THE**PASSIVE FIRE PROTECTION**SPECIALISTS

Our Credentials :

Quality Management System ISO 9001-2008

UL follow-up service inspection

WSHC – BizSafe Level STAR

ISO 14001 Registered
OHSAS 18001 Registered

PSB Listed Class 1A & 2 and Quality Audit

Building and Construction Authority Registered Contractor: BCA ID 87.1.9 (CR01/CR02/CR09)

Licensee of Cafco Asia Pacific *(A Division of Promat (Malaysia) Sdn. Bhd.)*

CAFCO Fendolite MII: 022-109-2365
CAFCO Mandolite CP2: 022 - 109 - 2366

Cafco Fendolite MII

Vermiculite Cementitious Fireproofing Products

UL Type PFM 2 / UL Type F5 Promat Product

Hydrocarbon

PROSTAR CONTRACT SERVICES PTE LTD
No. 6 Sungei Kadut Street 2 Singapore 729228
Tel: (65) 6368 5905 • Fax: (65) 6368 7679 • E-mail: info@prostar.com.sg • ***www.prostar.com.sg***

Introduction

Equitment Skirt

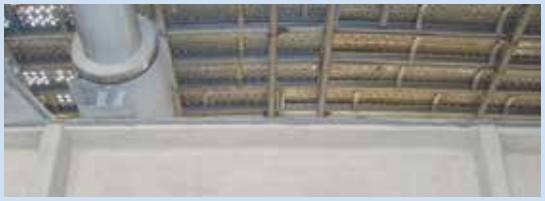
Cafco Fendolite MII is a spray applied, single package factory controlled premix, based on vermiculite and Portland cement.

Cafco Fendolite MII is specifically developed for application to elements in exterior environments and interior environments and interior situations where mechanical damage is a factor for consideration.

Cafco Fendolite MII provides fire protection in petrochemical plants and refines for structural steel, vessel skirts and supports, sphere legs and pressurized vessels. Cafco Fendolite also offers protection for nuclear and conventional power plants, pharmaceutical facilities, manufacturing plants and many commercial buildings where maximum durability is required.

Outstanding Characteristics

1. Tested in accordance with British Standard 476 Part 21 : 1987.
2. Tested in accordance with U.L.1709 Rapid Temperatures Rise Fire Test.
3. Hard and durable finish that will indent rather than shatter on impact. Excellent adhesive properties.
4. Reinforcement optional for interior applications depending on service.
5. Single package formulation requires only the addition of water at the jobsite. Easy to handle, apply, clean up and repair for tie-in work.
6. Creates no known health hazards. Asbestos free and non-toxic.



Fire Protection

Cafco Fendolite MII is classified by Underwriters Laboratories for use in the following constructions:

- Columns
- Floor Beams
- Floor-Ceiling Assemblies
- Roof Beams
- Roof-Ceiling Assemblies

Further, **Cafco Fendolite MII** is approved by factory Mutual for LPG Tanks and process Structural.

Physical Data

Pipe Rack

Application	
Spray	
Finish	
Spray applied texture or smooth trowel	
Work Life	
1 hour at 70˚F	
Drying Time	
Initial set 2-6 hours at 70˚F to topcoat 10 days at 70˚F	
Shelf Life	
12 months	
Dry Density	
44 lbs./ft.^{3}min.avg	
Calculated Coverage	
16.3 board feet per 50 lb.bag	
Surface Burning Characteristics (ASTM E84)	
Flame Spread	0
Smoke Contributed	0
Compressive Strength (ASTM E761)	
548 p.s.i	
Bond Strength (ASTM E736)	
11,000 p.s.f	
Deflection (ASTM E759)	
No cracking or delamination	
Bond Impact (ASTM E760)	
No cracking or delamination	

Physical Data (cont.)

Equitment Skirt & Steel Structure
Fire Proofing

Air Erosion (ASTM E859)

<0.0025 g/ft²

Corrosion (ASTM E937)

0.00g/mm²weight loss

Chloride Content (Method 408B)

<10 p.p.m.

Noncombustibility (ASTM E136)

Non Combustible

Cafco Fendolite MII produces a monolithic coating able to withstand the thermal shocks experienced in a high intensity hydrocarbon fire.

Although low in density, thus significant reducing dead load, **Cafco Fendolite MII** is highly durable and will not crack or spall under mechanical impact.

Cafco Fendolite MII does not release toxic or hazardous fumes, and presents no known health hazards either before, during or after application.

The surface may either be spray textured, roller or float finished.

Cafco Fendolite MII is used for application on construction elements such as individual steel or concrete sections particularly where off-site application is required.

Structures protected with Cafco Fendolite MII can provide up to 240 minutes fire resistance

Cafco Fendolite MII is for use on structures and vessels in the oil, gas, petrochemical and power industries.

Properties & Performance

Colour and Finish

Off-white, with monolithic spray texture, floated or roller finished.

Minimumm Pratical Thickness

8mm when unreinforced. 15mm when reinforced

Theoretical Coverage

32m²/tonne at 40mm thickness

Cure

By hydraulic set

Initial Set

2 to 6 hours at 20˚C and 50% RH

Properties & Performance (cont.)

Steel Structure

Density

Minimum 680kg/m^3± 15% (When dry and in place)

Combustibility

Non- combustible to BS 476: Part 4

Smoke Generation

Does not contribute to smoke generation.

Thermal Conductivity

0.19W/mK at 20˚C

Corrosion Resistance

Does not promote corrosion of steel. However, a primed substrate is recommended for long term corrosion resistance, particularly when the structure is to be fully exposed to the elements. See “Preparation”.

pH Value

12.0 -12.5

Sound Absorption

Noise Reduction Coefficent (NRC) 0.35

Fire Resistance

Steel and concrete structures protected with **Cafco Fendolite MII** have undergone fire resistance tests in approved independent laboratories to recognized standards throughout the world including:

UK (to BS 476: Part 20-21: 1987 Appendix D)

Germany (to DIN 4102)

Holland (Fire Test Procedures for tunnels GT-98036-1a)

USA (to ASTM E119 UL 263 and UL 1709 – Design No. XR719).

The fire resistance test results relate solely to the constructions tested and test conditions imposed.

Cafco Asia Pacific provides computer based thickness calculations to meet specific fire ratings on receipt of details.

Fire Protection Thickness

General Considerations

Fire protection thickness requirements are often specified in the owner operator’s engineering codes of practice. Alternatively, consult the Prostar. For advice on thickness calculations for hollow sections, castellated sections, composite floors, upgrading of concrete slabs and more complex situations, please contact Prostar.

Preparation

Typical Substrates

Steel and concrete

Substrate Preparation

The substrates shall be clean, dry and free from dust, loose millscale, loose rust, oil and any other condition preventing good adhesion.

Cafco Fendolite MII can be applied to unprimed steelwork.

Prior to the application of **Cafco Fendolite MII**, primed steel should be prepared by the application of keycoat if required.

Mesh Reinforcement

Most fire tests conducted have been carried out without mesh reinforcement, to demonstrate the ability of **Cafco Fendolite MII** 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 for exterior work and for interior use where vibration or mechanical damage and the possibility of subsequent de-bonding exist.

Application

Initial Steps

Application of **Cafco Fendolite MII**, must be carried out by an applicator recognized by Cafco Asia Pacific [A division of Promat (Malaysia) Sdn. Bhd.] and applied in accordance with the Installation Guide available from Cafco Asia Pacific.

Methods

Mix **Cafco Fendolite MII**, with potable water in a suitable mixer and apply by a spraying machine approved by Cafco Asia Pacific.

Cafco Fendolite MII may be float or roller finished or left with a spray texture.

A hand applied patching mix is available for minor repairs.

Limitations

Cafco Fendolite MII may be applied when the substrate and air temperatures are at least 2˚C and rising, but should not applied if the substrate or air temperatures are less than 4˚C and failing. Maximum air and substrate temperature is 50˚C.

Substrate temperature should be at least 2˚C above dewpoint temperature.

Topcoating

General Considerations

Under certain circumstances, topcoat may be used as protection from frequent wash down, long term chemical spills, or for improved resistance to fungal, algal and bacterial growth.

Packaging, Storage, Shelf Life

Packaging

Approximate 20 kg bags.

Storage

Off the ground and kept dry until ready for use.

Shelf Life

12 months maximum.

Environmental

- Not reality biodegradable
- Not expected to bioaccumulate
- Not expected to be toxic to aquatic life except at high concentrations.
- Do not discharge into drains and watercourses.

Health and Safety

Cafco Asia Pacific's activities are conducted with due regard to all statutory requirements with appropriate safeguards against exposing employees and the public to health and safety risks.

A fully copy of Cafco Asia Pacific's Health, Safety and Environment Policy document is available on request.

See Safety Data Sheet (including COSHH Regulations) Code Reference Saf-6.

Quality Assurance

Cafco Asia Pacific operates a quality system in accordance with BS EN ISO 9002: 1994, and has received full accreditation by BSI 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.

Further Information

Licensee of Cafco Asia Pacific
[A division of Promat (Malaysia) Sdn Bhd]:

PROSTAR CONTRACT SERVICES PTE LTD
No. 6 Sungei Kadut Street 2 Singapore 729228
Tel: (65) 6368 5905 • Fax: (65) 6368 7679 • E-mail: info@prostar.com.sg • ***www.prostar.com.sg***