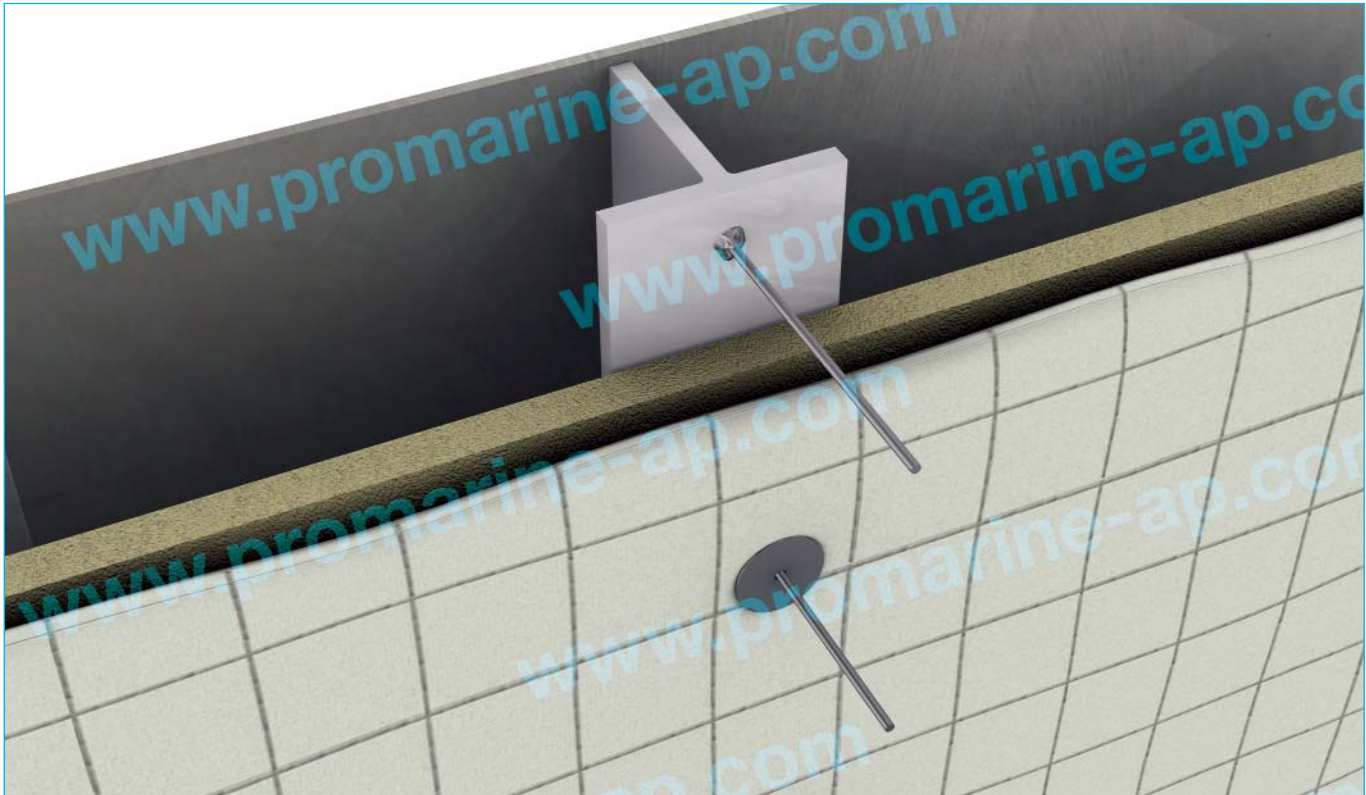


**Promat**



**PROMAGUARD® Flexible Microporous Insulation**  
**For Aluminium Bulkhead Structures: Restricted – Fire From One Side / A60 Rated**





## Specification Reference / Testing Standards

SOLAS 74 as amended in Consolidation Edition Reg II-2/3.2.5 IMO Res. A.754(18), IMO Res. MSC.61(67) Annex 1 Part 3.

## Material Description

- 1) Promat offer a fire protection system as a package of materials to be applied within the vessel's engine room or other compartments to meet fire protection requirements of up to A60 rating.
- 2) PROMAGUARD® is a flexible panel 10mm thick, made with a glass fabric material filled with a proprietary powder mixture and cross stitched on a 50mm x 50mm grid with kevlar thread.
- 3) Silomat is a 150kg/m<sup>3</sup> silica felt material being 10mm thick.
- 4) KA220 is a 220g/m<sup>2</sup> silica fabric.
- 5) High temperature resistant adhesive to be used to stick glass textile strips onto any cut edges or surface overlaps. Any type of marine approved adhesive can be used.
- 6) Steel insulation pins with aluminium cap to be spot welded to the aluminium surface to anchor the materials. Any type of pins used for marine fire resistant applications can be used.
- 7) Spring clip washers to fix material installed over the pins. Any type of washers which are used for marine fire resistant applications can be used.

## Installation Procedure

- 1) Anchorage pins to be spot welded with a grid of 300mm x 300mm approximately.
- 2) Washers should be pushed on to the pin before installing the insulation to protect the materials from any sharp edges at the base of the pin.
- 3) 10mm Silomat silica felt to be installed directly onto the surface of the stiffeners creating an air gap, with butt joints on the aluminium layer.
- 4) PROMAGUARD® panels on the fire side to be installed with 50mm overlaps in any direction.

- 5) When fitting is finished, panels on fire side to be covered with one layer of KA220 silica fabric.
- 6) Spring clip washers should be applied to fix the material.

## Suggestions For Installation

- 1) Anchorage pins to be spot welded with a grid of 300mm x 300mm approximately.
- 2) If cutting to size is necessary on-board, it can be achieved as follows:
  - make paper template
  - cut panel according to template
  - cut glass textile strip
  - glue glass strip on to all cut edges of the PROMAGUARD® material
- 3) PROMAGUARD® panel fire side face to be protected against water/oil ingress if no other material/finishing is applied. Promat can supply with applied foil facing, if required, at additional cost.
- 4) Products that can be used as water/oil proofing:
  - Paint (marine approved)
  - Aluminium foil 25 micron, adhesive fixed
  - Glass fabric, adhesive fixed

## Panel Maintenance

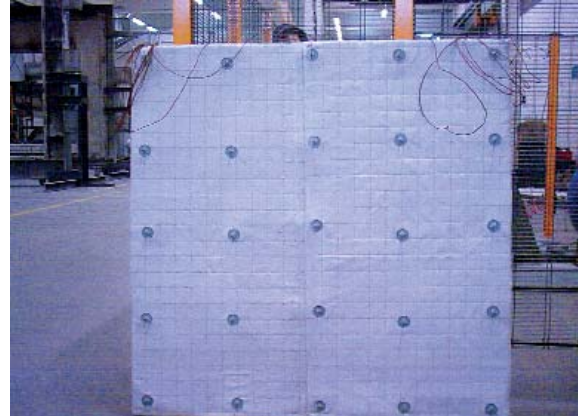
- 1) If PROMAGUARD® panels are damaged, cover the damaged area with a patch ensuring a minimum 50mm overlap to all edges is always applied.
- 2) Apply adhesive to both surfaces (damaged panel and repair patch).
- 3) The edges of the repair patch must be covered with the glass textile strip.
- 4) If the surface is water/oil treated, the repair patch must also be protected in the same manner. Panels must be repainted either when damaged or during standard maintenance as required by the paint manufacturer, to ensure a correct and continuous water proof covering.

### General Information

PROMAGUARD® is an insulating board of microporous core packed in a glass fabric and over stitched with glass fibre monofilament. It is manufactured from silicon carbide, fumed (amorphous pyrogenic) silica, silica or glass fibre filaments (nominal 6µm) and calcium sulfate. It is a manufactured article, not a substance nor a preparation.

Due to the light weight and flexibility of its material, a wide range of applications in marine fire protection will benefit from the use of PROMAGUARD®.

With regard to all statutory requirements for appropriate safeguards against exposing employees and the public to health and safety risks, the material safety data sheet (MSDS) can be found on [pages 4 and 5](#) and, as with any other materials, should be read before working with the PROMAGUARD® product.



### Typical Mechanical Properties

Classification temperature	Microporous core: 1000°C Glass cloth: 650°C
Nominal density (core)	200-280kg/m³
Glass cloth weight	210g/m²
Linear shrinkage at temperature	< 2% at 900°C
Specific heat	1.05 KJ/kgK
Thermal conductivity at mean temperatures of:	200°C: 0.022-0.025W/mK 400°C: 0.028-0.033W/mK 600°C: 0.035-0.039W/mK 800°C: 0.041-0.045W/mK
Typical composition (core)	SiC: 10-20% SiO₂: 70-90% CaO: 2-5%
Organic content	< Maximum 2%
Length x Width	1000mm x 500mm and 1200mm x 600mm, custom made sizes are available for request.
Thickness	6mm, 8mm, 10mm and 12mm
Tolerances	Length x Width: ± 3mm Thickness: ± 1mm

The above data is given in good faith and refer to test procedures based on internationally recognised testing methods. All results are subject to normal fluctuation during the production process. No warranty is given regarding specific performance without prior written approval of Promat. This data shall not be used for purposes of technical specification without authorisation of Promat.

PROMAGUARD® is manufactured under a quality management system certified in accordance with ISO9001: 2000 Certification. For further technical information, please consult Promat.

## 1. PRODUCT INFORMATION

<b>PRODUCT NAME</b>	PROMAGUARD®
<b>MARKETED BY</b>	Promat International (Asia Pacific) Ltd., Marine Division
<b>INTENDED USES</b>	Microporous insulating board used for fire protection.

## 2. COMPOSITION

<b>DESCRIPTION</b>	Insulating board of microporous core packed in a cloth and over stitched.
<b>CHEMICAL CHARACTERISTICS</b>	This product is a manufactured article, not a substance or a preparation. It is manufactured from silicon carbide, fumed (amorphous pyrogenic) silica, silica or glass fibre filaments (nominal diameter 6µm) and calcium sulfate. The product is packed in a glass fabric and over stitched with glass fibre monofilament.

## 3. HAZARDS IDENTIFICATION

<b>INDICATION OF THE HAZARDS</b>	No hazards known in the installed product in its final application. By machining (drilling, cutting, sanding etc.) the product, airborne dusts can be released. As with most types of nuisance dust, excessive inhalation of dust may cause irritation of the airways. Eye contact with dust may lead to transient eye irritation or inflammation. Prolonged skin contact may lead to skin irritation.
<b>SPECIAL RISK INFORMATION</b>	See <b>SECTIONS 7 &amp; 8</b> .

## 4. FIRST AID MEASURES

<b>SKIN CONTACT</b>	Rinse with water.
<b>EYE CONTACT</b>	Do not rub the eye, rinse out. If eye irritation or inflammation persists, see medical advice.
<b>INHALATION</b>	Remove to fresh air and drink water.
<b>INGESTION</b>	Drink water.

## 5. FIRE FIGHTING MEASURES

The product is non combustible according to the local non combustibility standard.

## 6. ACCIDENTAL RELEASE MEASURES

<b>CLEAN UP METHODS</b>	Shovel up small pieces. Dampen down any dust before putting into open skip.
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## 7. HANDLING AND STORAGE

<b>HANDLING</b>	Dust generated during machining and processing must be exhausted and the regulatory Workplace Exposure Limits (WEL) for total and respirable dust must be respected. Work in a well ventilated area. Use tools with appropriate dust exhaust equipment. When total dust concentration is higher than WEL of the local regulations or when dust extraction is not available, use individual respiratory protective equipment. Collect dust with a vacuum cleaner or soak with water before sweeping up.
<b>STORAGE</b>	Store in dry, covered and frost proof area.

The information supplied in this Material Safety Data Sheet is designed only as guidance for the safe use, storage and handling of the product. This information is correct to the best available knowledge and belief at the date of publication. However, no guarantee is made to its accuracy. This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any other process. For further technical information, please consult your nearest Promat office.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

When machining (drilling, cutting, sanding etc.) boards, respect WEL for inhalable and respirable dust. Check the latest WEL for airborne contaminants that are applicable locally. For amorphous pyrogenic silica, a typical WEL limit is 2mg/m<sup>3</sup> for the respirable fraction. The product does not contain glass or silica fibres with a diameter under 3µm and a length between 5µm and 100µm and are therefore not respirable. Typical WEL of 8 hours TWA on the date of publication of this Material Safety Data Sheet are:

Particles NOR <sup>(1)</sup> (mg/m <sup>3</sup> )	Fraction	Country <sup>(2)</sup>												
		AT	BE	CH	DE <sup>(3)</sup>	DK	ES	FR	IE	IT	LU <sup>(3)</sup>	NL	SE	UK
		Inhalable	15	10	10	10	10	10	10	10	10	10	10	10
Respirable	6	3	3	3	5	3	5	4	3	3	5	5	4	

<sup>(1)</sup> Particles not otherwise classified or regulated (nuisance dust). Applies for all other components in the product.

<sup>(2)</sup> Country abbreviations on basis of Internet Assigned Numbers Authority (IANA).

<sup>(3)</sup> Source from TRGS 900.

### ENGINEERING MEASURES

Ensure vacuum dust exhaust with correct filter when using motorised machining tools.

### RESPIRATORY PROTECTION

Use approved individual respirators, e.g. disposable P2 types, whenever WEL are or can be foreseen to be exceeded.

### EYE PROTECTION

Use safety glasses whenever tools are used and dusts are produced.

### SKIN PROTECTION

Use working clothes and gloves to protect against mechanical injury and direct skin contact.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### DESCRIPTION

Slab

### COLOUR

Off white

### ODOUR

None

### pH

Not applicable when taken into an aqueous solution

### RELATIVE DENSITY

ca. 230-280kg/m<sup>3</sup>

### WATER SOLUBILITY

Insoluble

## 10. STABILITY AND REACTIVITY

No data is available on this product.

## 11. TOXICOLOGICAL INFORMATION

### ACUTE TOXICITY

These microporous boards are not expected to have significant acute toxicity. Apart from mild skin, throat, airway or eye irritation, workers producing these boards have reported no significant health complaints.

### FURTHER INFORMATION

Bruch and other researchers at the German Institute for Hygiene and Industrial Medicine at the University of Essen, have found no toxic effects and concluded that SiC is deposited practically inert in the lungs. This study has been published in the British Journal of Industrial Medicine 1993, Vol 50, Book 9, Part 1, pages 797-806 and Part 2, pages 807-813 under the title *Toxicological Investigations on silicon carbide, inhalation studies; in vitro cell tests and long term injection tests*.

## 12. ECOLOGICAL INFORMATION

No data is available on this product.

## 13. DISPOSAL CONSIDERATIONS

### PRODUCT DISPOSAL

Handle as construction industry waste and dispose in accordance with local legislation.

### PACKAGING DISPOSAL

Dispose according to local legislation.

## 14. TRANSPORT INFORMATION

The product is not classified as dangerous in the meaning of transport regulations.

## 15. REGULATORY INFORMATION

The product is classified in accordance with 67/548/EEC.

The information supplied in this Material Safety Data Sheet is designed only as guidance for the safe use, storage and handling of the product. This information is correct to the best available knowledge and belief at the date of publication. However, no guarantee is made to its accuracy. This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any other process. For further technical information, please consult your nearest Promat office.



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Notification N°0987

MED annex A.1 item: A.1/3.11 (a)  
**Certificate N°0987/MED/134**

### EC TYPE-EXAMINATION CERTIFICATE ( Module B )

**Application Of:**

Council Directive 96/98/EC of 20 December 1996 On Marine Equipment ( MED ) as modified by Commission Directives 98/85/EC, 2001/53/EC and **as amended by Commission Directive 2002/75/EC**

#### Certificate N° 0987/MED/134

This Certificate consists of 2 pages

This is to certify that the product

#### **FIRE BLOCK**

MED annex A.1 item: 3.11 (a)

Product type:

#### **"A" Class divisions, fire integrity**

Manufactured by:

#### **KLEVERS ITALIANA Srl**

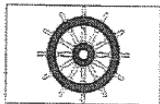
Loc. Squillace, 25 int.6 - 80022 Arzano (NA)

Complies with the requirements in the following Regulations/Standards:

#### **Annex B, Module B in the above Directive and as applicable:**

- SOLAS 74 as Amended in Consolidated Edition Reg II-2/3.2.5
- IMO Res A.754(18), IMO Res MSC. 61(67) Annex 1, Part 3

Further details of the product and conditions for certification are given overleaf



The Manufacturer is allowed to affix the Mark of conformity according to the Article 11 in the Council Directive 96/98/EC on Marine Equipment and issue a Declaration of Conformity, only when the Module D or E or F of Annex B in the same Directive is fully complied with.

Place and Date : Prato, 20/12/2007

Signature : Director of Notified Body N°0987  
 di GianCarlo Borsini

This certificate is valid until 19/12/2012

This Certificate is issued under the Authority of Ministero delle Infrastrutture e dei Trasporti - Comando Generale del Corpo delle Capitanerie di Porto  
 according to Decreto Ministeriale 16 Giugno 2004 N° 236





Notification N°0987

MED annex A.1 item: A.1/3.11 (a)  
Certificate N°0987/MED/134

**Product description:**

"FIRE BLOCK" is composed of a 3 mm thick aluminium alloy bulkhead insulated on the stiffened side (exposed side) applied as follow:

- First layer in contact with the stiffeners realized with panels in silica needled mat named "SILOMAT HT 1000", dimension 2420x950 mm and 10 mm thick, placed with its own long side parallel to the short side of the bulkhead and assembled with approximately 50 mm of overlap;
- second layer, in contact with the first one, realized with panels named "PROMAGUARD®", dimensions 650x1200 mm 10mm thick and density 240 kg/m<sup>3</sup>, assembled between them with 50 mm overlap system, with its own long side parallel to the short side of the bulkhead;
- tape in silica fibre, called "KA 220" thickness 0,27 mm and weight 220 g/m<sup>2</sup> to close all the joints; it has been glued with adhesive called "FOSTER SEALFAS COATING 30,36", with total weight of 120 Kg/l;
- External finishing made of silica fibre panels called "KA 220" thickness 0,27 mm and weight 220 g/m<sup>2</sup>.

The installation is to be performed according to the manufacturer's assembling instruction, reference n. 01 rev. 0, issued 18 December 2007.

**Installation:**

The insulating system has been fixed to the bulkhead through metallic pins and steel washers; in order to protect the pins silica fabric stripes, called "KA 220" thickness 0,27 mm and weight 220 g/m<sup>2</sup>, were glued with adhesive called "FOSTER SEALFAS COATING 30,36", with total weight of 120 Kg/l

**Bulkhead description:**

- aluminium panel thickness 3 mm and dimensions of 3020x2420 mm;
- stiffeners realized with profiles with "TL" section with maximum dimensions of 50x50 mm and 5 mm of thickness and placed at 300 mm of placed in parallel with the short side of the same bulkhead;
- external profile with "L" section dimensions 50x50 mm and thickness 5 mm and length of 3020 and 2420 mm respectively.

**Design drawings and Specifications:**

Dwg. N. 2006-05-02-001176 Rev.01 of 08/08/06.

Manufacturer's assembling instruction, reference n. 01 rev. 0, issued 18 December 2007.

**Application/Limitations of Certification:**

Approved for use as a fire retarding division of class A-60 for restricted application: Fire hazard from the insulated side only.

The insulation used have to be approved according to Marine Equipment Directive and bear the Mark of Conformity. Each product is to be supplied with its manual for installation and maintenance

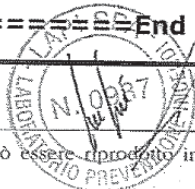
**On board installation:**

The fitting aboard to be the same as used for the test. This approval is given on the understanding that the manufacturer will accept full responsibility for informing shipbuilders or their sub-contractors of the proper methods of fitting and general maintenance of the approved equipment and the conditions of this approval.

**Type approval documentation**

Product	Test Report	Issued by
FIRE BLOCK	037-60WLF010/06 - Fire Resistance Test on a A Class Division	W.L.F. Warrington Lapi Fire Srl

===== End of Document =====



Please contact your nearest Promat Marine Division

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For latest information of the Promat Asia Pacific organisation, please refer to [www.promarine-ap.com](http://www.promarine-ap.com).

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