ama®

ADVANCED MATERIALS

TECHNICAL DATASHEET

AEROPAN NANOTECH THERMAL INSULATION

AEROGIPS NANOTECH INSULATION BOARD

AEROPROOF ROOF THERMAL NANOTECH INSULATION

AMAGEL A2 NEW NANOTECH THERMAL INSULATION

AEROPAN VP ALTA TECNOLOGIA PER ALTE PRESTAZIONI

AEROPAN
NANOTECH THERMAL INSULATION

Aeropan® is a panel designed for the thermal insulation of building structures which require a higher degree of insulation in the least possible space. It consists of a nano-technological Aerogel insulator paired with a polypropylene breathing membrane reinforced with glass fiber and has been designed for reduced-thickness thermal insulation. With a thickness of 10 mm - and heat conductivity of 0.015 W/mK - Aeropan® allows to reduce energy dispersion and recover space in civil, commercial, and residential buildings. The properties of the panel - minimum heat conductivity, flexibility and compression resistance, hydrophobicity, and easy installation - make it an essential product for providing high levels of thermal insulation both in new buildings and in the redevelopment of older ones.

It is the ideal product for applications on external perimetral walls and internal walls, intrados, window padding, roofs and for solving thermal bridges. Aeropan® is the perfect choice for outdoor and indoor restructuring, as well as building recovery and for historical buildings subject to architectural restraints which require the highest levels of living comfort.

THE PERFORMANCE

Aeropan® is a semi-rigid insulation panel, composed of reinforced high-density fibers, fully saturated with nanoporous Aerogel with very low thermal conductivity and a PP finish reinforced with glass fiber.

With only 10 mm of thickness, the panel is able to provide thermal insulation between -50°C and +450°C. These features make Aeropan® extremely suitable applications in a wide range of environmental conditions, without performance levels and durability being affected in any way.

The panel should be installed with the Aeropan® label facing the outside, which will undergo the finishing smoothing process.

INTERIOR/EXTERIOR THERMAL INSULATION SPECIFICATION

Realization of interior/exterior thermal insulation coat system, for vertical and horizontal surfaces, such as overhanging balconies or the like, consisting of a semi-rigid panel, made of a layer of silica AEROGEL reinforced with partially-recycled glass fibers (felt) paired with a breathable polypropylene membrane reinforced with fiberglass mesh, of the Aeropan® type, waterproof and breathable, supplied in 1400x720 mm panels, for a nominal thickness of 10 mm (or in panels with 20 mm, 30 mm, 40 mm, 50 mm, 60 mm thickness) with volumetric density 230 kg/m^3, thermal conductivity 0.016 W/mK, heat resistance Rd of 0.63 m2K/W per cm of thickness, temperature of use between -50°C /+450°C, permeable to vapor diffusion (μ 7), impermeable to surface water and/or to immersion with water contact angle of not less than 150°, spread on flat or curved, vertical or horizontal surfaces, after gluing and installed on smooth, dry, non-dusty, perfectly intact surfaces without any sharp roughness.

TECHNICAL DATA	VALUES	UoM	TEST METHOD
Panel size	1400x720	mm	
Thicknesses	6/10/20/30/40/50/60	mm	
Thermal conductivity (λ) a 10 °C	0.015	W/mK	EN 12667
Thermal conductivity (λ 90/90)	0,016	W/mK	EN 13162
Water vapor permeability (μ)	0.07	m	EN 12086
Temperature limite di impegno	-50 +450	°C	
Temperature limits Compression resistance (10% deformation)	80	KPa	EN 826
Specific heat	1,000	J/kgK	ASTM E 1269
Nominal density	230 ± 10%	kg/m^3	
Fire reaction class*	BS_1D_0		EN 13501-1
Long-term water absorption by partial immersion	Wp ≤ 0.01	kg/m^2	EN 1609
Color	White		

THERMAL RESISTANCE							
Thickness	6	10	20	30	40	50	60
R(m^{2}k/W)	0.38	0.63	1.25	1.88	2.50	3.13	3.75

* The fire reaction tests have been conducted on an integral insulation system.

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AEROGIPS

NANOTECH INSULATION BOARD

Aerogips is a panel designed for the interior thermal insulation of building structures which require maximum level of insulation in the least possible space.
Aerogips is a high-performance insulating panel made of a nano-technological insulator, composed of Aerogel coupled with a sheet of high-density plasterboard for excellent heat-acoustic comfort. Aerogips has been designed for the energy requalification of existing buildings, for recovery and renovations where internal interventions are necessary to safaguard living spaces. It also allows to design new walls in all buildings where dry systems and lightweight walls are used.
Aerogips is suitable for both vertical partitions and false ceilings. With a thickness of only 16 mm (insulator and slab) and a heat conductivity of 0.015 W/mK, Aerogips allows to reduce energy dispersion and recover space in building, residential, and commercial applications. Aerogips uses coated plasterboard panels with 9.5 mm thickness and is available in different thicknesses and dimensions.
It is also available in different technical variants: standard, with vapor barrier, water repellent, water repellent with vapor barrier. Aerogips is the best product for internal renovations, building recovery and historical buildings subject to architectural constraints and wherever a greater living comfort is required, significantly reducing the time and cost of installation.

INTERIOR CLADDING TECHINCAL SPECIFICATION

Realization of internal thermal insulation, for vertical and horizontal surfaces, such as walls, floors, ceilings or similar, consisting of a pre-coupled rigid panel, formed by a layer of silica Aerogel reinforced with glass fibers (felt), of the Aerogips type, water repellent and breathable, coupled with a sheet of coated plasterboard, supplied in 1400x720 mm panels, with a total nominal thickness of 16 mm (or in panels with 20mm, 30 mm, 40 mm, 50 mm, 60 mm thickness) with a thermal conductivity of 0.016 W/mK, heat resistance Rd equal to 0.63 m^2K/W per cm of thickness, temperature of use between -90°C / +90°C, fire reaction Euro class A2 S_1D_0, impermeable to surface water and/or immersion with water contact angle not below 150°, finished with careful grouting of joints, installed on flat, vertical or horizontal surfaces, after gluing by double-buttering, and installation on smooth, dry, dust-free and perfectly intact surfaces, free of any sharp roughness.

TECHNICAL DATA	VALUES	UoM	TEST METHOD
Panel size	1400x720	mm	
Thicknesses	6/10/20/30/40/50/60	mm	
Plasterboard thickness	9,5	mm	
Thermal conductivity (λ) a 10 °C	0,015	W/mK	EN 12667
Thermal conductivity (λ 90/90)	0,016	W/mK	EN 13162
Water vapor permeability (μ)	10	g/smPa	EN 10465 - 2008
Temperature limits	-90 +90	°C	
Compression resistance (10% deformation)	80	KPa	EN 826
Specific heat	1.000	J/kgK	ASTM E 826
Nominal density	11,00	kg/m^3	
Fire reaction class	A2 S_1D_0		EN 13501-1
Color	Grey/White		
Border finishing	Cut		
Corrosion 60° C/95% U.R./24h	0		

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AEROGIPS GF

NANOTECH INSULATION BOARD

Aerogips GF is a panel designed for the interior thermal insulation of building structures which require maximum level of insulation in the least possible space. Aerogips GF is a high-performance insulating panel made up of a nano-technological insulator, consisting of Aerogel coupled with a sheet of high-density coated plasterboard for excellent heat-acoustic comfort.

Aerogips GF has been designed for the energy requalification of existing buildings, for recovery and renovations where internal interventions are necessary to safaguard living spaces. It also allows to design new walls in all buildings where dry systems and lightweight walls are used.

It is also available in different technical variations: standard, with steam barrier, hydro repellent, hydro repellent with steam barrier.

Aerogips GF is suitable for both vertical partitions and for false ceilings. With a thickness of only 16 mm and heat conductivity of 0.015 W/mK, Aerogips GF allows to reduce energy dispersion and recover space in residential and commercial building applications. Aerogips GF uses fiber-reinforced plaster panels with 10 mm thickness and is available in different thicknesses and dimensions.

Aerogips GF is the best product for internal renovations, building recovery and historical buildings subject to architectural constraints and wherever a greater living comfort is required, significantly reducing the time and cost of installation.

INTERIOR CLADDING TECHNICAL SPECIFICATION

Realization of internal thermal insulation, for vertical and horizontal surfaces, such as walls, floors, ceilings or similar, consisting of a pre-coupled rigid panel, formed by a layer of silica Aerogel reinforced with glass fibers (felt), of the Aerogips GF type, water repellent and breathable, coupled with a sheet of fiber-reinforced plaster, supplied in 1400x720 mm panels, with a total nominal thickness of 16 mm (or in panels with 20mm, 30 mm, 40 mm, 50 mm, 60 mm thickness) with a thermal conductivity of 0.016 W/mK, heat resistance Rd equal to 0.63 m2K/W per cm of thickness, temperature of use between -90°C / +90°C, fire reaction Euro class A2 S_1D_0, impermeable to surface water and/or immersion with water contact angle not below 150°, finished with careful grouting of joints, installed on flat, vertical or horizontal surfaces, after gluing by double-buttering, and installation on smooth, dry, dust-free and perfectly intact surfaces, free of any sharp roughness.

TECHNICAL DATA	VALUES	UoM	TEST METHOD
Panel size	1400x720	mm	
Thicknesses	6/10/20/30/40/50/60	mm	
Plasterboard thickness	10	mm	
Thermal conductivity (λ) a 10 °C	0.015	W/mK	EN 12667
Thermal conductivity (λ 90/90)	0.016	W/mK	EN 13162
Water vapor permeability (μ)	10	g/smPa	EN 10465 - 2008
Temperature limits	-90 +90	°C	
Compression resistance (10% deformation)	80	KPa	EN 826
Specific heat	1,000	J/kgK	ASTM E 826
Nominal density	11.00	kg/m^3	
Fire reaction class	A2 S_1D_0		EN 13501-1
Color	Grey/White		
Border finishing	Cut		
Corrosion 60° C/95% U.R./24h	0		

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AEROPROOF

ROOF THERMAL NANOTECH INSULATION

Aeroproof is a panel designed for the thermal insulation and the preparation of the support for the subsequent waterproofing of all types of flat and pitched roofs, for civil and industrial buildings.

Aeroproof is a high-performance insulation panel made of a nano-technological insulator, composed of Aerogel coupled with a bituminous membrane, which guarantees excellent heat insulation, compression resistance, dimensional stability and a first waterproof layer.

Aeroproof is suitable for being subsequently flamed to allow the application of the next layers of bituminous sheathing. The Aeroproof panels are usually installed on the roof by gluing or mechanical fastening; once the installation is completed, by flame tempering the underlying sheath, the waterproofing process will be completed through the application of one or more layers of bituminous membrane, normal of self-protected.

FLAT OR PITCHED ROOF WATERPROOFING TECHNICAL SPECIFICATION

Realization of thermal insulation and waterproofing of flat or pitched roofs consisting of a pre-coupled, semi-rigid panel, formed by a layer of silica Areogel reinforced with glass fibers (felt), of the Aeroproof type, water repellent and breathable, paired with a bituminous sheath reinforced with fiberglass tissue weighing 2 Kg/m^2, supplied in 1400x720 mm panels, for a total nominal thickness of 10 mm (or in panels with 20 mm, 30 mm, 40 mm, 50mm, 60 mm of thickness), thermal conductivity 0.016 W/mK, heat resistance Rd of 0.63 m2K/W per cm of thickness, working temperature between -90°C / +90°C, impermeable to surface water and/or to immersion with water contact angle not below 150°, installed on flat, horizontal or pitched surfaces after preparation of the laying surface, laying of the panel and vapor barrier or self-levelling, with a 4 cm minimum thickness and reinforced with the appropriate mesh or fibers.

INSULATOR TECHNICAL DATA	VALUES	UoM	TEST METHOD
Panel size	1400x720	mm	
Thicknesses	10/20/30/40/50/60	mm	
Thermal conductivity (λ) a 10 °C	0.015	W/mK	EN 12667
Thermal conductivity (λ 90/90)	0.016	W/mK	EN13162
Water vapor permeability (μ)	0.05	g/s^2/24h	DIN EN ISO 12572
Temperature limits	-90 +90	°C	
Compression resistance (10% deformation)	80	KPa	EN 826
Specific heat	1,000	J/kgK	ASTM E 826
Nominal density	1,600	g/m^3	
Fire reaction class	A2 S_1D_0		EN 13501-1
Long-term water absorption by partial immersion	Wp ≤ 0,01	kg/m^2	EN 1609
Color	Grey/White		

MEMBRANE TECHNICAL DATA	VALUES	UoM	TEST METHOD
Reinforcement mesh	Glass fiber tissue		
Weight	2	Kg/m^2	EN 1849-1
Thermal conductivity (λ) a 10 °C	0.2	W/mK	EN 12667
Water resistance	60	KPa	EN 1928-B
Low temperature flexibility	-25	°C	EN 1109
Tensile elongation	2%		EN 12311
Thermal capacity	3.90	KJ/K	
Water vapor permeability	100,000	g/m^2	
Fire reaction class	E		EN 13501-1
Color	Black		

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AMAGEL A2

NEW NANOTECH THERMAL INSULATION

Amagel A2 ha conseguito la marcatura CE che attesta la rispondenza a tutti i requisiti in materia energetica, alle prestazioni richieste dall'Unione Europea e soddisfacendo i più rigidi standard di qualità e sicurezza.

Amagel A2 has obtained the CE certification which certifies compliance with all energy and performance requirements of the European Union and the fulfilment of the highest standards of quality and safety.

Amagel A2, represents a new important step in the development of the nanotechnological insulation products made of siliceous Aerogel.

It's composed of an insulant flexible matrix of glass fibres and a high concentration of nanoporous Aerogel. This combination guarantees the best thermal performance in every applicative situation.

In the search for maximum thermal protection, Amagel A2 stands as an essential insulant for its unique properties: extremely low thermal conductivity – 0,015 W7mK – higher flexibility, pressure resistance, hydrophobicity, and ease of use. Amagel A2 can be used in a temperature range between -50°C and +450°C.

Amagel A2, available in thicknesses ranging from 3 to 60 mm, allows to optimize internal spaces for applications in residential and commercial buildings, guaranteeing the highest values of thermal resistance at the same thickness of conventional insulation materials.

Its use allows obtaining important results in complex situations, like insulating windows or portions of the roof, guaranteeing an actual improvement in the total energy efficiency of the building with excellent thermal and acoustic results.

Thanks to the highest R values per unit of surface compared to any insulation material, Amagel A2 is the ideal coating for the highest energy efficiency in the construction of dry walls, under floors, roofs, counter frames, and window frames.

Unlike rigid and preformed insulators, AMAGEL A2 adapts perfectly to any shape or design: the mattress is soft and flexible, physically sturdy but with an excellent recovery of the design shape and performance even after any phenomena of compression under load.

Its specific composition guarantees the best fire resistance performance (Euroclass A2), therefore allowing the installation in severe conditions or where a higher-level performance is required.

TYPES AND SIZES

AMAGEL A2 is available in 2 different sizes for applications which require an extremely low level of dustiness, typical of the products made of Aerogel.

- AMAGEL A2 roll available in of 3, 6 and 10 mm of thickness
- -AMAGEL A2 panel available in 10mm, 20 mm, 30 mm, 40mm, 50mm and 60mm of thickness.

THERMAL INSULATION TECHINICAL SPECIFICATION

Realization of panel-based thermal insulation, made from silica Aerogel reinforced with partially- recycled glass fibers (felt) and compliant with CAM, certified according to ISO14021:2016, of Amagel A2 type, water repellent and breathable, supplied in panels with a nominal thickness of 10/20/30/40/50/60 mm, with a volumetric density of 200 kg/m^3, a thermal conductivity of 0.016 W/mk, a temperature of use between -50 °C/ +450, fire reaction Euroclass A2 S_1D_0, permeable to vapor diffusion (Sd= 0,07), impermeable to surface water and/or to immersion with water contact angle not below 150°, certified in A+ Class for VOC emissions.

CE certified product according to ETA 20/0562 of 16/07/2020. Suitable for use in dry applications, cavities, roofing, under screed applications and for the thermal insulation of complex surfaces.

TECHNICAL DATA	VALUES	UoM	TEST METHOD
Roll thicknesses	3/6/10	mm	
Panel thickness	10/20/30/40/50/60	mm	
Thermal conductivity (λ) a 10 °C	0.015	W/mK	EN 12667
Thermal conductivity (λ 90/90)	0,016	W/mK	EN 13162
Water vapor permeability	0.07	m	EN 12667
Temperature limit	-50 +450	°C	
Compression resistance (10% deformation)	30	KPa	ASTM 165
Specific heat	1,000	J/kgK	ASTM E 826
Nominal density	200	kg/m^3	
Fire reaction class	A2 S_1D_0		EN 13501-1
Dimensional Stability	<1%		EN 1604
Perpendicular tensile strength	>17	KPa	EN 1607
Concentrated load resistance	>2550	N	EN 12430
Color	White		

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AEROPAN VP

ALTA TECNOLOGIA PER ALTE PRESTAZIONI

The AEROPAN® VP vacuum-sealed insulation panel represents the evolution of siliceous Aerogel products. Developed with the aim of guaranteeing the highest level of thermal insulation, this product has a high technological content and is the result of advanced productive procedures.

The extremely high insulating properties ensure unmatched performances, allowing to achieve the highest levels of insulation in various applications in construction and industrial domains and, more in general, wherever traditional insulation products may have application limits.

It is the best performing solution in the field of insulation panels for installations which require the best thermal performance in extremely reduced spaces.

The AEROPAN® VP panels have been used to obtain the best thermal insulation performances, thanks to the extraordinary insulant qualities of the Aerogel core, and are able to guarantee unparalleled performances in various application domains. They can be used for applications in a temperature range between -70°C and +80°C.

AEROPAN® VP contains a nanotechnological Aerogel core; the nanopores drastically reduce the transmission of energy and, consequently, the thermal conductivity by contact is reduced to the minimum. The addition of specific and selected mattifying products helps minimizing the emission of infrared radiations.

AEROPAN® VP is then transformed into a vacuum-sealed panel, hence avoiding any thermal transmission by convection.

The core of AEROPAN® VP is heat-sealed in a vacuum-sealed metallized, multilayer film. The incredibly low internal pressure and the core of the microporous panel allow to reach extremely low values of thermal diffusion.

AEROPAN® VP enables a thickness reduction up to 10 times compared to traditional insulation products while still maintaining the same insulating properties in terms of thermal transmittance.

THE ADVANTAGES OF AEROPAN® VP

- Aerogel core for high performances
- Minimum thermal conductivity of 0.0045/0.0047 W/mK
- Higher energetic saving and, consequently, economic saving
- Thickness reduction: from 5 up to 10 times thinner than a traditional product
- Higher dimensional stability
- Minimal loss of the living spaces
- Waste reduction and higher level of living comfort
- Maximum fire resistance for a safer use
- Aerogel core made of recycled raw materials and completely recyclable

TECHNICAL DATA	VALUES	UoM
Standard panel size	1200x600	mm
Special pieces panel size	600x600	mm
	150x600	mm
	100x600	mm
	50x600	mm
Thicknesses	10/15/20/25/30	mm
Thicknesses upon request	35/40	mm
Water vapor permeability (μ)	3.600	μ
Temperature limit	- 70 / + 80	°C
Compression resistance (10% deformation)	σ 10 15 / 61	kPa
Dimensional stability	0,60 / 1,50	mm
Tensile strength	σ 10 / 100	kPa
Specific heat	1.000	J/Kg K
Nominal density	180±10	kg/m^3
Fire reaction class	A2	
Long-term water absorption by partial immersion	< 100	g/m^2
Color	Grey/White	

Thermal conductivity

PANEL	INSULATION THICKNESS	λ 90/90
AEROPAN VP	10 mm	0.0047/0.0051
AEROPAN VP	20 mm	0.0046/0.0050
AEROPAN VP	25 mm	0.0045/0.0049
AEROPAN VP	30 mm	0.0045/0.0051
AEROPAN VP	35 mm	0.0045/0.0047

Values including the 3mm cement slabs

PANEL	INSULATION THICKNESS	λ 90/90
AEROPAN VP-R	10 mm	0.0080/0.0089
AEROPAN VP-R	20 mm	0.0062/0.0066
AEROPAN VP-R	25 mm	0.0060/0.0068
AEROPAN VP-R	30 mm	0.0068/0.0070
AEROPAN VP-R	35 mm	0.0070/0.0077

The AEROPAN® VP panel is available in 2 different versions:

- **AEROPAN® VP** naked panel, suitable for applications in wall cavities and where a dry finishing is needed.
- **AEROPAN® VP-R** double coated panel with a 3 mm cement slab for applications in which a direct finishing is needed or when a higher resistance to impact and superficial abrasion is required.

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