



Technical Specifications

Promaguard SFP Panels

PROMAGUARD® is an extremely light weight structural fire protection and thermal insulation for use in aluminum, steel, GRP, and wood vessels of all sizes. The proprietary technology used in the construction of PROMAGUARD® achieves the same ratings of traditional materials with reduced volume of insulation saving both weight and space.

PROMAGUARD® is a last generation material by Promat for thermal insulation and passive fire protection, developed with a microporous grains technology and the use – in its formulation – of patented molecules called Promaxon . Thanks to its exclusive mineral and not fibrous composition, PROMAGUARD® grants advantages and technical characteristics that make it safe and unique for fire protection and efficient thermal insulation on ships, yachts, trains, plants for alternative energies, saving weight and reducing thickness by up to 4 times, if compared to traditional materials and solutions.



In particular, in the marine market, PROMAGUARD® is the most technologically advanced and successful solution, thanks to certifications issued by Naval Registers, for passive fire protection of decks and bulkheads in aluminum, steel GRP and wood.

Characteristics

- Extremely light weight
- High insulatory values in relation to thickness
- Non-fibrous
- Nontoxic
- Not a hazardous material
- Flexible

Advantages

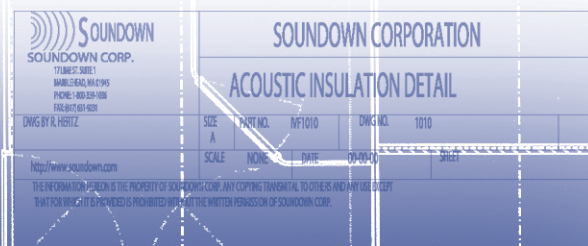
- Achieves A, B, & C ratings lower weights than traditional materials.
- Reduce thickness of SFP treatments by as much as 75%.
- Easy to install
- Certificates from all major classification societies
- Flexible



2012.1.A

8" ID (203,2mm) ENGINE EXHAUST PIPE

DUAL-LIFT (0.123m)



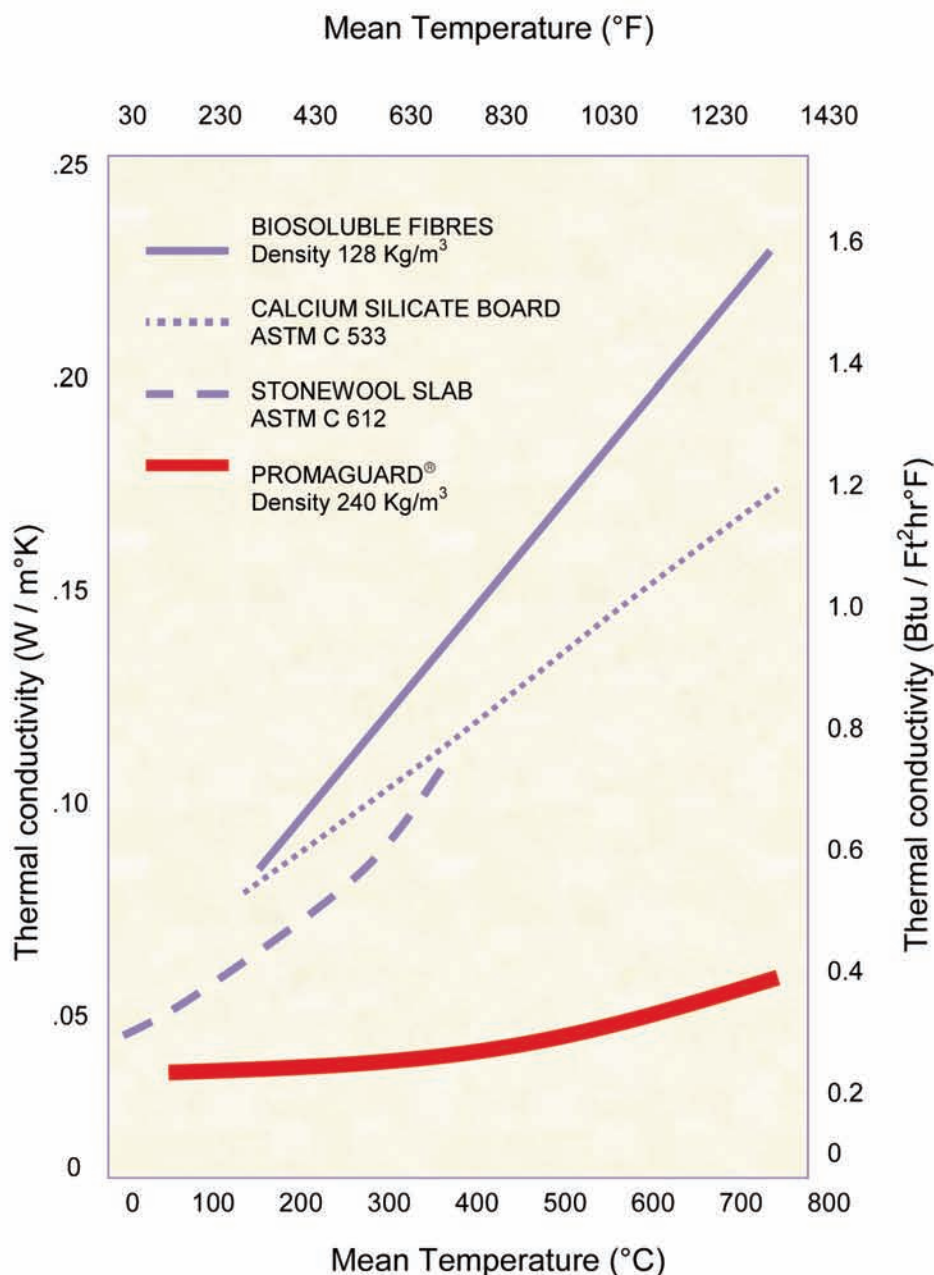
High performance acoustic, thermal and fire insulation

Thermal characteristics

PROMAGUARD® has the lowest thermal conductivity values, if compared with the most qualified traditional products available on the market, which do not grant the same insulation level as to heat radiations. See chart herebelow.

The chart shows that PROMAGUARD® in thickness 10mm produces (in relation with density and temperature) a reduction in the irradiated heat and an insulation that would be achieved by 50mm of good quality fibrous material.

Hence, PROMAGUARD®, with a weight of 2,4 Kg/m² for 10mm thickness, can grant the best performances and can achieve A60 Class fire protection.



High performance acoustic, thermal and fire insulation

Technical characteristics

Aspect: Flexible mat composed of microporous molecules in white glass cloth, sewed by means of Kevlar threads (picture page 1)

Temperature classification of the main components:

Microporous core	°C	1000
Glass cloth	°C	650
Kevlar thread	°C	400

Nominal density (microporous core)	Kg / m ³	240 ± 10%
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Glass cloth weight	gr / m ²	210
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Weight/thickness reduction (mean temperature)	%	< 2 % at 900°C
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Specific heat	K j / kg K	1.05
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Thermal conductivity in relation to temperature:

200°C	W / m°K	0.022 ÷ 0.025
400°C	W / m°K	0.028 ÷ 0.033
600°C	W / m°K	0.035 ÷ 0.039
800°C	W / m°K	0.041 ÷ 0.045

Composition (microporous core)

SiC	%	10 ÷ 20
SiO ₂	%	70 ÷ 90
CaO	%	2 ÷ 5

Combustibility	Non combustible
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Standard dimensions

Length (mm)	Width (mm)	Thickness (mm)
1200	600	6 – 10 - 15

Tolerances:

Thickness:	+ 1mm
Length and width:	+ 3mm

Workability



PROMAGUARD® can be easily cut with manual cutters and installed onto the surfaces to be insulated by metallic pins.

When PROMAGUARD® panel is cut, the edge must be sealed by gluing glass cloth on it. All these items – upon request – can be supplied by Promat.

High performance acoustic, thermal and fire insulation

Fire tests

PROMAGUARD® has been tested for more than 3 months in our laboratories (Tisselt - Belgium) giving very positive results, that have then been acknowledged by primary Naval Registers such as RINA, LAPI and MCA:

Steel deck and bulkhead: **A30 - A60**
 Aluminium deck and bulkhead (fire on one or both sides): **A30 - A60**
 Sandwich and laminated GRP deck and bulkhead: **B15 - A30 - A60**
 Wooden bulkhead (fire on one or both sides): **A60**



PROMAGUARD® has M.E.D. & USCG Non Combustible Certification

Fig 2: Temp Hot Face GRP

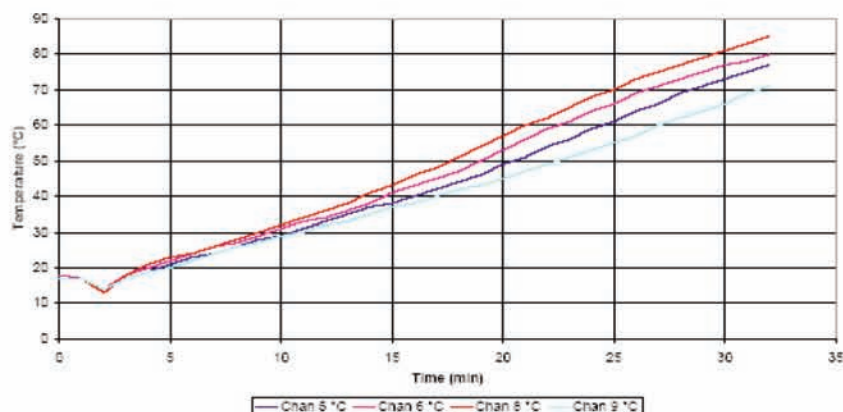
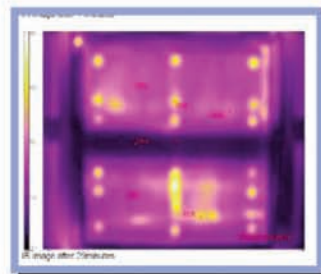
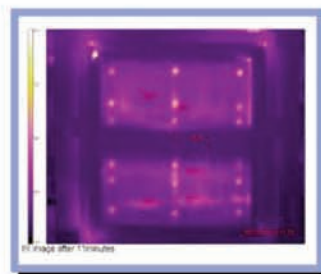
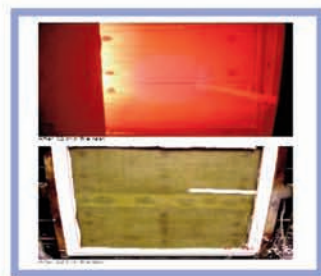
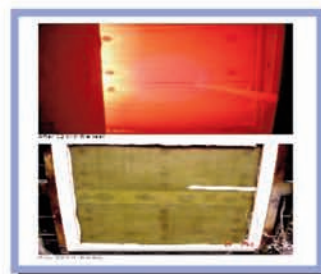
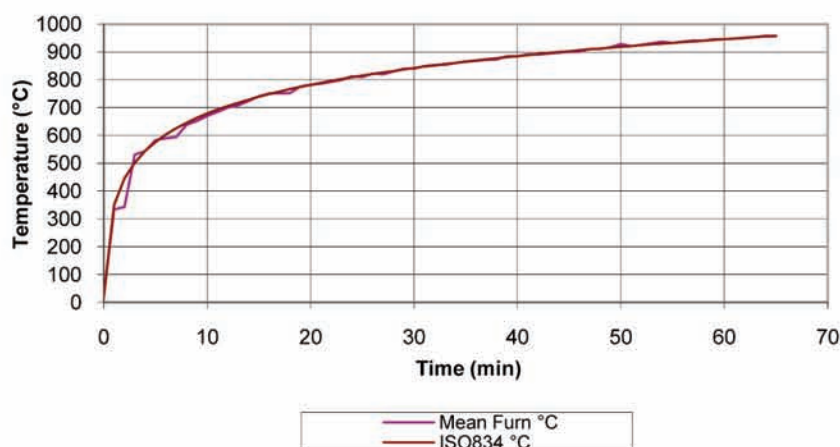


Fig 1: Furnace temperature



High performance acoustic, thermal and fire insulation

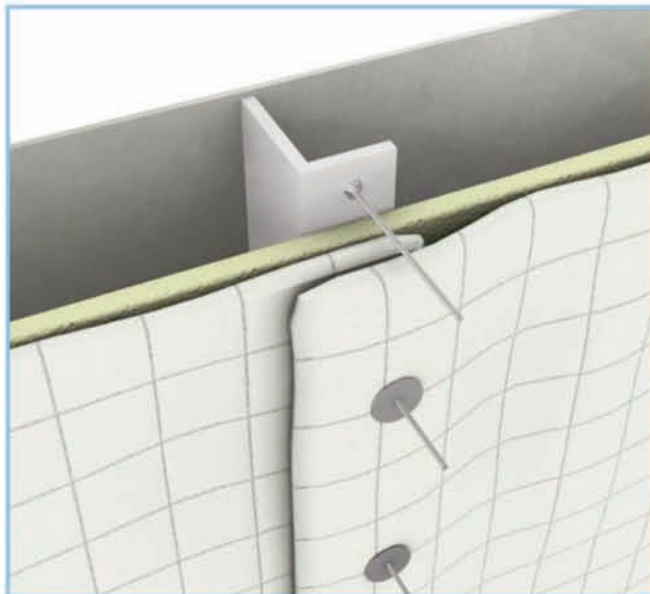
A Class certifications on steel

Steel Deck– A-60 Class



PROMAGUARD® th. 10mm + glass cloth 220gr/m²
Air gap solution

Steel Bulkhead – A-60 Class



PROMAGLAF®WB th. 10mm + PROMAGUARD® th. 10mm + glass cloth 220gr/m²
Air gap solution

Steel Bulkhead –A-30 Class



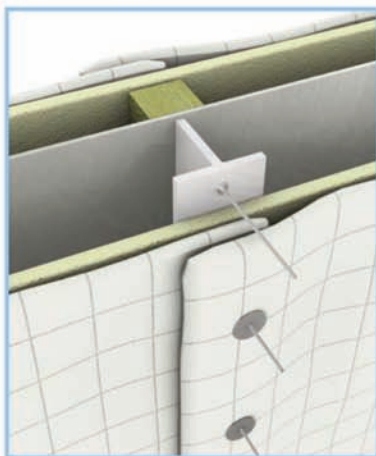
PROMAGUARD® th. 6mm on stiffeners + PROMAGUARD® th. 10mm on steel plate
+ glass cloth 220gr/m² - Contact solution

High performance acoustic, thermal and fire insulation

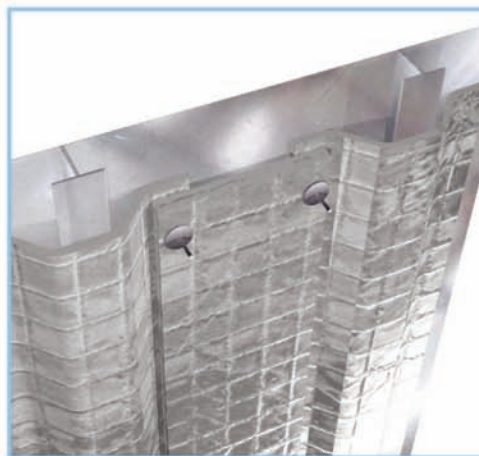
A Class certifications on aluminium

Aluminium bulkhead – A-60 – fire on both sides

Aluminium bulkhead –A-30 Class restricted

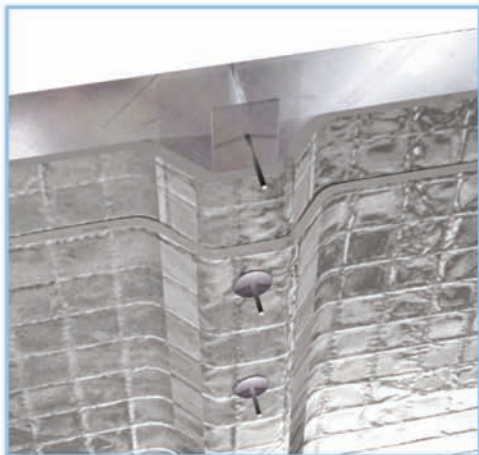


PROMAGLAF®WB th. 20mm + PROMAGUARD® th. 10mm + glass cloth 220gr/m²
On both sides – Air gap solution



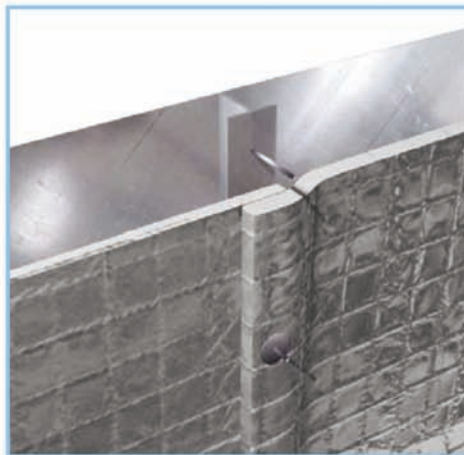
PROMAGUARD® th. 10mm on stiffeners + PROMAGUARD® th. 15mm on steel plate
Panels coated with aluminium foil
Contact solution

Aluminium Bulkhead – A-60 Class restricted



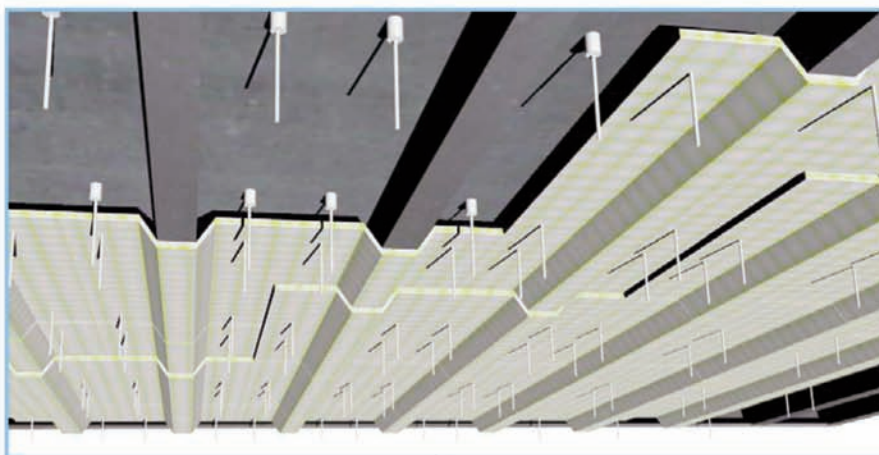
PROMAGUARD® with alufoil th. 10mm + 10mm
Contact solution

Aluminium Deck & Bulkhead – A-60 Class restricted



PROMAGUARD® with alufoil th. 15mm
50mm air gap solution

Ponte in Alluminio – Classe A-60 restricted



PROMAGUARD® sp. 10mm + 10mm
Contact solution – butt-joint / not overlapped slabs

High performance acoustic, thermal and fire insulation

A and B Class certifications on GRP

Laminated GRP – B-15 Class



PROMAGUARD® with alufoil th. 10mm + 10mm
MCA approved
Contact solution

Laminated GRP – B-15 Class



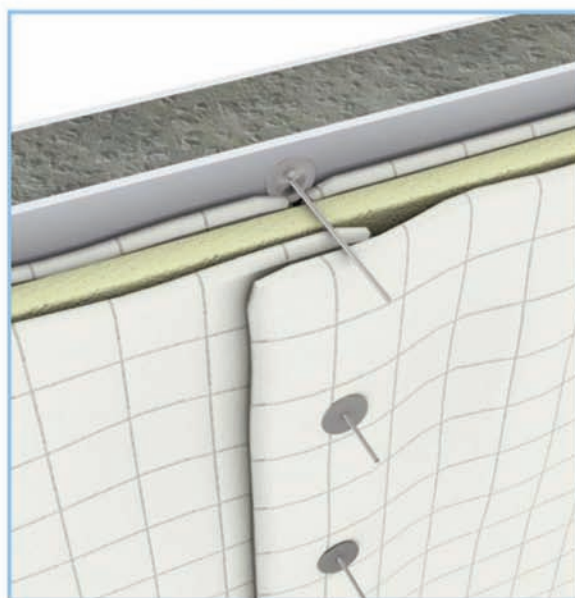
PROMAGLAF® WB th. 15mm + PROMAGUARD® th. 10mm
MCA approved
Contact solution

Laminated GRP – A-60 Class



PROMAGUARD® th. 10mm + PROMAGLAF® WB th. 20mm
+ PROMAGUARD® th. 10mm – MCA Approved
Contact solution

Sandwich GRP – B-15 Class



PROMAGUARD® th. 10mm + PROMAGLAF® WB th. 15mm
+ PROMAGUARD® th. 10mm – MCA approved
Contact solution

High performance acoustic, thermal and fire insulation

A-Class certification on wood

Wood Bulkhead – A-60 Class



HPL laminate + Okumé th. 4mm + cork panel th. 10mm +
PROMAGUARD® th. 10mm +
Cork panel th. 10mm + Okumé th. 4mm + HPL laminate

Incombustibility certifications PROMAGUARD® and PROMAGUARD® Alu

warrington
certification

United Kingdom of Great Britain and Northern Ireland
CERTIFICATE OF TYPE APPROVAL

Certificate Number: 164.109/1121/WCL MED0300TE

Applicant: Microtherm N.V. Manufacturer: Microtherm N.V.
Address: Industriepark-Noord 1 Industriepark-Noord 1
9100 Sint-Niklaas Belgium 9100 Sint-Niklaas Belgium

Annex A1 Item No and Item Designation: A.1/3.13 Non Combustible Materials

This is to certify that the applicant has submitted details of an insulation product known and designated as:

Promaguard Panel

having the technical specification given in the schedule of equipment on this certificate which has been tested and complies with the recommended criteria given in the following methods, published by the International Maritime Organisation, and which are contained in the relevant parts of the International Code for Application of Fire Test Procedures (FTP Code) namely:-

BHD Resolution MSC.41(57) Annex 1, Part 1
BHD MSC Doc. 1120

This certificate is issued on behalf of the Maritime and Coastguard Agency (MCA). The system complies with the relevant international testing standards under which legislation (The Merchant Shipping (Marine Equipment) Regulations 1999 and also the Marine Equipment Directive 96/96 amended by Directive 98/91, Directive 2002/73 and Directive 2008/57) the certificate is issued.

C Hughes
Manager
Warrington Certification Limited
Harmesfield Road
Warrington WA1 2DS

Date of Issue: 24th January 2011
This certificate is valid until 23rd January 2016

This certificate is not valid for equipment, the design or manufacture of which, has been varied or modified from the specimens tested.

mca
Maritime and Coastguard Agency

LAPI
LAPI S.p.A. - Via S. Giovanni 10 - 16121 Genova (GE) - Italy
Tel: +39 010 5511111 - Fax: +39 010 5511112 - Email: info@lapi.it
Web: www.lapi.it

Notification N° 0987 MED annex A.1 Item: A.1/3.13 Certificate: 16/2008/1602.8/2008

MRA Mutual Recognition Agreement on Marine Equipment EC-US

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 Directive 2002/73/EC and 2008/57/EC and amended by DIRECTIVE 2009/24/EC of 8th April 2009

Certificate N° 0987 / MED-B/308

This Certificate consists of 2 pages
This is to certify that the product:

PROMAGUARD® ALU
(Thickness 10 mm)

MED annex A.1 Item: A.1/3.13
Product type: **NON-COMBUSTIBLE MATERIALS**

Sponsor:
Promat Research and Technology Centre NV
Bornestraat, 24 - B-2830 Freixele - Belgium

Manufacturer:
Promat S.p.A.
Corso Pagani, 36/2 - 16125 GENOVA (GE) - ITALY

Complies with the requirements in the following Regulations/Standards:
Annex B, Module B in the above Directive and as applicable:

- Reg. 96/98/EC, Annex 1, Part 1, 2.1.3.3, 2.1.3.4, 2.1.3.5, 2.1.3.6, 2.1.3.7, 2.1.3.8, 2.1.3.9, 2.1.3.10, 2.1.3.11, 2.1.3.12, 2.1.3.13, 2.1.3.14, 2.1.3.15, 2.1.3.16, 2.1.3.17, 2.1.3.18, 2.1.3.19, 2.1.3.20, 2.1.3.21, 2.1.3.22, 2.1.3.23, 2.1.3.24, 2.1.3.25, 2.1.3.26, 2.1.3.27, 2.1.3.28, 2.1.3.29, 2.1.3.30, 2.1.3.31, 2.1.3.32, 2.1.3.33, 2.1.3.34, 2.1.3.35, 2.1.3.36, 2.1.3.37, 2.1.3.38, 2.1.3.39, 2.1.3.40, 2.1.3.41, 2.1.3.42, 2.1.3.43, 2.1.3.44, 2.1.3.45, 2.1.3.46, 2.1.3.47, 2.1.3.48, 2.1.3.49, 2.1.3.50, 2.1.3.51, 2.1.3.52, 2.1.3.53, 2.1.3.54, 2.1.3.55, 2.1.3.56, 2.1.3.57, 2.1.3.58, 2.1.3.59, 2.1.3.60, 2.1.3.61, 2.1.3.62, 2.1.3.63, 2.1.3.64, 2.1.3.65, 2.1.3.66, 2.1.3.67, 2.1.3.68, 2.1.3.69, 2.1.3.70, 2.1.3.71, 2.1.3.72, 2.1.3.73, 2.1.3.74, 2.1.3.75, 2.1.3.76, 2.1.3.77, 2.1.3.78, 2.1.3.79, 2.1.3.80, 2.1.3.81, 2.1.3.82, 2.1.3.83, 2.1.3.84, 2.1.3.85, 2.1.3.86, 2.1.3.87, 2.1.3.88, 2.1.3.89, 2.1.3.90, 2.1.3.91, 2.1.3.92, 2.1.3.93, 2.1.3.94, 2.1.3.95, 2.1.3.96, 2.1.3.97, 2.1.3.98, 2.1.3.99, 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High performance acoustic, thermal and fire insulation

A-Class certification on wood

Wood Bulkhead – A-60 Class



HPL laminate + Okumé th. 4mm + cork panel th. 10mm +
PROMAGUARD® th. 10mm +
Cork panel th. 10mm + Okumé th. 4mm + HPL laminate

Incombustibility certifications
PROMAGUARD® and PROMAGUARD® Alu

 warrington certification	
Register No. 1111 UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND CERTIFICATE OF TYPE APPROVAL (In Accordance with European EN 12101-1 (European Product A1))	
Certificate Number: 164.109/1121/WCL MED0309TE	
Applicant: Microtherm N.V. Address: Industriepark Noord 1 9100 Sint-Niklaas Belgium	Manufacturer: Microtherm N.V. Industriepark Noord 1 9100 Sint-Niklaas Belgium
Annex A1 Item to and Item Designator: A.121.13 Non Combustible Materials	
This is to certify that the applicant has submitted details of an insulation product known and designated as:-	
Promaguard Panel	
Having the technical specification given in the schedule of equipment on this certificate which has been tested and complies with the recommended criteria given in the following methods, published by the International Maritime Organisation, and which are contained in the relevant parts of the International Code for Application of Fire Test Procedures (FTP Code) namely:-	
BFD Resolution MSC.62(67) Annex 3, Part 1. BFD MSC Circ. 1126	
This certificate is issued on behalf of the Maritime and Coastguard Agency (MCA). The system complies with the relevant international testing standards under which legislation (The Maritime Safety Equipment Regulations 1996 and also the Marine Equipment Directive MSCs amended by Directive 98/66, Directive 2001/33, Directive 2002/75 and Directive 2008/57) the certificate is issued.	
	
C. Hughes Manager Warrington Certification Limited Homestead Road Warrington WA1 2DS	
Date of Issue: 24 th January 2011 This certificate is valid until 23 rd January 2016	
This certificate is not valid for equipment, the design or manufacture of which, has been varied or modified from the specimens tested.	
 Maritime and Coastguard Agency	

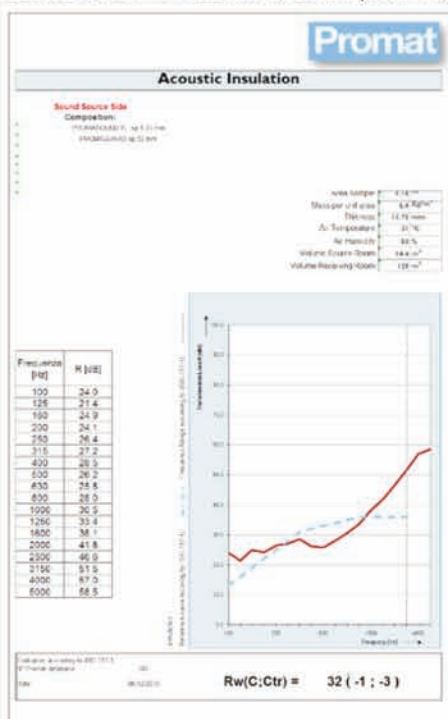
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High performance acoustic, thermal and fire insulation

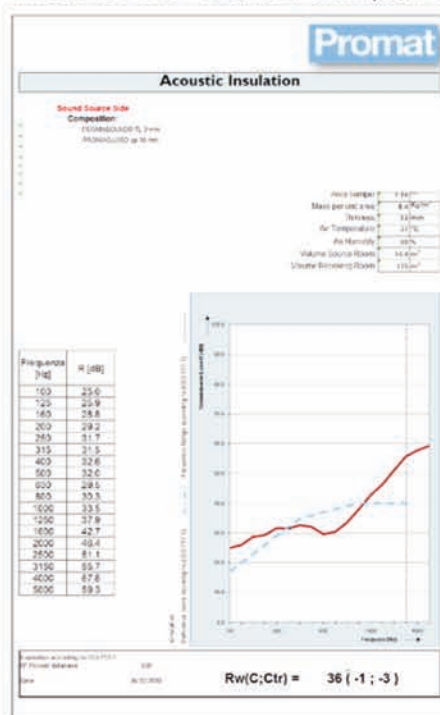
Acoustic Insulation

PROMAGUARD® with PROMASOUND® TL represent SYNTHESIS®, the ideal “synthesis” of fire and acoustic insulation. Other even better performances for specific fire protection solutions will be available or studied upon request, depending with the specific interventions required.

Insulation by PROMAGUARD® thickn. 10mm with
PROMASOUND® TL thickn. 1,75mm (total 11,75mm)



Insulation by PROMAGUARD® thickn. 10mm with
PROMASOUND® TL thickn. 3mm (total 13mm)



SYNTHESIS®: PROMAGUARD® thickn. 10mm
with PROMASOUND® TL thickn. 1,75 or 3mm



SYNTHESIS®

The acoustic and fire protection solution



- ✓ Surface acoustic treatment by PROMASOUND® TL (several solutions with different weights available).
- ✓ Fire protection by one or more layers of PROMAGUARD® (coated or not with Aluminium foil).
- ✓ Thermal treatment under PROMAGUARD® by PROMAGLAF® WB with different finishes and thicknesses, for a complete insulation system.
- ✓ The installation of SYNTHESIS® can be done with metallic pins glued or welded onto the surface that must be insulated

High performance acoustic, thermal and fire insulation

Typical applications - examples

Air duct in engine room



Deck or Bulkhead insulated by SYNTHESIS®



A60 plastic penetrations
on bulkhead by UNICOLLAR®



Facing treatment of PROMAGUARD® with
Aluminium foil



Engine room on yacht – insulated by PROMAGUARD®



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