



THERMAL INSULATION FOR THE NAVAL SECTOR



THERMAL INSULATION FOR THE NAVAL SECTOR navycell®

Navycell® is a light grey product, consisting of an insulating polyolefin-based layer (polyolefins include PE, PP, copolymers, EVA etc.), chemically cross-linked and closed-cell foamed, therefore laminated with a 50 µm smooth aluminium layer. The product, glued inside and outside the ducts, has high flame resistance thanks to being sandwiched between two fire-proof surfaces.

Navycell® is expressly designed and developed for use in applications requiring special safety measures, such as naval structures. Under constant supervision by the Det Norske Veritas (DNV) certifying body, the product meets all the requirements set by the **European Directive - "Council Directive 96/98/EC on Marine Equipment"** - therefore, the material has got the certificate MED-B-4239 and the nomenclature thereof.

Version: 12/2001			
TECHNICAL DATA SHEET			
can not be considered specification document			
Density: kg/m³	30	Type:	CL1 Alu/Liscio
PROPERTIES	METHOD	UNIT	VALUES
Density*	ISO 845	Kg/m³	29.1
Tensile Strength*	Longitudinal Trasversal	ISO 1798 MPa MPa	0.25 0.25
Elongation at break*	Longitudinal Trasversal	ISO 1798 % %	116 120
Compression Stress Strain* at deflection	10% 25% 50%	ISO 3386 KPa	16.6 35.7 94
Dimensional stability*	ISO 2796	°C	95
Compression Set 22h, 25%, 23°C* after compression release	0.5 h. 24 h.	ISO 1856 %	16.6 8.1
Council Directive 96/98/EC 20/12/1996 on Marine Equipment	Annex A.1, Item No. A. 1/3.18 and Annexe B, Module B	DNV Cert No. MED-B-4239	
Low Flame Spread	Thickness 20 mm	IMO Resolution A653 (16)	Passed
Optical Density	Res. MSC.61(67) Annex 1, part2 par. 2.6.1 and 2.6.2	ISO 5659-2	Passed
Optical Density	Res. MSC.61(67) Annex 1, part2 par. 2.6.1 and 2.6.2	ASTM E 800 (88)	Passed
Conditioning	72h at a temperature of 23°C ±2 and 34% ±5 relative humidity		

*: Tested on foam

CHARACTERISTICS OF FOAM USED

Properties	Norm	Unit	Navycell TR CL1/ALU
Reaction to fire	UNI 8457 / UNI 9174		Class 1
Thermal conductivity at 0 °C (λ)	EN 12667	W/mK kcal/mh°C	0.0344 0.0296
Thermal conductivity at 40 °C (λ)	EN 12667	W/mK kcal/mh°C	0.0372 0.0320
Water vapour diffusion coefficient	EN 12086 EN ISO 12572	µ	> 65.000
Density	EN ISO 845	kg/m³	30
Thickness	EN ISO 1923	mm	3 - 30 (see BASIC specifications)
Colour	BASIC specifications		Pale grey
Compressive stress strength at 10%	EN ISO 3386/1	g/cm²	190
Water vapour permeability	EN ISO 12572	ng/Pa s m	0,12
Water absorption after 28 days	ISO 2896	Vol.%	< 3
Dimensional stability (< 5%)	ISO 2796	°C	100
Max utilisation temperature		°C	-80 ÷ +100
Utilisation temperature with mechanical stress		°C	-40 ÷ +100

STORAGE, INSTALLATION, USE AND MAINTENANCE RECOMMENDATIONS

TROCELLEN CL1 ALU and **TROCELLEN** Smooth ALU Tape must only be stored, fitted and looked as explained below:

- The ideal storage temperature should always be kept within 10 °C - 25 °C. The thermal fluctuation may affect the adhesive properties of the material.
- Do not store the material outdoors; Protect it from dust, direct sunlight and humidity.
- When installing the material, the temperature range shall be between 20 °C - 35 °C.
- Before installing the material, clean and remove grease of all surfaces. Use a dry cloth only. Do not use solvents or aggressive products to clean the surfaces.
- During the material installation practice even pressure to ensure the perfect adhesion to the surface and remove any possible air bubbles.
- Before installing the material, you can cut it to the size and shape required to ensure full adhesion to the surface below.
- This product must not be painted.
- Limited damage of the material surface shall be repaired and sealed using **TROCELLEN** Smooth ALU Tape only.

In case of serious damage, blisters or peeling, replace the material after cleaning and removing grease from the surface.

- **TROCELLEN** 30 CL1 ALU is used to insulate piping of "cold" systems; Any other application is not guaranteed.
- **TROCELLEN** Smooth ALU Tape guarantees a perfect finish and insulation for joints: The efficiency and safety of any other product is not guaranteed. Use **TROCELLEN** Smooth ALU Tape only: **never use any other material to join, repair, install and finish TR 30 CL1 ALU Smooth.**

Non-observance of the above recommendations renders the product warranty null and void.

ONBOARD USE

- Insulation of all air ducts.
- Cold utility piping.
- Onboard refrigeration systems.
- Refrigerating compartments.
- Service areas and external uses.

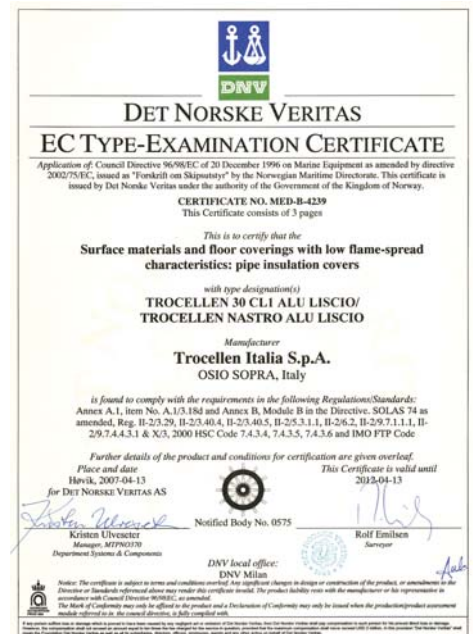
NAVYCELL



DNV CERTIFICATION

DNV certification also regulates the onboard applications of the product:

- Approved for use as a low flame diffusion insulating material; does not generate excessive fumes or toxic products in the event of fire;
- The material is not defined as non-combustible;
- **Navycell**® can be used on cold utility pipes and is suitable for onboard refrigeration systems throughout the craft, for working pipes, systems, air conducts and tanks in the cargo holds, main salons, refrigerating compartments, service areas and for external uses;
- Other uses may be considered on a case-to-case basis.



DNV Certificate

ROLLS

Thickness (mm)	Large rolls (m ²)	Small rolls (m ²)
3	225	75.0
6	225	75.0
8	150	75.0
10	120	60.0
12	135	45.0
16	75	37.5
20	60	30.0

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