

Promat Technology Trends

Issue No.1

JULY - DECEMBER 2008

WWW.PROMAT-AP.COM/NEWS.HTM
KDN PP 10803/08/2009 (022267) MICA (P) 231/06/2008

AN INTERVIEW WITH

**Mr Yatin Premchand, General Manager
of Singapore Environmental Council**



In Singapore, a number of Promat products have received Green Eco Label certification from the Singapore Environment Council, attesting to the fact that these Promat products are considered environmentally friendly by the Singapore government's Building & Construction Authority.



The SEC's General Manager, Mr Yatin Premchand,
continued on page 3

PTT



PTT-KNOW-HOW

**Promat Sprays Division
State-Of-The-Art Product Range**



When Promat acquired Cafco International in August 2007 it bought the only company in the world that manufactured an integrated range of passive fire protection products made from gypsum and cement-based vermiculite sprays. The Cafco product range offered unique, proprietary solutions in cementitious sprays systems and intumescent "Sprayfilm" coatings.

The acquisition was a good business fit as Cafco's reputation for leadership and strong product growth dovetailed well with Promat's leadership philosophy and strategy of product diversification and growth within the field of fire protection, acoustic and thermal insulation. Strong synergies in product development, opportunities for cooperation in joint sales and further geographical expansion worldwide were other key features of the merger.

continued on page 5

Successful Group Environmental Strategy Creates Bonuses For Sustainable GREEN Business Practices

An international leader in fire science technologies, Promat is an important subsidiary of Worldwide Etex, a Belgian industrial group with business units operating on all continents. Most Etex companies are in some way connected to the built environment. The group is, perhaps not surprisingly, mindful of environmental impact. The issues that effect the environment, climate change and the future are taken very seriously indeed.

The Etex Group's clearly articulated and well coordinated Environmental, Health & Safety (EHS) strategy not only sets stringent benchmarks but orchestrates numerous policies that aim to minimise the group's carbon footprint. Sustainable green business is a number one corporate priority at every level of group business.

As a result, the group's combined carbon dioxide emission levels have been more than halved in less than four years. In the decade up to end of financial year 2007, the group's plants certified ISO 14001 compliant increased to more than 95%. Today, virtually all factories within Etex meet and sustain ISO 14001 certification.

In fact, even before the ISO 14001 environmental standard became a reality, many units in the group had mandated similar policies of their own. Similar progress in mindset and corporate and management awareness for the near and long term benefits for environmentally friendly policies continue at virtually every level of business.

General Improvement In Environmental Key Performance Indicators

As a consequence of the increasingly common awareness that preceded and followed implementation of the ISO 14001 environmental management system, good and measurable results can be seen across a broad spectrum of the group's activities.

For example, there has been a general reduction of raw materials, less waste, more recycling, less energy consumption for a given production volume and a general reduction in emissions. Some of the relevant details are as follows:

- 1 Water consumption has been cut dramatically through the use of tough policing action and the use wherever possible of closed circuit systems. Further reduction made possible by the use of suitable bore or canal sources instead of potable water.
- 2 Concerned cooperative partnerships with local government agencies and their energy conservation initiatives have resulted in several group factories cutting their energy consumption over a six year period by almost 40%.
- 3 The switch to more efficient sources of energy like more environmentally friendly (natural) gas has created a significant reduction in emissions, especially sulphur dioxide.
- 4 Transportation of raw materials is increasingly by ship directly wherever possible from source to group production plant, reducing energy consumption and related emissions, cutting costs and having a positive impact on mobility, an increasing problem all over the world.

continued on page 3

Successful Group Environmental Strategy Creates Bonuses For Sustainable GREEN Business Practices

continued from previous page

AN INTERVIEW WITH

Mr Yatin Premchand, General Manager of Singapore Environmental Council

Promat Products Go Green In Singapore Environment Council's Green Eco Label Certification System

continued from previous page

a US-educated and very articulate Environmental Science and Management expert recently talked with PTT about global warming, interconnected environmental issues and what companies and people can do to help. Here are some excerpts from that long conversation.

Mr Yatin Premchand, GM of SEC: ...the past seven years worth of work has focused on industry development, business development, looking at and working with businesses to not only introduce the environmental elements of running an operation but also the sustainability of business practice with a changing, say, an environmental economy, if you wish. It's a different ball game now and the rules have changed; for businesses to take advantage of that and succeed, there has to be a change of not only mindset but also of governance and practice. So, for the past seven years that's pretty much what I have been involved in certifications, helping businesses to improve on their products, looking into practices and just different ways of addressing the same issue with a more efficient outlook.

Promat Technology Trends: How receptive do you find companies here (to green concerns)?

YP/SEC: In Singapore, there are basically two types of entities. 60-70% of our business is in the Small & Medium Enterprise (SME) sector. And then there are the large local companies, the government-linked companies and the MNCs. In terms of looking at the different types of organisation or sizes of organisation, the MNCs are obviously driven by international objectives that are set by their headquarters. So in terms of the environmental work and all that, there's a lot of work that they do internally. Their own efficiencies, in terms of protocol, in terms of environmental management, resource conservation, energy efficiency, water efficiency, all those kinds of things, including product innovation. But when you look at the SMEs, I would say the SMEs have the hardest time because there is still the large amount of capital that you (have to) inject to create environment awareness and change. It's still a resource that you need to allocate and for an SME, for a small company to follow for example ISO 14000 as a management practice for environmental performance, it can be very expensive and therefore very hard for them to adopt. Local large companies, on the other hand, have adopted those kinds of standards, but again looking at Corporate Greening as a platform for business development, I think that it is still something that's in the works locally. There are quite a number of programmes that the (Singapore Environmental) Council has put out for assisting businesses to Go Green, whether that has to do with the greening of environment awareness and practice within the organisation or whether it's looking at how the organisation inter-reacts with the community that exists there, which also includes, obviously, its own workforce.

Group Companies Including Promat Go Green And Achieve Favourable Results

One of the main group production centres in Asia Pacific, Eternit Guangzhou, received their first standards certification (ISO 9001) in 1999. As part of Etex Group's continual improvements in production, they achieved certification to ISO 14001 in 2004, and in 2005 met the requirements of Occupational Health And Safety in achieving ISO 18001. As part of this continual attempt to improve performance, Promat Australia achieved certification to ISO 18001 in September 2008.



Elsewhere, another good example of environmental awareness and achieving excellent bottomline results with innovative products riding on the back of affirmative and sustainable green management practices, is Promat Australia. The company has achieved very good results by launching, marketing and exporting various innovative fire stopping products. In doing so and at the same time, the Promat factory in South Australia has instituted various programmes that have reduced water consumption, energy use and waste production by significant margins.

This has added value to end-of-year results of course while making the company leaner, more efficient and a more respected corporate citizen in the community.

In Singapore, Promat products have been awarded Green Eco Label certification.

This criteria of compliance has been developed by the esteemed Singapore Environment Council, in light of the strict and increasingly stringent and environmentally friendly performance expected of the island republic's dynamic building and construction industry.

The Green Eco Label means that Promat products meet SEC's environmentally friendly expectations. □

So basically there are quite a number of programmes that we offer to make it easier for businesses to adopt more environmentally friendly practices and therefore green their business from within. Of course, we do believe that we need the culture to be inherent before it (the green policy) moves into the practice and the operations, so it has got to come from within the organisation.

Awareness for green issues is picking up, especially in the past three to four years. There's a lot of interest and curiosity but again, unlike traditional business or traditional ways of managing enterprise, the environmental side is quite multifaceted. It's not only focused on technology, innovation and R&D, it's also focused on all stakeholders which include the community, your workforce, investors and (other) stakeholders. It's quite multifaceted and the approach which we have adopted has to be all encompassing and with all of these factors there is no one-shot solution. One has to be quite diverse in the approach and I think that new development of thinking, of a whole systems approach rather than addressing certain elements of a system is something that is slowly growing now.

After all, not only our financial systems but our business methodologies are based on models that are now centuries old...with a populous of, let's say, 800 hundred million people on the planet (back then)... we are looking at six, seven billion people now. So there's a totally different measure to resource economics when you scale it up. We can't have that old Cornucopia Concept (to guide us) any more.

PTT: So can it be assumed that ISO 14001 is the be-all to end-all of sustainable greening?

YP/SEC: It is a benchmark, it is definitely one of the many greening tools which are, let's say, available but it's only one. It only basically allows you the facility to track your environmental impact. Now, what you do with that information and how you utilise that information is totally different.

We have noticed a lot of companies saying "we are green because we have ISO 14000". So we say "OK, let's have a look at the statistics that you have and what are you doing with all of this information, how have you increased the efficiency of business, how have you improved upon the pollution emission factor of your production process, what kind of processes have you put in place to not only reduce waste but to perhaps look

at other streams of either raw materials or using that waste for other purposes? How is your company green? Is there are green consciousness in your organisation or is this just in the Environment, Safety and Health Department that this exists? What are you doing with this information? It's a different Green Consciousness, a Green Business and Enterprise. Having certification that exists in one department or company might be different from another.

PTT: Please explain the pragmatic things that have to be done in order to obtain Green Eco Labeling certification?

YP/SEC: It's a very straightforward process. In fact all you have to do is go online, to our (SEC) website. And it's all there!

Our website has a list of criteria of various types of product types and materials that have been assessed. Each criteria has a list of aspects that need to be addressed; that the products need to be either tested against or we need to have substantial proof that the product complies to that clause required by the criterion for assessing the product. If it is a testing requirement then it has to be done by an (independent) third party, an accredited test laboratory.

If you come from Japan, for instance, and you have an eco label, based on the assumption that this has already been done. We can accept the test results that you submitted to gain endorsement under this affiliated Japanese label. Alternatively, if you can prove that that laboratory is a credible laboratory and its measurement standards are up to date, depending on where you got your product tested, then we can accept those test results as well. Again, this exception is specifically targeted to most of the developed nations...Japan, Korea, Australia, US, Canada, Europe...so if the test reports come from there and it is from a reputable third party source we can most probably accept those.

Once that is done and all the data collected, you collate that data on the specific product or products that you have, in line with the Green Label standard criterion...and apply for a certification audit! □

To read and/or download the full SEC interview, please go to http://www.promat-ap.com/ptt/ptt_jul-dec2008.htm.



Updated Grafitex Process Makes Better Business And Saves Environment

Promat Australia is proactive in business, continually searching for ways to do business better and make a difference in the reduction of carbon emissions.

Continual market pressure on fire stopping products means that the company is obliged look to new and more efficient methods and processes that will allow Promat to respond quickly to changing market conditions and explore new markets while also minimising impact on the environment.

With this in mind, Promat Australia recently took a close look at its most critical manufacturing process, the Grafitex line. Increased demand for this popular product created certain "bottlenecks" or impediments in an otherwise smooth and successful story.

In fact, the usual Grafitex process requires 32 to 68 hours drying time in electrical ovens, depending on the thickness, per 1000kgs of product. The product itself loses some 35% of its weight due to evaporation. A substantial amount of water is also used as part of the formulation process and for equipment cleaning purposes.

To address these issues, Promat Australia devised a new formulation and a new process which does not require water, needs only approximately three hours production time for the same amount of product and the product does not lose weight.

The new process creates substantial savings over the old process and benefits the environment...a true win-win situation for Promat, the company's many customers and the environment.

The business and environmentally details are best summarised as:

- ❶ Reduced electricity consumption (saving \$45K pa, corresponding to 260,000kw/h or 255 tonnes of greenhouse gas emissions);
- ❷ No water required thus no environmental costs for removal and treatment of waste water (savings of \$50k pa) and saves approximately 370,000 litres of volume per year;
- ❸ The process is cheaper;
- ❹ No subsequent processes (sizing, slitting and cutting) required;
- ❺ Substantially less manual handling equal less cost of manpower;
- ❻ Less work-in-progress storage;
- ❼ Less waste.

After a brief running-in period and some fine tuning, the new process has been operating successfully for one year.

Further improvements, however, are still possible and the Promat Australia production team is constantly seeking opportunities to create more benefits for the company and the environment. □



TQCSI
Occupational Health And Safety Management System
Certified to ISO 18001

TQCSI
Environment Management System
Certified to ISO 14001

TQCSI
Quality Management System
Certified to ISO 9001



Promat Sprays Division Builds On State-Of-The-Art Past, Aims To Expand Future Market Share With Hi Tech Fire Protection Solutions

continued from page 2

Over the years Cafero has built a worldwide reputation for market-leading products in the field of sprayed fire protection which complement and enhance Promat's existing brand portfolio.

Over three million m² of on-shore structures and more than four million m² of off-shore installations have been protected. In the tunnelling industry alone, Cafero International has not only 30 years experience, but has carried out pioneering work in the fire resistance of rail and road tunnels, particularly in preventing concrete linings from spalling, and steel or cast iron linings from weakening. Over one million m² of tunnel linings enjoy Cafero protection.

Today, as Promat Sprays Division internationally looks to the future, it will build on two solid foundations, i.e. intumescent spray films and cementitious sprays. The focus will remain on the global construction industry, with a special emphasis on the tunnel and petrochemical sectors.

Construction Industry

• CAFCO® 300

Vermiculite Gypsum Based Wet Mix Spray

Wet Spray CAFCO® 300 is a spray or trowel applied control premix, based on vermiculite and gypsum for internal use. It is a lightweight coating that provides very efficient fire resistance with minimal thickness to steel and concrete frames, metal floors and roof decks.

• Cafero MANDOLITE® CP2

Vermiculite Cement Based Wet Mix Spray

Cafero MANDOLITE® CP2 is a spray applied, controlled premix, based on vermiculite and Portland cement for internal use. It produces a monolithic coating able to withstand the thermal shocks experienced in high intensity cellulosic fires. It is particularly useful in protecting concrete structures.

• Cafero BLAZESHIELD® II

Mineral Wool Cement Based Dry Mix Spray

Cafero BLAZESHIELD® II is a spray applied controlled premix, based on a mixture of mineral wool fibres and cement binders. It is for internal use.

Cafero BLAZESHIELD® II is a durable, lightweight coating that offers fire protection for up to 240 minutes. Cafero BLAZESHIELD® II is also a very effective thermal insulator, particularly when applied to the underside of a floor and an efficient sound absorbing material.

• Cafero SPRAYFILM® WB3

Water Based Intumescent Coating

Cafero SPRAYFILM® WB3 is for the fire protection of structural steel. It can be sealed and protected with a decorative top coat.

Petrochemical Industry

• Cafero FENDOLITE® MII

Vermiculite Cement Based Wet Mix Spray

Cafero FENDOLITE® MII is a spray applied, single package factory controlled premix, based on vermiculite and Portland cement that produces a monolithic coating able to withstand the thermal shocks experienced in a high intensity hydrocarbon fire.

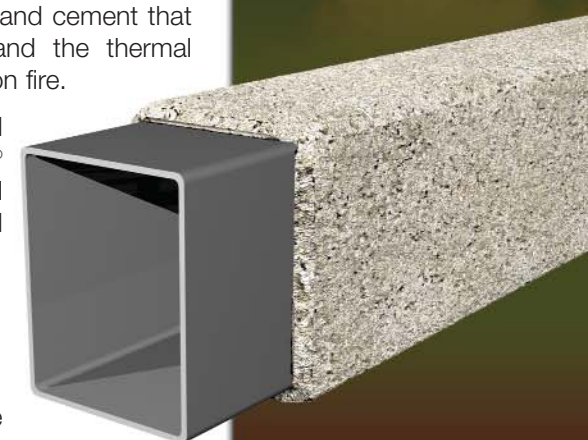
Concrete structures in particular are well protected from explosive spalling with Cafero FENDOLITE® MII and it thus finds many applications in the tunnel and petrochemical industries. It can be applied internally or externally.

• Cafero MANDOLITE® 550

Vermiculite Cement Based Wet Mix Spray

Cafero MANDOLITE® 550 is a spray applied, single package factory controlled premix, based on vermiculite and Portland cement.

Cafero MANDOLITE® 550 produces a monolithic coating able to withstand the thermal shocks experienced in high intensity hydrocarbon fuelled fires, particularly jet fires. It can be applied internally or externally.



Tunnel Linings

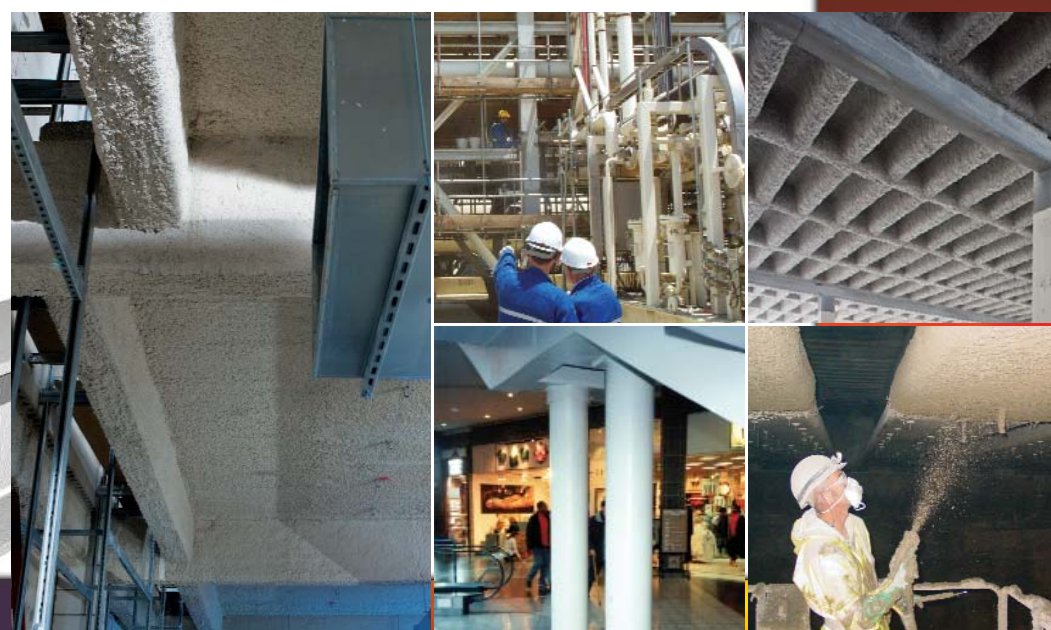
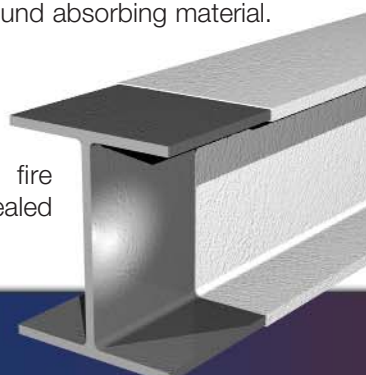
• Cafero FENDOLITE® MII

Vermiculite Cement Based Wet Mix Spray (see above)

• Cafero FENDOLITE® TG

Vermiculite Cement Based Wet Mix Trowelled Coating

Cafero FENDOLITE® TG provides a high level of passive fire protection in interiors and fully exposed environments. It is usually applied by trowel. □





Location
Republic Polytechnic
Campus, Woodlands,
Singapore

Contractor
China Construction –
Taisei Joint Venture

Consultant & Architect
DP Architects Pte Ltd

Applicator
ACS Rushoe/
Innovente Singapore

Product
Cafco SPRAYFILM® WB3*

*The only water based intumescent listed under PSB Corp's Product Listing Scheme (PLS).



Cafco SPRAYFILM® WB3 coated on the structural steel inside Singapore's Republic Polytechnic Campus

In Singapore, Cafco Adds Value To Tertiary Education

When human capital is a nation's only natural resource, building and sustaining a world-class educational system is a top priority. Singapore's Republic Polytechnic campus in north coast Woodlands is a very good example of what is happening throughout the populous island city.

To optimise security, Cafco SPRAYFILM® WB3 has been used for the passive fire protection of structural steel in the main buildings of the Polytechnic campus.

A 120 minute fire resistance was specified for the project and some 5000m² of steel have been protected, displacing solvent based products. This is not surprising given the product's technical capabilities and the numerous major benefits that apply to water-based products.

Cafco SPRAYFILM® WB3 provides a fast and cost-effective method of fire protection. For example, many steel sections required less than 0.5mm dry film thickness and this can be applied in a single coat spray application. Single application enables the applicator to complete the work in a very short period, in one pass, reducing the overall construction time.

Environmentally friendly Cafco SPRAYFILM® WB3 contains no hydrocarbon solvents. There is no solvent build up in confined spaces and no requirement for special flammable storage areas, thus it can be used with optimum safety.

In the high ambient temperatures experienced in a country like Singapore, water based products dry much faster. They dry by rapid evaporation of water from within the total coating layer and therefore achieve "through drying" much faster without the formation of a surface skin.

Cafco SPRAYFILM® WB3 High Film Thicknesses In One Application

As external skin does not form when drying, the high wet film thickness does not impede the through drying of the film. Since much higher thicknesses can be applied for each coat, the overall number of coats is thus reduced, saving application/installation time. Over-coating times are also reduced both for second coats and for top-coating.

Cafco SPRAYFILM® WB3 tolerates small amounts of moisture on the substrate as this is absorbed into the coating, evaporating during the normal drying process. Once applied and top-coated with an approved finish, Cafco SPRAYFILM® WB3 provides good long term durability.

At the Republic Polytechnic, Cafco SPRAYFILM® WB3 was applied at an early stage of construction, without affecting the long term durability of the coating system. This practical experience is backed up by laboratory testing to international standards in Singapore.

In Singapore, Cafco SPRAYFILM® WB3 passes all the requirements of BS 8202: Part 2: 1992 and is the only water based intumescent listed under the PSB Corp's Product Listing Scheme (PLS). The BS 8202 test program includes exposure to a number of different environments and conditions including humidity, washing, sulphur dioxide, heat and natural exposure. After exposure to the above conditions, sections are fire tested to ensure they can still provide the expected performance.

It can be seen from the above that water based products such as Cafco SPRAYFILM® WB3 can offer a number of tangible benefits, especially in hot climates.

As with any specialist material, it is important that Cafco SPRAYFILM® WB3 is applied in accordance with the specifications and application instructions provided. It is always a wise precaution to ensure that technically experienced and recognised applicators to ensure a successful project. □

PROMATECT®-H fire resistant vertical post cladding steel duct and partition (bottom) at IM Flash Singapore



For World Class Peace Of Mind, New Billion Dollar Semiconductor Facility Installs Promat Fire Security Measures

Location
IM Flash Singapore,
Attap Valley off
Admiralty Road West

Designer & Builder
M+W Zanders (S) Pte Ltd

Owner
IM Flash Singapore
(Joint venture setup between
Micron Technology Inc and
Intel Corporation)

Product
PROMATECT®-H

In line with its continuing strategy as a regional high tech hub, Singapore continues to attract investors from the semiconductor sector. One of the latest to set up shop on the island republic is IM Flash Singapore. IMF is a limited liability partnership, formed in early 2007 by subsidiaries of Micron Technology, Inc. and Intel Corporation. The new company is primarily concerned with the manufacture of NAND Flash memory, an increasingly important and fast-growing memory technology used in consumer electronics, removable storage and handheld communication devices.

The company has a heritage of operating highly efficient manufacturing facilities with Intel's multi-level cell technology and history of innovation in the Flash memory business. It also enjoys a reputation for uncompromising focus on integrity, execution and teamwork with a strong commitment to success to the community's future well-being.

The IM Flash Singapore state-of-the-art 300mm/50nm semiconductor manufacturing facility is located in Attap Valley, off Admiralty Road, Sembawang in north-central of Singapore. It was designed and built by M+W Zanders (S) Pte Ltd.

Promat systems in this demanding project and their installed areas are:

- 1 PROMATECT®-H fire resistant partition 7,800m² of 120 minute and 100m² of 240 minute.
- 2 PROMATECT®-H fire resistant partition and ceiling 240m² of 120 minute partition and 26m² of 120 and 240 minute ceiling membrane.
- 3 PROMATECT®-H fire resistant ceiling 130m² of 120 minute.
- 4 PROMATECT®-H fire resistant vertical duct 80m² of 120 minute and 300m² of 240 minute. □

Delicious Pizza Cooks And Tastes Better When Baked In A Traditional Oven Insulated With PROMASIL® 1000



Location Field Furnace Refractories, Wetherill Park, New South Wales, Australia	Supplier Field Furnace Refractories Product PROMASIL® 1000
---	---

Most aficionados agree, the best pizza is best cooked in a traditional wood-fired pizza oven. These are usually square or dome shaped and lined with special refractory bricks, special heat retaining bricks that need to be preheated from within the oven for a considerable time before cooking begins.

The glowing embers are then pushed to one side and prepared but uncooked pizza dough, laden with tasting toppings of the customer's choice is then placed inside the oven, usually by way of a traditional long handled wooden baker's spatula...and the actual cooking process begins.

A typical and controlled temperature for cooking a pizza is around 400°C. Cooking time for pizza in most high traffic restaurants is between three to five minutes but the oven, often used for other types of cooking (such as roasting speciality menu items or baking bread), must remain heated and ready to cook for the period of time the restaurant is open for business.

Smaller pizza ovens for home use, designed along the same lines and with the same tasty objective in mind, have become a fashionable culinary trend in Australia.

Pizza ovens large or compact require adequate performance levels of High Temperature Insulation, an application recently developed by Promat Australia where an increasingly popular trend for backyard pizza ovens is adding new and equally delicious dimensions to the country's famous "Throw Another Shrimp On The Barbie" home entertainment culture.



A screenshot from the popular Australian television advertisement "Shrimp On The Barbie". "Barbie is Australian slang for barbecue. The phrase "throw another shrimp on the barbie" often evokes images of a fun social gathering under the sun.

PROMASIL® 1000, a low density matrix engineered mineral board is frequently the insulation choice for many although in earlier times of selling the refractory for these ovens, the floor tiles would be placed directly on to the concrete slab with good insulation only over the outside of the brickwork. In such cases, customer feedback indicated that pizzas would cook very quickly indeed, typically two to three minutes, but invariably the base of the pizza would be undercooked.

The answer to the problem came in the form of an insulating medium between the floor tiles and the concrete slab. A situation easily fixed by Promat and 50mm thick PROMASIL® 1000.

Working with supplies stocked by Field Furnace Refractories in Wetherill Park in New South Wales, PROMASIL® 1000 matrix engineered mineral board is supplied to the domestic backyard pizzeria market with some sales also going to commercial oven units at restaurants.

On average, Field Furnace Refractories receive about 10 enquiries a day – mostly walk-in customers, e-mail and telephone – for this new home-cooked pizzeria application, making it good continuous business for a new and delicious application sure to satisfy many pizza craving customers and the local building code authorities. □



PROMASIL® 1000 should be applied on top of the "circled" brick work/concrete area, including underneath the first preceding layer of the brick/concrete forms.



PROMASTOP® Cement is recommended for topping following a 75mm insulation blanket with chicken wire between.



In New Zealand, Peace Of Mind Comes In The Form Of The Thinnest Possible Fire Protection

The owner of the 90 foot Ullberg-designed sportfisher "Satu", an ultra modern GRP (Glass Reinforced Plastic) vessel, was looking for the thinnest possible A30 fire protection system.

He saw PROMAGUARD® and was satisfied with the recommended method of installation.

The rest as they say is history, and a story of happy, satisfied customers.

In related discussions with the vessel's project manager at Yachting Developments, it was revealed that "Satu" was not being built to a stringent protocol class. Indeed, the owners insistence on the thinnest and best possible fire rated protection installed in the engine room and machinery space of "Satu" was simply a personal matter of pragmatic peace of mind.

After assessing various options, the customer decided that two layers of 10mm Promaguard provided the best fire rated performance.

PROMAGUARD® is fitted to the engine room deckhead of "Satu" as well as the vessel's forward and aft bulkheads and to the hullsides.

PROMAGUARD® fire insulation is also installed in the machinery spaces forward of the engine room, on the deckhead and bulkhead sections. The end result is optimum security for all that sail on the good ship "Satu". □

Owner Yachting Developments, New Zealand	Supplier Pyrotek Products Product PROMAGUARD®
---	--

DISCLAIMER

The Promat International Asia Pacific Network spans the region with innovative proactive fire protection products, systems and solutions: Australia, China, Hong Kong, India, Malaysia, Singapore and Vietnam, with distributors in Brunei, Indonesia, Japan, New Zealand, Philippines, South Korea, Taiwan and Thailand.

Promat Technology Trends (PTT) is originally published by Promat (Malaysia) Sdn. Bhd. (PMSB) and Promat Building System Pte. Ltd. (PBS) for professional organisations and/or individuals interested in the fire sciences industry in the Asia Pacific region.

No part of PTT may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, recording or otherwise, without the prior written permission of PMSB/PBS. While every professional care has been taken to ensure that the contents of this publication are accurate and up-to-date, PMSB/PBS, its sister companies and associates, do not accept responsibility for errors or for information which is found to be misleading and/or inaccurate.

The information in PTT is furnished for informational use only, is subject to change without notice and should not be construed as a commitment by PMSB/PBS, its subsidiaries or affiliates.

The design and technical recommendations in this publication are based upon the best knowledge available at the time of publication. However, no responsibility for any kind of injury, death, loss, damage or delay, however caused, resulting from the use of recommendations or information contained herein can be accepted by PMSB/PBS, its subsidiaries or affiliates associated with its preparation and presentation.

With suggestions for or descriptions of the end use or application of products and/or services mentioned in PTT or supplied or manufactured by PMSB/PBS, its subsidiaries or associates, customers should first fully satisfy themselves of their suitability. If further information or assistance is required, PMSB/PBS may, within the operational limits of its professional and legal limitations, often be able to help.

All rights reserved. Copyright © 2008 published by Promat (Malaysia) Sdn. Bhd. Unit 19-02-01, Level 2 PNB Damansara, No.19 Lorong Dungun, Damansara Heights, 50490 Kuala Lumpur, Malaysia – KDN PP 10803/08/2009 (022267) and Promat Building System Pte. Ltd. 10 Science Park Road, #03-14 The Alpha, Singapore Science Park II, Singapore 117684 – MICA (P) 231/06/2008.

Promat International Asia Pacific Organisations

For enquiry, please contact your nearest Promat office below or write to us at ptt@promat-ap.com

ASIA PACIFIC REGIONAL HEADQUARTERS, MALAYSIA

Promat International (Asia Pacific) Ltd.
Unit 19-02-01, Level 2 PNB Damansara
No.19 Lorong Dungun, Damansara Heights, 50490 KL
Tel: +60 (3) 2095 5111 Fax: +60 (3) 2095 6111

AUSTRALIA

Promat Australia Pty. Ltd.
1 Scotland Road, Mile End South, Adelaide, SA 5031
Tel: 1800 PROMAT Fax: +61 (8) 8352 1014

Promat Australia Pty. Ltd.
Unit 1, 175 Briens Road, Northmead, NSW 2152
Tel: 1800 PROMAT Fax: +61 (2) 9630 0258

Promat Australia Pty. Ltd.
3/273 Williamstown, Port Melbourne, VIC 3207
Tel: 1800 PROMAT Fax: +61 (3) 9645 3844

Promat Australia Pty. Ltd.
Locked Bag 8, Subiaco, WA 6904
Tel: 1800 PROMAT Fax: +61 1800 33 45 98

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

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

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

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
+91 (99) 6705 0813 (west) +91 (99) 8994 0505 (south)
Fax: +91 (11) 2577 8414

MALAYSIA

Promat (Malaysia) Sdn Bhd.
Unit 19-02-01, Level 2 PNB Damansara, No.19 Lorong Dungun
Damansara Heights, 50490 KL
Tel: +60 (3) 2095 8555 Fax: +60 (3) 2095 2111

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

VIETNAM

Promat International (Asia Pacific) Ltd. (Vietnam Representative Office)
Room 606 Giay Viet Plaza, 180-182 Ly Chinh Thang Street
Ward 9, District 3, Hochiminh City
Tel/Fax: +84 (8) 3931 5964 (south area) +84 (4) 3565 8677 (north area)
Hotline: +84 904 055 055