

Data sheet

# VACUSPEED®

ENGLISH

## Modular vacuum insulation system ex stock.

### Description

**VACUSPEED® is a Microporous insulation material which has an extremely low thermal conductivity coefficient giving it very good insulating properties. VACUSPEED® consists of inorganic oxides. The main constituent is fumed silica, the other components are opacifiers for minimizing infrared radiation, and silicates.**

VACUSPEED® 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.

VACUSPEED® corresponds to the material class B2. The examination of fire behaviour according to DIN 4102-1, May 1998, building material B2; no test certificates H.3-145/07 and H.3-146/07, was issued by the Research Institute for heat protection in Munich.

The foil wrapping of VACUSPEED® is designed to form of a double-middle seam. This allows a good surface quality. As it has no side flaps so the panels can be assembled to form fit into a joint. The core material of VACUSPEED® is not flammable and is classified A1 according to DIN ISO EN 13501-1.

VACUSPEED® 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

VACUSPEED® was specially developed for applications in vacuum insulation technology. The low density and the specially developed IR opacifiers contained in these grades greatly reduce the thermal conductivity of VACUSPEED® systems.

VACUSPEED® is a version of our well-known vacuum insulation product line: VACUPOR®.

The new VACUSPEED® system was developed to better meet the specific requirements of the building practice. With the smart VACUSPEED® modular system, consisting of seven standardised panel sizes, various surface geometries can be insulated faster and in a more effective way.

## Typical applications

VACUSPEED® is successfully used as insulation material in the following areas:

- Floor insulation
- Terrace insulation
- Flat roof insulation
- Cold storage floor insulation

## 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
- 300 mm x 250 mm

### Standard thicknesses:

- 20 mm, 30 mm and 40mm

## Restrictions on applications

The metallized, multilayer plastic film of the VACUSPEED® 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

VACUSPEED® has a very long shelf life. Please refer to the pressure rise table: Thermal conductivity as a function of interior pressure.

## Safety directions

VACUSPEED® is not a hazardous substance according to the EU directive 2006/1907/EEC.

Please refer to the material safety data sheet. VACUSPEED® does not use any dangerous decomposition products and according to current knowledge, it does not cause any problems to human health or the environment.

## Data sheet

# VACUSPEED®

Physical Properties		
Colour		Silver
Density (kg/m <sup>3</sup> ) <sup>(1)</sup>		170-210
Thermal Conductivity at mean temperature of 22.5°C, (72.5°F) (W/m·K)	@ 1 mbar	≤0.005
	@ ambient pressure	≤0.019
Rated Value (W/m·K)		0.008
Temperature Resistance <sup>(3)</sup>		-50 < T < 120
Maximum Film Projection (mm)		150
Interior Pressure (mbar) <sup>(2)</sup>		≤5
Theoretical Pressure Rise, mbar		-1.0
Maximum Panel Dimensions		
	Length mm	150-1500
	Width mm	150-1000
	Thickness mm	20, 30, 40
Length 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 VACUSPEED® 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):

### Thermal conductivity

Thermal Conductivity as a function of internal pressure.

Gas Pressure (hPa)	U value (W/m <sup>2</sup> K)	λ (10 <sup>-3</sup> 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

### Contact

#### Europe:

Telephone:  
+44 (0) 151 334 4030

E-mail:  
marketing.tc@morganplc.com

#### North America:

Telephone:  
+1 (706) 796 4200

E-mail:  
northamerica.tc@morganplc.com

#### South America:

Telephone:  
+54 (11) 4373 4439

E-mail:  
marketing.tc@morganplc.com

#### Asia:

Telephone:  
+65 6595 0000

E-mail:  
asia.mc@morganplc.com

#### Porextherm:

Porextherm  
Dämmstoffe GmbH  
Heisinger Straße 8/10  
D-87437 Kempten

Telephone:  
+49 (0)831 - 575360  
Fax:  
+49 (0)831 - 575363

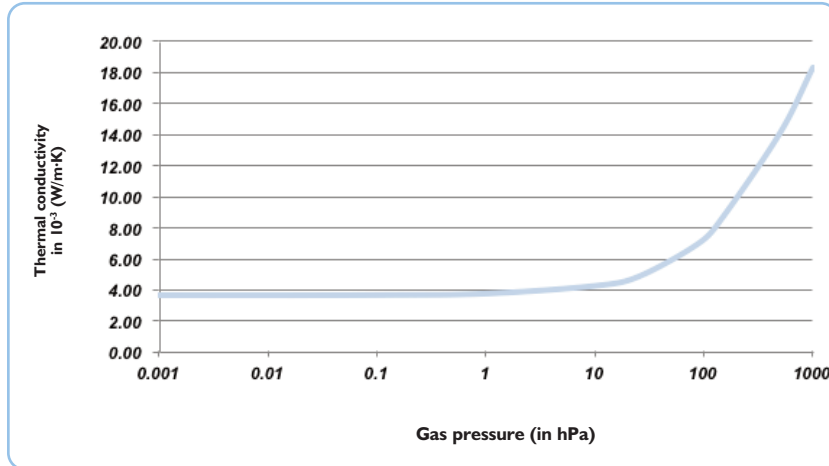
The data presented in this leaflet are in accordance with the present state of our knowledge, but do not absolve the user from carefully checking all supplies immediately on receipt. We reserve the right to alter product constants within the scope of technical progress or new developments. The recommendations made in this leaflet should be checked by preliminary trials because of conditions during processing over which we have no control, especially where other companies' raw materials are also being used. The recommendations do not absolve the user from the obligation of investigating the possibility of infringement of third parties' rights and, if necessary, clarifying the position. Recommendations for use do not constitute a warranty, either express or implied, of the fitness or suitability of the product for a particular purpose.

Whilst the values and application information in this datasheet are typical, they are given for guidance only. The values and the information given are subject to normal manufacturing variation and may be subject to change without notice. Morgan Advanced Materials - Thermal Ceramics makes no guarantees and gives no warranties about the suitability of a product and you should seek advice to confirm the product's suitability for use with Morgan Advanced Materials - Thermal Ceramics.

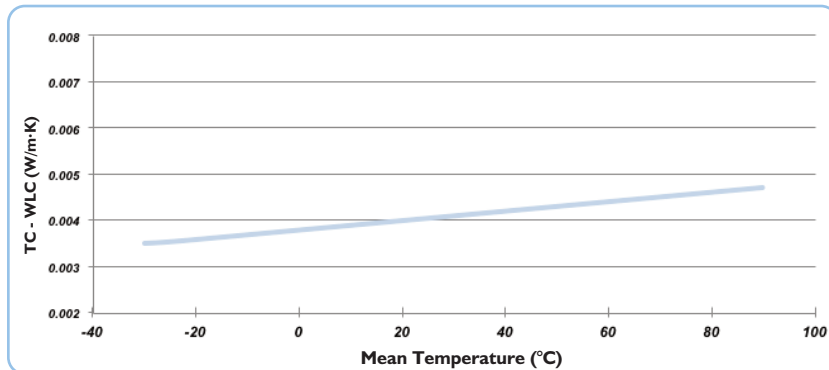
Morgan Advanced Materials plc Registered in England & Wales at Quadrant, 55-57 High Street, Windsor, Berkshire SL4 1LP UK Company No. 286773

Data sheet  
**VACUSPEED®**

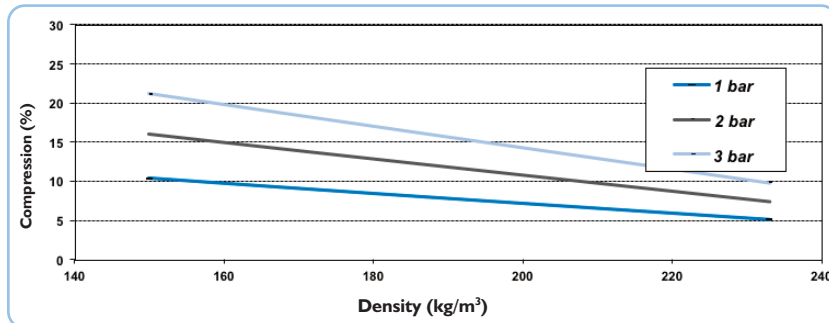
**Thermal Conduct as a function of internal pressure (DIN 52612)**



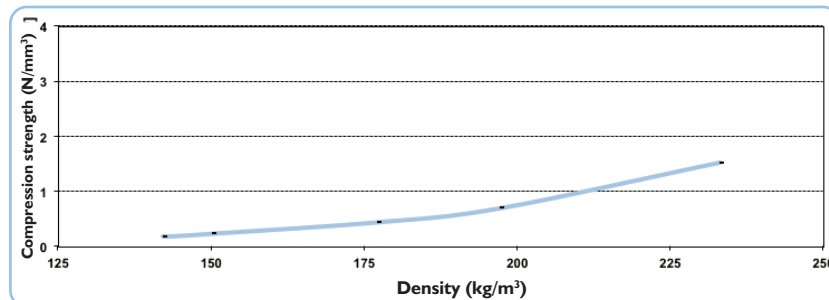
**Thermal Conductivity (Panel Core) DIN 52612**



**Compression Behaviour (Panel Core)**



**Low-temp. Compression Strength**



**Contact**

**Europe:**

Telephone:  
+44 (0) 151 334 4030

E-mail:  
marketing.tc@morganplc.com

**North America:**

Telephone:  
+1 (706) 796 4200

E-mail:  
northamerica.tc@morganplc.com

**South America:**

Telephone:  
+54 (11) 4373 4439

E-mail:  
marketing.tc@morganplc.com

**Asia:**

Telephone:  
+65 6595 0000

E-mail:  
asia.mc@morganplc.com

**Porextherm:**

Porextherm  
Dämmstoffe GmbH  
Heisinger Straße 8/10  
D-87437 Kempten

Telephone:  
+ 49 (0)831 - 575360  
Fax:  
+ 49 (0)831 - 575363

The data presented in this leaflet are in accordance with the present state of our knowledge, but do not absolve the user from carefully checking all supplies immediately on receipt. We reserve the right to alter product constants within the scope of technical progress or new developments. The recommendations made in this leaflet should be checked by preliminary trials because of conditions during processing over which we have no control, especially where other companies' raw materials are also being used. The recommendations do not absolve the user from the obligation of investigating the possibility of infringement of third parties' rights and, if necessary, clarifying the position. Recommendations for use do not constitute a warranty, either express or implied, of the fitness or suitability of the product for a particular purpose.

Whilst the values and application information in this datasheet are typical, they are given for guidance only. The values and the information given are subject to normal manufacturing variation and may be subject to change without notice. Morgan Advanced Materials - Thermal Ceramics makes no guarantees and gives no warranties about the suitability of a product and you should seek advice to confirm the product's suitability for use with Morgan Advanced Materials - Thermal Ceramics.

Morgan Advanced Materials plc Registered in England & Wales at Quadrant, 55-57 High Street, Windsor, Berkshire SL4 1LP UK Company No. 286773