



va-Q-shield

Unique fire protection and super thermal insulation



About va-Q-tec

The va-Q-tec AG is a young, medium-sized high-tech company and has been developing innovative insulation solutions based on **energy-efficient, space-saving and at the same time environmentally friendly vacuum insulation panels (VIPs)** since 2001. In addition, va-Q-tec develops and sells other products such as **thermal high-performance packaging** and air freight containers as well as **heat and cold storage elements (PCMs)**.



Through their efficient technology, va-Q-tec's products save valuable energy in areas that are used on a daily basis: in the transport of pharmaceutical products, in refrigerators and freezers, in buildings, in technics & industry, and in automobiles and aircraft.

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The Technology

Vacuum insulation panels (VIPs) transfer the principle of a cylindrical thermos flask to flat panels. Independent thermal insulation problems can thus become flexible.



Super thermal insulation: up to 10 times more efficient than conventional insulation materials



Reduction of energy consumption and CO₂ emissions



Available in a wide variety of shapes and geometries

Sustainability

va-Q-tec pursues a holistic approach to sustainability in which, in addition to social aspects, ecological-sustainable areas of responsibility are also included. **The production of the panels has been climate-neutral since the year 2020.** va-Q-tec is certified by the German Institute for Sustainability.



Innovative combination of unique fire protection and super thermal insulation



va-Q-shield VIP C certified with B-s1, d0 according to EN 13501-1



Highest standard in terms of prevention of smoke and burning droplets in case of fire



Up to 95% of the panel complies with fire protection class A

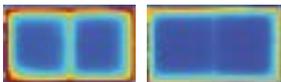


Super thermal insulation: up to 0.0043 W/mK

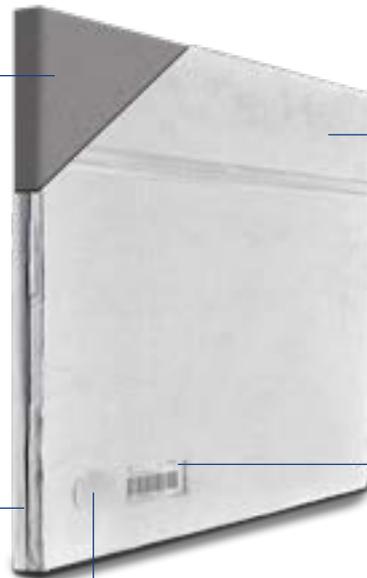
Varioscore materials
(silica powder and plate)
can be produced as
plates as well as
folded VIPs



va-Q-seam®
reduces thermal bridges
(only with va-Q-shield VIP C)



Competitor VIP with va-Q-seam®



Fire retardant special wrapping foil
with outstanding results in avoidance of smoke production and falling flaming particles in case of fire

Barcode Label
for identification and clear tracking



va-Q-check®
for the control of the insulation performance
= 100% outgoing goods inspection

va-Q-shield VIP C – optimized for the construction sector



Thermal conductivity ($\lambda_{10\text{ °C}}$): $\leq 0.0043\text{ W/mK}$
(expected design value incl. aging and edge effects: 0.007 W/mK)



Low insulation thickness increases the usable area



**More safety through outstanding fire protection
certified with B-s1, d0 according to EN 13501-1**



Durable insulation performance

**MADE IN
GERMANY**

Production according to the highest quality standards

va-Q-shield VIP C is a microporous vacuum insulation board based on fumed silica, which is additionally equipped with a special protective cover of fireproof fabric, which results in even higher fire resistance. It is characterized by smooth edges and corners due to the patented foil folding technology (va-Q-seam®), which means that individual elements can be joined together without joints. Rectangular panels are produced in general, but special shapes (trapezoid, triangle, corner section) are available on request.

va-Q-shield VIP C is certified with B-s1, d0 according to EN 13501-1. It also meets the highest standards with regard to smoke generation and burning droplets.



We would like to expressly point out that the product va-Q-shield VIP C is a new development which is based on our existing construction products. **The German technical approval for the product has been requested at the DIBt, but has not yet been granted!** If this product is to be used before the German technical approval is granted, a project-related approval must first be applied for from the responsible building inspection authority in the state, as the building inspection authority may otherwise take action under the building regulations and order to stop the construction work. In order to comply with the notification obligation, the contractor must report concerns to his client in writing and explain them to him. The receipt of the notification of concern must be confirmed in writing. A corresponding obligation to notify in writing also applies to sellers if the product is resold.

What fire protection in buildings means

It is not only in the building industry that the use of particularly flame-retardant flammable insulation materials is now a prerequisite for all projects. The aim is to reduce the spread of fire in the event of a fire. By using these special insulation materials, the spread of flames is to be prevented to, for example, keep escape routes, such as staircases or corridors, clear or to protect special parts of the building. In the event of a fire, this not only ensures increased safety for the occupants of the buildings. Rescue personnel such as firefighters or paramedics are also protected.



Fire protection classes

In contrast to the German fire classification DIN 4102-1, the European classification standard contains a significantly larger number of classes. In addition to fire behavior, it also includes fire side effects such as smoke production as well as flaming droplets. This is also tested and evaluated in DIN 4102-1, but the results are not directly included in the marking.

Class according to EN 13501-1	No smoke emission	No burning droplets	Building classes according to German building law
A1	X	X	Large buildings > 22 m
A2 – s1, d0	X	X	
B – s1, d0	X	X	Medium buildings > 7 m und ≤ 22 m
C – s1, d0	X	X	
A2 – s2, d0		X	
A2 – s3, d0		X	
B – s2, d0		X	
B – s3, d0		X	
C – s2, d0		X	
C – s3, d0		X	
A2 – s1, d1	X		
A2 – s1, d2	X		
B – s1, d1	X		Small buildings ≤ 7 m
B – s1, d2	X		
C – s1, d1	X		
C – s1, d2	X		
A2 – s3, d2			
B – s3, d2			
C – s3, d2			
D – s1, d0		X	Small buildings ≤ 7 m
D – s2, d0		X	
D – s3, d0		X	
E		X	

va-Q-shield VIP C

Standard VIP

Building classes

The building code fire protection requirements for the insulation materials to be used for exterior walls increase with increasing building height or building class (GK). For buildings of GK 4 and 5 or medium building height (> 7 m and ≤ 22 m), the surface of exterior walls as well as exterior wall cladding including insulation materials and substructure must be slightly flammable according to building regulations in all German federal states. For buildings with lower heights (GK 1 to 3), normally flammable insulation materials and exterior wall claddings are sufficient.

With va-Q-shield VIP C, a vacuum insulation panel (VIP) can now be used in building class 4 and 5 for the first time and thus in buildings up to 22 meters high. So far, VIPs on the market are only permitted in building classes 1 to 3.

va-Q-shield PRO – optimized for industrial applications



Thermal conductivity ($\lambda_{10\text{ °C}}$): $\leq 0.0035\text{ W/mK}$



Low insulation thickness increases the usable space



Available in different shapes and geometries



Durable insulation performance

MADE IN GERMANY

Production according to the highest quality standards

va-Q-shield PRO is a microporous vacuum insulation board based on fumed silica. In addition, it is provided with a special protective fabric which results in optimal fire resistance. va-Q-shield PRO can be produced in various forms without additional processes in a fully automated production process. This means that standard flat forms, three-dimensional forms or foldable variants, shapes with recesses or completely individualized configurations can be produced. Due to this high shape flexibility va-Q-shield PRO can be used in a wide variety of applications, even complex applications: Among other things, in applications where very good thermal insulation properties and the highest standards of fire protection are required.



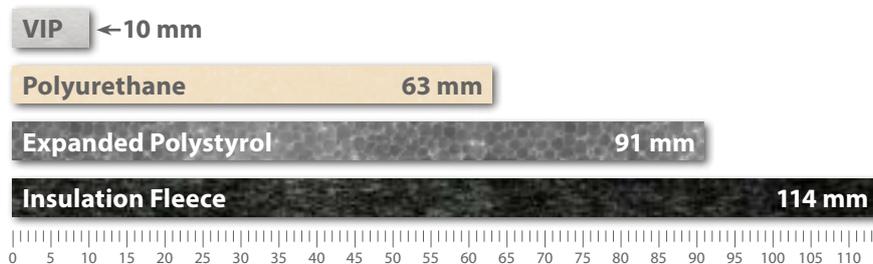
Fires in industrial environments cause damage amounting to several billion euros every year in Germany alone. In addition to these massive monetary losses, there is also often the greatest danger to life and limb. Such fires are usually caused by old, weak installations, which then spread rapidly in conjunction with highly combustible (insulation) materials.

Therefore, fire protection plays a major role in industrial plant engineering, technical applications as well as IT infrastructure and electro-technical installations. Intelligent preventive measures and the use of flame-retardant or non-combustible materials and, in particular, the right thermal insulation materials are crucial here.



Thermal insulation with the help of va-Q-shield PRO can prevent such major damage: Through its highly efficient insulation values combined with a low material thickness it is suitable, among other things, for IT infrastructure such as server systems or electro-technical installations that also require special protection against fire.

Comparison of insulation thicknesses for a U-value of 0.35 W/(m²·K):



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