



Promat



CAFCO® 300

Vermiculite Gypsum Based Wet Mix Spray



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INTRODUCTION

CAFCO® 300 is a spray or trowel applied, single package factory controlled premix, based on vermiculite and gypsum, for internal use.

CAFCO® 300 is a lightweight coating that provides very efficient fire resistance with minimal thickness to steel and concrete frames, metal floor and roof decks, return air plenums and air handling ductwork.

Structures protected with CAFCO® 300 can provide fire resistance for up to 240 minutes.

Building types that will benefit from the use of CAFCO® 300 include a wide range of educational, leisure and entertainment centres, and commercial projects.



Properties and performance	
Colour and finish	Off white with a monolithic spray texture
Theoretical coverage	217m ² /tonne at 15mm thickness
Number of coats	One or more as required
Cure	By hydraulic set
Initial set	10 to 15 hours at 20°C and 50% RH without accelerator
Density	310kg/m ³ ± 15% without accelerator, approximately 10% less with accelerator in accordance with ASTM E605.
Bond impact	No cracks or delaminations in accordance with ASTM E760
Air erosion resistance	No erosion in accordance with ASTM E859
Compressive strength	1.22kg/cm ² in accordance with ASTM E761
Deflection effect	No spalling, delamination or cracking in accordance with ASTM E759.
Flame spread	Class 0 as defined by Building Regulations
Thermal conductivity	0.078W/mK
Corrosion resistance	Does not promote corrosion of steel and does not require application over primed steel. Please seek structural engineer's advice concerning long term corrosion protection.
pH value	8.0 - 8.5
Fire resistance	<p>Structures protected with CAFCO® 300 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"> • Australia (AS1530: Part 4) • UK (BS476: Parts 6, 7 and 21) • USA (ASTM E119) • France (August 1999 Ministry Decree) • Belgium (NBN S21-202) • Germany (DIN 4102: 1977-09 and DIN EN 1363-1:1999-10) • Harmonised European Standard ENV 13381: Part 4 <p>The fire resistance test results relate solely to the constructions tested and test conditions imposed.</p>

QUALITY ASSURANCE

Promat manufactures to a quality system in accordance with 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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FIRE PROTECTION THICKNESS

The thickness of the fire protection for a given period of fire resistance in a cellulosic type fire, relates to the Hp/A ratio of the steel section. Hp/A is the ratio of the heated perimeter of the steel section exposed to fire to the cross-sectional area of the same steel section.

All column and beam sections have their own specific Hp/A ratio. Please consult Promat to establish the Hp/A ratio for a particular beam or column section. TABLES 1, 2, 3 & 4 ascertain the thickness of CAFCO® 300 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® 300 thicknesses for I section beams (3-sided exposure). Critical temperature 550°C, continuous concrete topping. (AS1530: Part 4)

Hp/A	Thickness for the fire resistance required					
	30 min	60 min	90 min	120 min	180 min	240 min
30	–	–	–	–	–	12.2mm
50	–	–	–	–	12.9mm	18.8mm
70	–	–	–	10.4mm	16.8mm	24.5mm
90	–	–	–	12.5mm	20.3mm	29.5mm
110	–	–	10.6mm	14.4mm	23.3mm	33.8mm
130	–	–	11.8mm	16.0mm	25.9mm	37.7mm
150	–	–	12.9mm	17.5mm	28.3mm	41.2mm
170	–	–	13.8mm	18.8mm	30.5mm	44.3mm
190	10.0mm	10.0mm	14.7mm	20.0mm	32.4mm	47.1mm
210	10.5mm	10.5mm	15.5mm	21.1mm	34.1mm	49.6mm
230	11.0mm	11.0mm	16.2mm	22.1mm	35.7mm	52.0mm
250	11.5mm	11.5mm	16.9mm	23.0mm	37.2mm	54.1mm
270	11.9mm	11.9mm	17.5mm	23.8mm	38.5mm	56.0mm
290	12.2mm	12.2mm	18.1mm	24.6mm	39.8mm	57.8mm
310	12.6mm	12.6mm	18.6mm	25.3mm	40.9mm	59.5mm
330	12.9mm	12.9mm	19.1mm	25.9mm	42.0mm	61.0mm
400	13.9mm	13.9mm	20.5mm	27.9mm	45.2mm	65.7mm

NOTE (for TABLES 1 & 2): Blank spaces indicate the minimum thickness of 9.5mm. The above and the right tables are based on report no. BRANZ FSR414.

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.

Where a dust inhalation hazard exists, dust mask or other appropriate P.P.E. should be worn.

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.

TABLE 2 CAFCO® 300 thicknesses for H section columns (4-sided exposure). Critical temperature 550°C. (AS1530: Part 4)

Hp/A	Thickness for the fire resistance required					
	30 min	60 min	90 min	120 min	180 min	240 min
30	–	–	–	–	15.2mm	20.3mm
50	–	–	–	11.7mm	22.9mm	30.2mm
70	–	–	12.3mm	16.3mm	28.0mm	36.6mm
90	–	–	15.2mm	19.7mm	31.8mm	41.5mm
110	–	9.5mm	17.4mm	22.5mm	34.9mm	45.3mm
130	–	11.4mm	19.3mm	24.8mm	37.4mm	48.5mm
150	–	13.0mm	20.9mm	26.7mm	39.6mm	51.3mm
170	–	14.4mm	22.3mm	28.4mm	41.5mm	53.7mm
190	–	15.6mm	23.5mm	29.9mm	43.2mm	55.8mm
210	–	16.8mm	24.7mm	31.3mm	44.7mm	57.7mm
230	–	17.8mm	25.7mm	32.6mm	46.1mm	59.5mm
250	9.5mm	18.7mm	26.6mm	33.7mm	47.4mm	61.1mm
270	10.7mm	19.6mm	27.5mm	34.8mm	48.5mm	62.6mm
290	11.8mm	20.4mm	28.3mm	35.7mm	49.6mm	64.0mm
310	12.8mm	21.1mm	29.0mm	36.6mm	50.6mm	65.2mm
330	13.8mm	21.8mm	29.7mm	37.5mm	51.6mm	66.4mm
400	16.8mm	24.0mm	31.9mm	40.1mm	54.5mm	70.1mm

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FIRE PROTECTION THICKNESS

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TABLE 3 CAFCO® 300 thicknesses for I section beams (3-sided exposure). Critical temperature 620°C, continuous concrete topping. (BS476: Part 21: 1987)

Hp/A	Thickness for the fire resistance required					
	30 min	60 min	90 min	120 min	180 min	240 min
30	10mm	10mm	10mm	11mm	16mm	21mm
40	10mm	10mm	10mm	13mm	19mm	25mm
50	10mm	10mm	12mm	15mm	22mm	28mm
60	10mm	10mm	13mm	17mm	24mm	32mm
70	10mm	10mm	14mm	18mm	26mm	34mm
80	10mm	10mm	15mm	19mm	28mm	36mm
90	10mm	11mm	16mm	20mm	29mm	38mm
100	10mm	11mm	16mm	21mm	31mm	40mm
110	10mm	12mm	17mm	22mm	32mm	42mm
120	10mm	12mm	17mm	23mm	33mm	43mm
130	10mm	13mm	18mm	23mm	34mm	44mm
140	10mm	13mm	18mm	24mm	35mm	46mm
150	10mm	13mm	19mm	24mm	36mm	47mm
160	10mm	14mm	19mm	25mm	36mm	48mm
170	10mm	14mm	20mm	25mm	37mm	49mm
180	10mm	14mm	20mm	26mm	38mm	49mm
190	10mm	14mm	20mm	26mm	38mm	50mm
200	10mm	14mm	20mm	27mm	39mm	51mm
210	10mm	15mm	21mm	27mm	39mm	51mm
220	10mm	15mm	21mm	27mm	40mm	52mm
230	10mm	15mm	21mm	27mm	40mm	53mm
240	10mm	15mm	21mm	28mm	40mm	53mm
250	10mm	15mm	22mm	28mm	41mm	54mm
260	10mm	15mm	22mm	28mm	41mm	54mm
270	10mm	15mm	22mm	28mm	41mm	54mm
280	10mm	16mm	22mm	29mm	42mm	55mm
290	10mm	16mm	22mm	29mm	42mm	55mm
300	10mm	16mm	22mm	29mm	42mm	56mm
310	10mm	16mm	23mm	29mm	43mm	56mm

TABLE 4 CAFCO® 300 thicknesses for H section columns (4-sided exposure). Critical temperature 550°C. (BS476: Part 21: 1987)

Hp/A	Thickness for the fire resistance required					
	30 min	60 min	90 min	120 min	180 min	240 min
30	10mm	10mm	10mm	12mm	18mm	23mm
40	10mm	10mm	12mm	15mm	21mm	28mm
50	10mm	10mm	13mm	17mm	24mm	32mm
60	10mm	10mm	15mm	19mm	27mm	35mm
70	10mm	11mm	16mm	20mm	29mm	38mm
80	10mm	12mm	17mm	22mm	31mm	41mm
90	10mm	13mm	18mm	23mm	33mm	43mm
100	10mm	13mm	18mm	24mm	34mm	45mm
110	10mm	14mm	19mm	25mm	36mm	47mm
120	10mm	14mm	20mm	25mm	37mm	48mm
130	10mm	15mm	20mm	26mm	38mm	49mm
140	10mm	15mm	21mm	27mm	39mm	51mm
150	10mm	15mm	21mm	27mm	40mm	52mm
160	10mm	16mm	22mm	28mm	40mm	53mm
170	10mm	16mm	22mm	29mm	41mm	54mm
180	10mm	16mm	23mm	29mm	42mm	55mm
190	10mm	16mm	23mm	29mm	43mm	56mm
200	10mm	17mm	23mm	30mm	43mm	56mm
210	10mm	17mm	23mm	30mm	44mm	57mm
220	10mm	17mm	24mm	31mm	44mm	58mm
230	10mm	17mm	24mm	31mm	45mm	58mm
240	10mm	17mm	24mm	31mm	45mm	59mm
250	10mm	17mm	24mm	31mm	45mm	59mm
260	10mm	18mm	25mm	32mm	46mm	60mm
270	11mm	18mm	25mm	32mm	46mm	60mm
280	11mm	18mm	25mm	32mm	47mm	61mm
290	11mm	18mm	25mm	32mm	47mm	61mm
300	11mm	18mm	25mm	33mm	47mm	62mm
310	11mm	18mm	25mm	33mm	47mm	62mm

NOTE (for TABLES 3 & 4): Maximum steel temperatures are normally accepted at 550°C (for columns) and 620°C (for 3-sided beams acting as support to composite concrete floors only) for fully loaded steel members. The above tables are based on report no. BRE CC250717 Issue 2.



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Preparation	
Typical substrates	Unprimed and primed steel, concrete structural frames, return air plenums and air handling ductwork.
Substrate preparation	The substrate shall be clean, dry and free from dust, loose mill scale, loose rust, oil and any other condition preventing good adhesion. Application to unprimed steel is acceptable. Where non compatible primers are used, steelwork and concrete substrates should be covered with CAFCO® SBR bonding latex or Caico BONDSEAL® keycoat, prior to the application of CAFCO® 300.
Application	
Initial steps	Application of CAFCO® 300 must be carried out by an applicator recognised by Promat.
Methods	Mix CAFCO® 300 with potable water in a suitable mixer and apply by a spraying machine approved by Promat. CAFCO® 300 may also be float finished using conventional hand tools or spray textured.
Limitations	CAFCO® 300 may be applied when the substrate and air temperatures are at least 4°C and rising, and must be maintained for 24 hours before, during and 24 hours after application. Maximum substrate and air temperature is 45°C. Substrate temperature should be at least 2°C above dew point temperature.

Please refer to the separate publication of CAFCO® 300 application guide for further details or consult your nearest Promat office for specific details pertaining to local conditions.

PACKAGING

20kg bags.

STORAGE

Protect from frost, excessive heat (above 45°C) and strong radiant sunlight.

SHELF LIFE

Maximum 12 months.

ENVIRONMENTAL

Do not discharge into drains, watercourses or soil.



For latest information of the Promat Asia Pacific organisation, please refer to www.promat-ap.com

ASIA PACIFIC HEADQUARTERS

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

AUSTRALIA

Promat Australia Pty. Ltd.
1 Scotland Road
Mile End South, SA 5031
Tel: 1800 PROMAT (776 628)
Fax: +61 (8) 8352 1014
Email: spraysinfo@promat.com.au

New South Wales Office **Promat Australia Pty. Ltd.**

Unit 1, 175 Briens Road
Northmead, NSW 2152
Tel: 1800 PROMAT (776 628)
Fax: +61 (2) 9630 0258
Email: spraysinfo@promat.com.au

Victoria Office

Promat Australia Pty. Ltd.
3/273 Williamstown Road
Port Melbourne, VIC 3207
Tel: 1800 PROMAT (776 628)
Fax: +61 (3) 9645 3844
Email: spraysinfo@promat.com.au

Queensland Office

Promat Australia Pty. Ltd.
Unit 2 Level 1
49 Gregory Tce
Spring Hill, QLD 4000
Tel: 1800 011 376
Fax: 1800 334 598
Email: spraysinfo@promat.com.au

CHINA

Promat China Ltd.
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

Beijing Office

Promat North China
(Division of Promat China Ltd.)
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

For Promat International groups worldwide:
www.promat-international.com

1. This document is produced on the basis of information and experience available at the time of preparation. Promat is constantly reviewing and updating all of its test data and reserves the right to change products and specifications without notice.
2. Promat is not responsible if recipients of fire test reports, assessments or literature incorrectly interpret said contents and use products based on those interpretations.

HONG KONG

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

INDIA

Promat International (Asia Pacific) Ltd.
(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

Bangalore Office

Promat International (Asia Pacific) Ltd.
(India Representative Office)
Cabin No.BC-9 & BC-10
Oculus Workspaces, No.66/1, 2nd Floor
Coles Road, Frazer Town
560005 Bangalore
Tel: +91 (80) 4031 4151
Fax: +91 (80) 4125 2135
Email: spraysinfo@promat-ap.com

Mumbai Office

Promat International (Asia Pacific) Ltd.
(India Representative Office)
Stylus Serviced Offices
Ground Floor, Velocity
Phase 1, Logitech Park
Andheri Kurla Road, Andheri East
400072 Mumbai
Tel: +91 (22) 6769 4567
Fax: +91 (22) 6769 4568
Email: spraysinfo@promat-ap.com

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

SINGAPORE

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

Your local Promat supplier

