

Data sheet

ENGLISH

Vacupor® PS-B2-S

Building authorities approved Vacuum-Insulation-Panel (VIP) with polystyrene protection.

Description

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

Vacupor® PS-B2-S consists of inorganic oxides. The main constituent is fumed silica. The remaining components are opacifiers which are used to minimise infrared radiation and fiber filaments as reinforcing fillers.

Vacupor® PS-B2-S is approved by DIBT under the certification number Z-23.11-1662. The approval is valid for construction applications DAD, DZ, DI, DEO, WAB, WAA, WH, WTR and WI according to standard DIN 4108-10, and prefabricated façade panels with insulated glass character.

Vacupor® PS-B2-S corresponds to the material class B2. The examination of fire behaviour according to DIN 4102-1, May 1998, building material B2; test certificate no. H.3-145/07 and H.3-146/07, was issued by the Research Institute for heat protection in Munich. The core material of Vacupor® PS-B2-S is not flammable and classified A1 according to DIN ISO EN 13501-1.

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

Application

Vacupor® PS-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 the specially developed IR opacifiers contained in these grades greatly reduce the thermal conductivity of Vacupor® PS-B2-S Systems.

Due to the single or double-sided coverage with polystyrene sheets, Vacupor® PS-B2-S is particularly suitable for surface installation for walls and floor surfaces. The fixing of the insulation is much easier, due to bonding with commercial polystyrene adhesives.

Typical applications

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

- Wall and facade insulation
- Reveal insulation
- Insulation of basement ceilings

Form of delivery

Standard sizes:

- 1200 mm x 1000 mm
 - 1200 mm x 500 mm
 - 1000 mm x 600 mm
 - 1000 mm x 300 mm
 - 600 mm x 500 mm
 - 600 mm x 250 mm
- Special formats 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 10mm polystyrene boards.

Restrictions on applications

The metallized, multilayer plastic film of the Vacupor® PS-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® PS-B2-S has a very long shelf life. Please also refer to our pressure rise table: Thermal conductivity as a function of interior pressure.

Safety directions

Vacupor® PS-B2-S is not a hazardous substance according to the EU directive 2006/1907/EEC. Please refer to the material safety data sheet. Vacupor® PS-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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Physical Properties	
Colour	Silver / White
Density, (kg/m³) (1)	170-210
Thermal Conductivity at mean temperature of 22.5°C (72.5°F) (W/m·K) (2)	
@1 mbar	≤0.005
@ambient pressure	≤0.019
U value (W/m²K)	Thickness (mm)
	10 20 30
Vacupor PS-B2-S (10/10)	0.52 0.30 0.21
Rated Value (W/m·K) acc. to DIBT approval #Z-23-11-1662	0.007
Temperature Resistance °C (3)	-50 < T < 120
Maximum Film Projection (mm)	0
Interior Pressure (mbar)	≤5
Theoretical Pressure Rise (mbar)	~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 to 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® PS-B2-S is insensitive to high and low temperature thermal shocks

Please note:

- (1) Dependent on board thickness.
- (2) Dependent on the panel-size and -thickness, internal pressure can be between 0.5 – 5 mbar. The standard internal pressure in the evacuation chamber is < 0.5 mbar.
- (3) The limits are fixed by the barrier film (sealing material) used; constant load: ≤ 80°C (176°F); short load time with 120°C (248°F): roughly 30 minutes.

Thermal conductivity

Thermal Conductivity as a function of internal pressure.

Gas Pressure (hPa)	U value (W/m ² K)	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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