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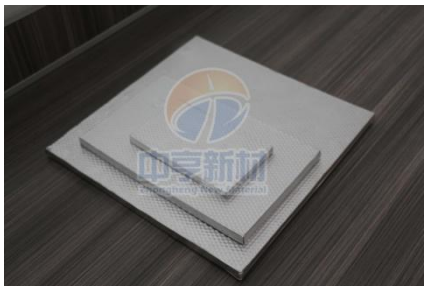
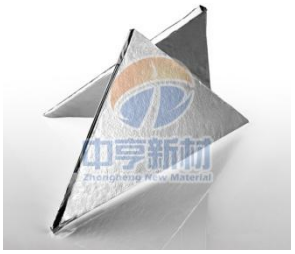
Vokes® HVIP (Vacuum insulation panel)



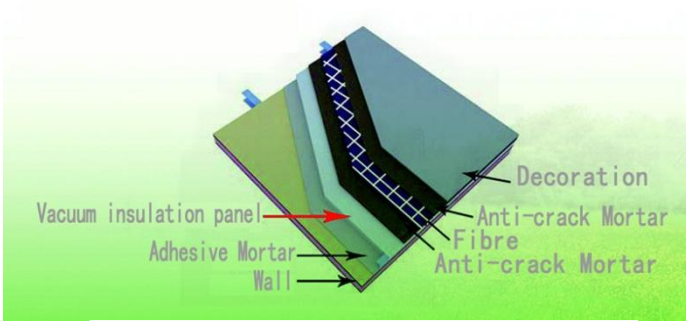


Characteristics:

Vokes® HVIP is a micro porous thermal insulating panel with excellent insulating properties. The core material of **Vokes®HVIP** is fumed silica. It is sealed with a high gas barrier film under vacuum. The thermal conductivity < 0.006 W/mK .

Advantages:

- Drastically reduced heat fluxes.
- Drastically reduced insulation thickness.
- Increased usable volume.
- Long service life.



SKETCH MAP OF BUILDING OPERATION

Applications:

Vokes® HVIP is specially developed for insulation applications where not much space is available but a high thermal resistance is necessary.

Vokes® HVIP is a successful insulation solution in the following areas:

- Building application (Roofs, floors, etc)
- Thermal packaging (Medicine transport boxes, etc.)

- Appliance (Water boiler, etc.)

- Automotive (train, ship, air plane, etc.)

Vokes® HVIP vacuum insulation panel for construction applications:

The core itself is non-combustible (fire class A), **Vokes® HVIP** can be used in buildings in accordance with application areas interior applications for ceilings, walls, floors, flat roofs, top floor ceilings, exterior insulation behind paneling, insulation in wood frame construction. **Vokes® HVIP** vacuum insulation panel for construction applications thermal conductivity 0.006 W/mK

Product data:

Property	Value	Standard
Surface Color	Silver	
Geometry	Rectangular shape (without protruding flanges*)	
Density	180 to 210 kg/m³	JG/T159
Mass Per Area	4 kg/m² (at 20 mm thickness)	
Flammability	A	GBB624
Thermal Conductivity	< 0.004 W/m.K	GBT10295,DIN52612-16
U-value	0.2 W/(m²K) (at 20 mm thickness)	
Temperature Stability	-50 °C to +70 °C (due to the film)	
Thermal Shock Resistance	Not sensitive to heat & cold shock in the given temperature range	
Specific Heat Capacity	0.8 kJ/(kg·K) (at normal room temperature)	
Compression Strength	≥0.15MPa	GB8813/EN8268
Internal Gas Pressure	1 mbar (at delivery)	
Increase of Gas Pressure	approx. 1 mbar/year (at 20mm thickness & normal room conditions)	
Humidity Stability	0 % to 60 %	
Standard Dimension (L x W)(mm)	100x400/200 x600/400 x600/600 x1000/600 x1200	
Thickness	10mm/15 mm/20 mm/25mm/30mm	
Size Tolerance		
• 0 to 500 mm	±2 mm	JG/T159
Thickness Tolerance	± 1 mm	JG/T159
Service Life	Extrapolated, depending on application up to 50 years	

Cautions:

- The vacuum insulation panels (VIPs) must not be mechanically damaged. Sawing, drilling and scratching in particular must be avoided.
- The underground to which the VIPs are applied must be smooth, flat and free of edges and burrs.
- During installation and use of VIPs, they must not be subjected to any, or if unavoidable only minor mechanical stresses. Point loads and persistent vibration or tension to the wrapping must be avoided.
- In constructions with VIPs, care must be taken to ensure that they are subjected only to even, full-surface pressure loading.
- The VIPs must be protected against tensile and shear forces
- This can be achieved for example by ensuring that the structural strength in a construction using VIPs is provided by other measures, and the VIPs carry out only the thermal insulation function.
- It must be ensured that persons working with VIPs are adequately trained in advance. Fitting and working instructions in particular should be explained with regard to the individual application.
- The insulation construction must be designed so that the ventilation of individual VIPs does not lead to technical problems with the complete system.
- The VIPs must also be adequately protected against damage during the usage phase, e.g. by fitting of an outer shell.
- When installing in floor systems, avoid walking on the unprotected VIP.