Morgan Advanced Materials

POREXTHERM

Data sheet

ENGLISH

Vacupor® XPS-B2-S

Approved vacuum insulation panel for wall application and reveals and roller blinds, with extruded polystyrene protection.

Description

Vacupor® XPS-B2-S is a Microporous insulation material which has an extremely low thermal conductivity coefficient giving it very good insulating properties.

Vacupor® XPS-B2-S consists of inorganic oxides. The main constituent is fumed silica, the other components are opacifiers for minimizing infrared radiation, and fiber filaments as reinforcing fillers. Vacupor® XPS-B2-S is approved by DIBT under the certification number Z-23.11-1662.The approval is valid for construction applications DAD, DAA, DZ, DI, DEO, WAB, WAA, WH, WTR and WI according to standard DIN 4108-10, and prefabricated façade panels with insulated glass character.

Vacupor® XPS-B2-S conforms to building material class E (B2). The test of behaviour in case of fire according DIN 4102-1, May 1998, building material class B2; test certificate no. H.3-145/07 and H.3-146/07, was issued by the Forschungsinstitut für Wärmeschutz e.V. München. The core material of Vacupor® XPS-B2-S is not flammable and is classified A1 according to DIN ISO EN 13501-1.

Vacupor® XPS-B2-S is heat sealed in a multilayer vacuum metalised film. The very low internal pressure and the microporous panel core enable it to reach extremely low thermal conductivity values.

Application

Vacupor® XPS-B2-S was specially developed for applications in the building and construction industry where an approval by the building authorities is required. The low density and IR opacifiers contained in these grades greatly reduce the thermal conductivity of Vacupor® XPS-B2-S Systems.

Due to the single - or double-sided coverage with XPS foam sheets, Vacupor® XPS-B2-S is particularly suitable for all kinds of plane linings. The fixing of the insulation is much easier, and the VIPs can be installed without any damage being caused.

The fixing of the insulation is substantially facilitated, through the possibility of bonding with commercial solvent free adhesives.

Typical applications

Vacupor® XPS-B2-S is used as insulation material in the following applications:

- Reveal insulation
- Insulation of basement ceilings
- Insulation of roller shutter casings
- Insulation of internal floors

Form of delivery

Standard sizes:

1200mm x 1000mm
1200mm x 500mm
1000mm x 600mm
1000mm x 300mm
600mm x 500mm
600mm x 250mm
300mm x 250mm
Special sizes available on request.

Standard thicknesses:

10, 15, 20, 25, 30, 35, 40, 45 and 50 mm.
Further thicknesses on request.

Embodiment

One or both sides covered with a 3 mm XPS sheet.

Restrictions on applications

The metallized, multilayer plastic film of the Vacupor® XPS-B2-S must not be damaged by drilling, cutting, milling, nailing, otherwise the internal pressure of the panel will rise and the special properties of the panel will be lost.

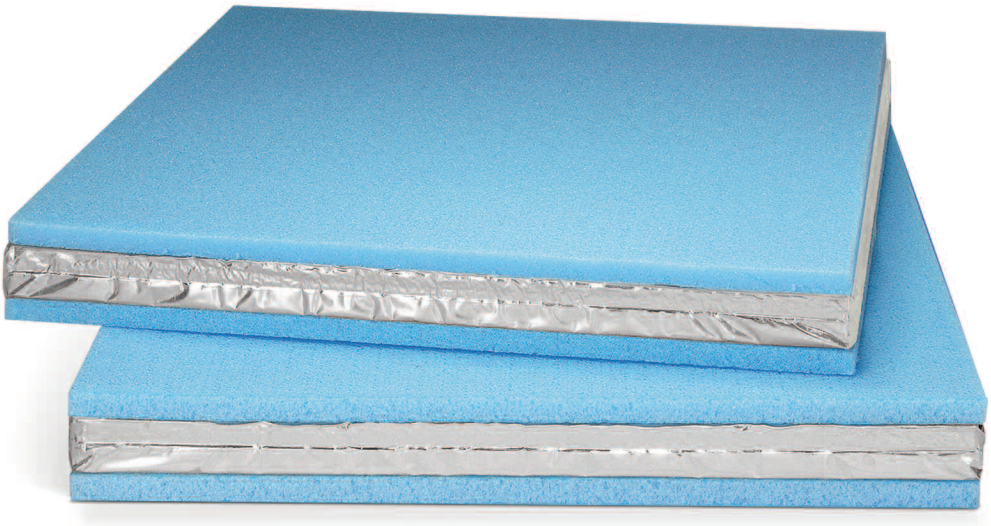
Shelf life

Vacupor® XPS-B2-S has a very long shelf life. Please refer to our pressure rise table: Thermal conductivity as a function of interior pressure.

Safety directions

Vacupor® XPS-B2-S is not a hazardous substance according to the EU directive 2006/1907/EEC. Please refer to the material safety data sheet.

Vacupor® XPS-B2-S does not use any dangerous decomposition products and according to current knowledge, it does not cause any problems to human health or the environment.



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Metric information

Physical Properties	
Colour	Silver / Blue
Density (kg/m³) (1)	170-210
Thermal Conductivity at mean temperature of 22.5°C, (W/m·K)	
@1 mbar (3)	≤0.005 (2)
@ ambient pressure	≤0.019
Rated Value (W/m·K) (6)	0.007
Temperature Resistance (°C) (4)	-50<T<120
Maximum Film Projection (mm)	0
Interior Pressure (mbar) (3)	≤5
Theoretical Pressure Rise (mbar) (5)	~ 1.0
Maximum Panel Dimensions	
Length mm	150-1500
Width mm	150-1000
Thickness mm	10-50
Length and Width Tolerances (mm)	
0 to 500	+1.0 /-2.0
501-1000	+1.0 / -4.0
>1000	+1.0 / -6.0
Thickness Tolerances (mm)	
<20	±1.0
20 to 30	+1.0 / -2.0
>30	+1.0 / -3.0
Thermal Shock Resistance	The core material of Vacupor® XPS-B2-S is insensitive to high and low temperature thermal shocks

Please note:

(1) Depending on board thickness.
(2) The given value only describes the value of the vacuum insulation panel under the mentioned conditions, measured at the center of the panel. The measured value does explicitly not correspond to the determined by the rated value of the DIBt and must not be used for the implementation of thermal calculations for buildings in Germany. Please note also the footnote (1).
(3) Depending on panel size and thickness, the internal pressure can vary between 0,5 and 5 mbar. Standard inner pressure of the evacuation chamber is <0,5 mbar.
(4) Temperature limits are fixed by barrier film; durable maximum temperature is at ≤80°C; short time maximum at 120°C (for approx. 30 minutes).
(5) According to EMPA testing report no. 437'840/1 of 2006/12/21. for testing panel size 1000x600mm.
(6) According to DIBt general approval no. Z-23.11-16.

Thermal conductivity

Thermal Conductivity as a function of internal pressure.

Gas Pressure hPa	U value W/m²K	λ 10^{-3} W/m·K
$<10^{-3}$	0.187	3.63
0.1	0.188	3.66
1.0	0.193	3.75
10	0.219	4.25
150	0.448	8.70
1000	0.943	18.30

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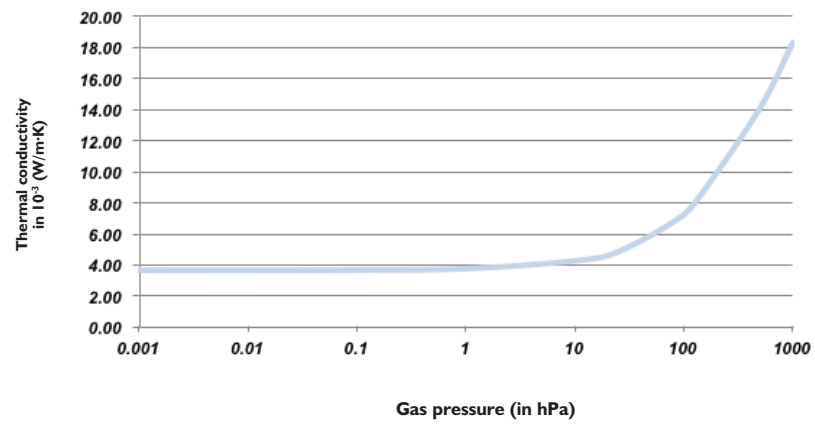
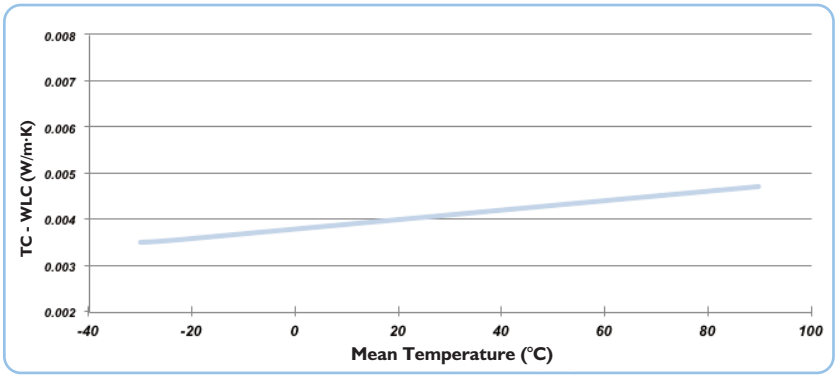
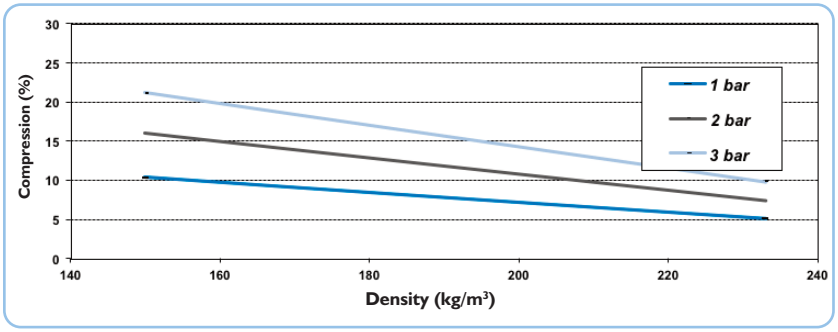
Thermal Conduct as a function of internal pressure (DIN 52612)



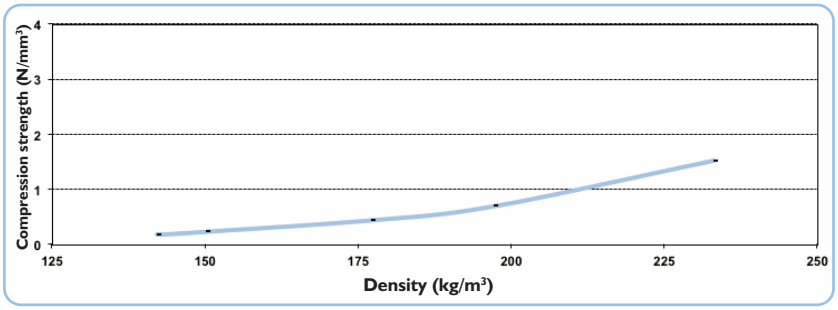
Thermal Conductivity (Panel Core) DIN 52612



Compression Behaviour (Panel Core)



Low-temp. Compression Strength



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