormstraat 24
2830 Tisselt
Tel: +32 15 718 100
Fax: +32 15 718 109
Email: info@promat
international.com
www.promat-international.com
www.promat-tunnel.com
www.promat-marine.com
www.promat-spray.com

ASIA PACIFIC HEADQUARTERS, MALAYSIA

**Promat International
(Asia Pacific) Limited**
Unit 19-02-01
Level 2 PNB Damansara
No.19 Lorong Dungun
Damansara Heights
50490 Kuala Lumpur
Tel: +60 3 2095 5111
Fax: +60 3 2095 6111
Email: spraysinfo@promat-ap.com
www.promat-ap.com

AUSTRALIA

Promat Australia Pty. Limited
1 Scotland Road, Mile End South
SA 5031 Adelaide
Tel: 1800 PROMAT
Fax: +61 8 8352 1014
Email: spraysinfo@promat.com.au
www.promat-ap.com

Promat Australia Pty. Limited
Unit 1, 175 Briens Road
NSW 2152 Northmead
Tel: 1800 PROMAT
Fax: +61 2 9630 0258
Email: spraysinfo@promat.com.au
www.promat-ap.com

Promat Australia Pty. Limited
3/273 Williamstown Road
VIC 3207 Port Melbourne
Tel: 1800 PROMAT
Fax: +61 3 9645 3844
Email: spraysinfo@promat.com.au
www.promat-ap.com

AUSTRIA

Promat Ges.m.b.H.
Seybelgasse 13
1230 Wien
Tel: +43 1 865 4501
Fax: +43 1 865 3600
Email: office@promat.at
www.promat.at

BELGIUM

Promat N.V.
Kuijermansstraat 1
1880 Kapelle-op-den-Bos
Tel: +32 15 713 351
Fax: +32 15 718 229
Email: info@promat.be
www.promat.be

CHINA

Promat China Limited
Room 503, Block B, Qi Lin Plaza
13-35 Pan Fu Road
510180 Guangzhou
Tel: +86 20 8136 1167
Fax: +86 20 8136 1372
Email: spraysinfo@promat-ap.com
www.promat.com.cn

**Promat North China
(Division of Promat China Limited)**
Room 1507 Building 5
SOHO Xiandaicheng
No.88 Jianguo Road
Chaoyang District
100022 Beijing
Tel: +86 10 8589 1254
Fax: +86 10 8589 2904
Email: spraysinfo@promat-ap.com
www.promat.com.cn

CZECH REPUBLIC

Promat s.r.o.
Ckalova 22/784
16000 Praha 6 - Bubeneč
Tel: +420 2 2439 0811
Fax: +420 2 3333 3576
Email: promat@promatpraha.cz
www.promatpraha.cz

DENMARK

Promat ApS
Tåstrup Stationscenter
Selsmosevej 2, 1. floor
2630 Tåstrup
Tel: +45 7020 0482
Fax: +45 7020 0483
Email: info@promat-nordic.com
www.promat-nordic.com

FRANCE

Promat S.A.S.
BP 66 Rue de L'Ammandier
78540 Vernouillet
Tel: +33 1 3979 6160
Fax: +33 1 3971 1660
Email: info@promat.fr
www.promat.fr

GERMANY

Promat GmbH
Scheifenkamp 16
40878 Ratingen
Tel: +49 2102 493 0
Fax: +49 2102 493 111
Email: mail@promat.de
www.promat.de

HONG KONG

**Promat International
(Asia Pacific) Limited**
Room 1010, C.C. Wu Building
302-308 Hennessy Road
Wanchai
Tel: +852 2836 3692
Fax: +852 2834 4313
Email: spraysinfo@promat-ap.com
www.promat.com.hk

INDIA

**Promat International
(Asia Pacific) Limited
(India Representative Office)**
610-611, Ansal Imperial Tower
C-Block, Community Centre
Naraina Vihar, Naraina
110028 New Delhi
Tel: +91 11 2577 8413
Fax: +91 11 2577 8414
Email: spraysinfo@promat-ap.com
www.promat-ap.com

ITALY

Promat S.p.A.
Corso Paganini 39/3
16125 Genova
Tel: +39 010 248 8411
Fax: +39 010 213 768
Email: info@promat.it
www.promat.it

MALAYSIA

Promat (Malaysia) Sdn. Bhd.
Unit 19-02-01
Level 2 PNB Damansara
No.19 Lorong Dungun
Damansara Heights
50490 Kuala Lumpur
Tel: +60 3 2095 8555
Fax: +60 3 2095 2111
Email: spraysinfo@promat-ap.com
www.promat-ap.com

NETHERLANDS

Promat B.V.
Vleugelboot 22
3991 CL Houten
Tel: +31 30 241 0770
Fax: +31 30 241 0771
Email: info@promat.nl
www.promat.nl

POLAND

Promat TOP Sp. z o.o
ul. Przeclawska 8
03 879 Warszawa
Tel: +48 22 212 2280
Fax: +48 22 212 2290
Email: top@promatop.pl
www.promatop.pl

RUSSIA

Promat GmbH
Repräsentanz
ul. Kantemirovskaya 58
115477 Moscow
Tel: +7 495 325 4268
Fax: +7 495 231 7977
Email: gd@promat.ru
www.promat.ru

SINGAPORE

**Promat Building System Pte.
Limited**
10 Science Park Road
#03-14 The Alpha
Singapore Science Park II
117684 Singapore
Tel: +65 6776 7635
Fax: +65 6776 7624
Email: spraysinfo@promat-ap.com
www.promat-ap.com

SPAIN

Promat Ibérica S.A.
C/ Velazquez, 41 - 2 Planta
28001 Madrid
Tel: +34 91 781 1550
Fax: +34 91 575 1597
Email: info@promat.es
www.promat.es

SWITZERLAND

Promat AG
Stationsstrasse 1
8545 Rickenbach-Sulz
Tel: +41 52 320 9400
Fax: +41 52 320 9402
Email: office@promat.ch
www.promat.ch

UNITED ARAB EMIRATES

Promat Middle East
Suite 1805, Floor 18
Festival City Tower
P O. Box 123945, Dubai
Tel: +971 4 232 9780
Fax: +971 4 232 9781
Email:
promatmiddleeast@promat.co.uk
www.promat-spray.com

UNITED KINGDOM

Promat UK Limited
The Sterling Centre
Eastern Road, Bracknell
RG12 2TD Berkshire, Great Britain
Tel: +44 1344 381 300
+44 1344 381 400 (technical)
Fax: +44 1344 381 301
Email: marketinguk@promat.co.uk
www.promat-spray.com

Promat Ireland

43 Fitzwilliam Square
Dublin 2, Ireland
Tel: +353 1 6765778
www.promat.ie

VIETNAM

**Promat International
(Asia Pacific) Limited
(Vietnam Representative Office)**
Room 606 Giay Viet Plaza
180-182 Ly Chinh Thang Street
Ward 9, District 3
Hochiminh City
Tel: +84 904 055 055
Fax: +84 8 931 5964
Email: spraysinfo@promat-ap.com
www.promat-ap.com