

# Basotect®

Room Acoustics  
and Design



 **BASF**  
We create chemistry

# Basotect®

**The flexible foam made from melamine resin that combines sound absorption and design.**

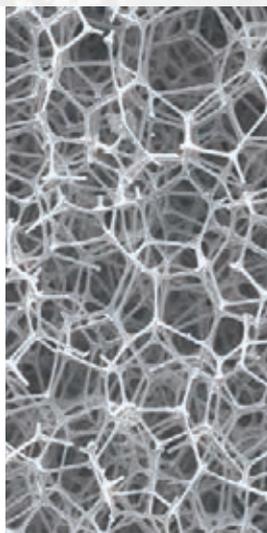
Acoustics in buildings and workplaces are undergoing something of a transformation, with the demands made of people, technology, and even rooms and buildings changing all the time. The efficient use of space defines our day-to-day lives and is becoming ever more important. "Room acoustics have a significant impact on people's health, well-being, and even their performance. As such, they are an essential component of quality spaces and need to comply with specific requirements," explains Prof. Philip Leistner from the Fraunhofer Institute for Building Physics.

In the drive to achieve optimal room acoustics, the search never stops for new solutions that are economical, performance-enhancing, aesthetically pleasing and also healthy. For the most part, the decisive factor here is sound treatments that suits how the space is used. Sound absorbers made of Basotect® are considered a highly practical solution.

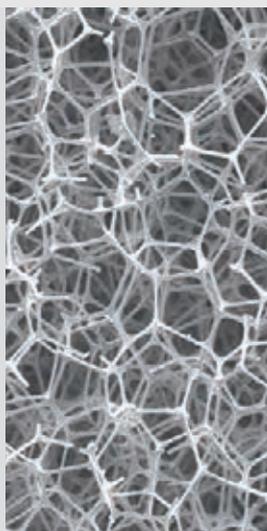
Basotect® consists of melamine resin, which is a type of thermoset foam. Its trademark feature is the fine, open cell structure, which absorbs sound to a high level.

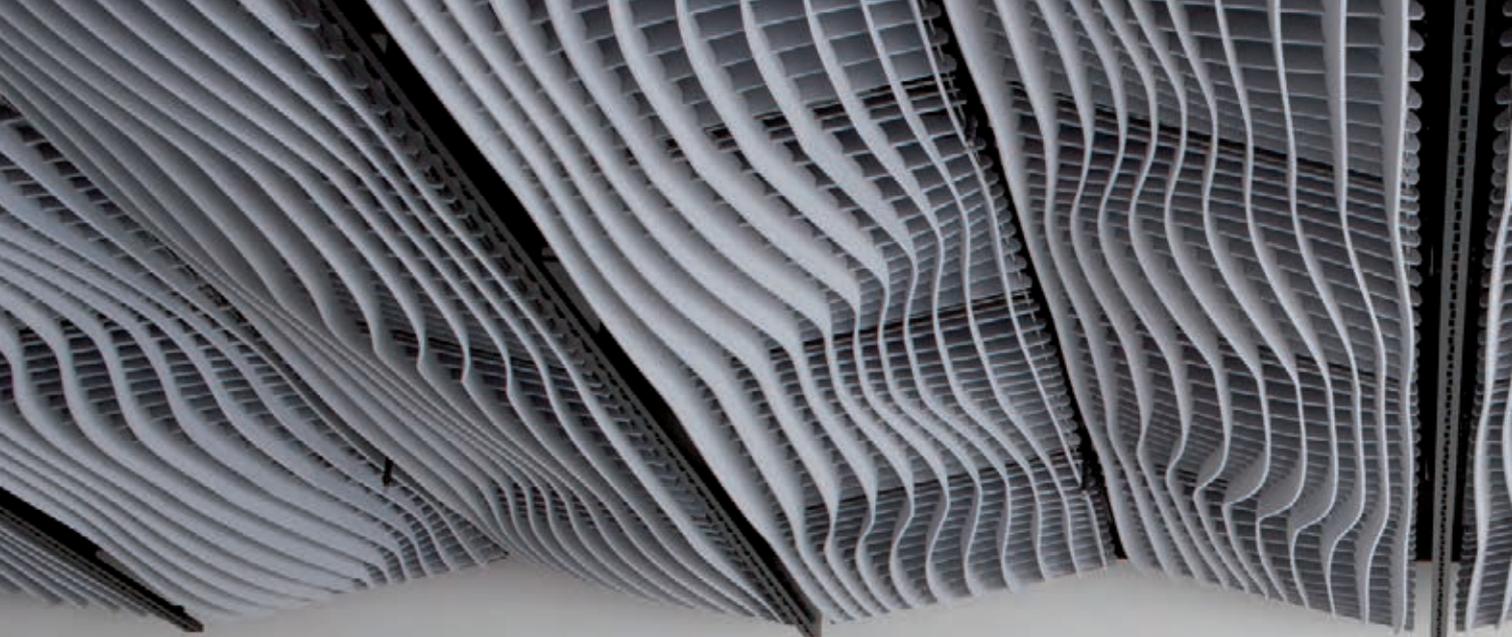
Thanks to its high degree of flexibility and dimensional stability, Basotect® can be worked into many colors and shapes, opening up a wealth of design possibilities for designers and architects. And because of its low flammability, Basotect® is ideally suited to use in interior design.

## Basotect® B



## Basotect® G+





# Basotect®

## a thoroughly convincing choice

Never before has a room acoustic material afforded users such versatility and creativity, because Basotect® can be easily worked. And since it contains no fibers and is very elastic, Basotect® is extremely easy to manipulate into the desired shape – be it with die-cut, router or blade.

The foam can also be printed, coated, or clad with special paints, varnishes, or other substances without losing its very good sound absorption capacity. Sections of Basotect® are also easy to adhere using many commercially available adhesives.

**And Basotect® can do so much more ...**



- High sound absorption capacity
- Easy to work with
- Design freedom
- Low flammability without additional flame retardants
- Low weight ( $\sim 9 \text{ kg/m}^3$ )
- Combines dimensional stability and flexibility
- No fibers
- High light reflectance
- High color stability
- Resistant to static charging

# What is the right type?

## **Basotect® G+ (light grey)**

because of its color, dirt is less noticeable and is therefore ideally suited to applications within construction and industry.

## **Basotect® B (white)**

with its high light reflectance and color stability, is specifically used for visible applications in interiors.

# One foam – countless possibilities



Offices



Music and media



Public buildings



Sport and leisure



Hotels and restaurants



Education



Manufacturing and industry



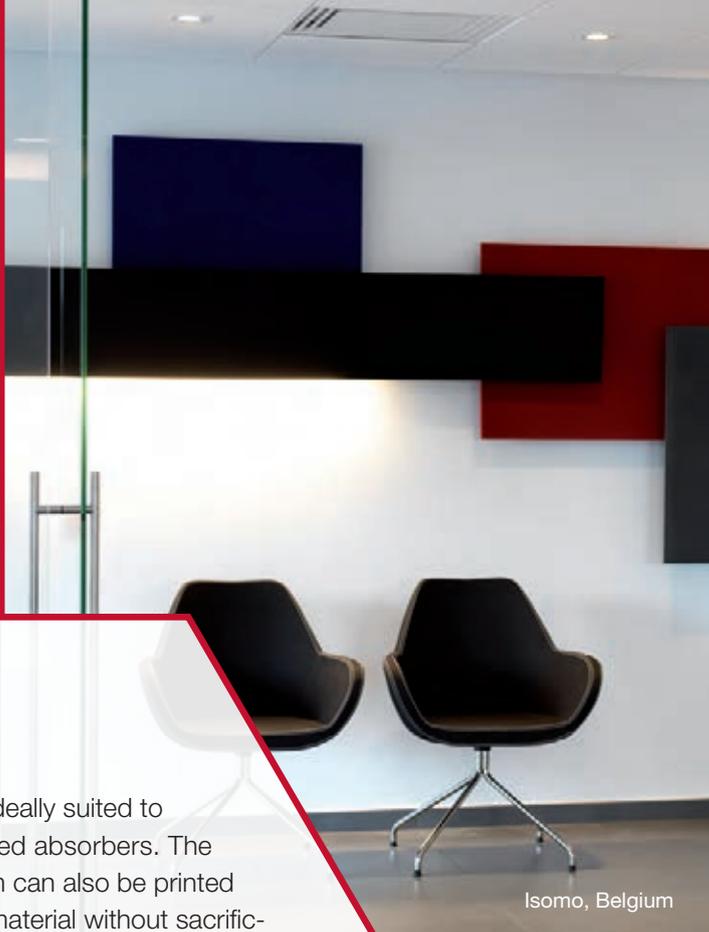
Art



## Offices

Basotect® is just the thing when optimal room acoustics are required and people need to be heard clearly. Particularly in very noisy rooms, like large offices or call centres, it is important to pay special attention to noise absorption. Disruptive noise sources such as ringing phones, colleagues' conversations, or noise from office equipment can make it really difficult for employees to concentrate. And when walls, ceilings, and floors are also hard surfaces that reflect sound, the resulting high noise level can make it impossible for people to work efficiently.

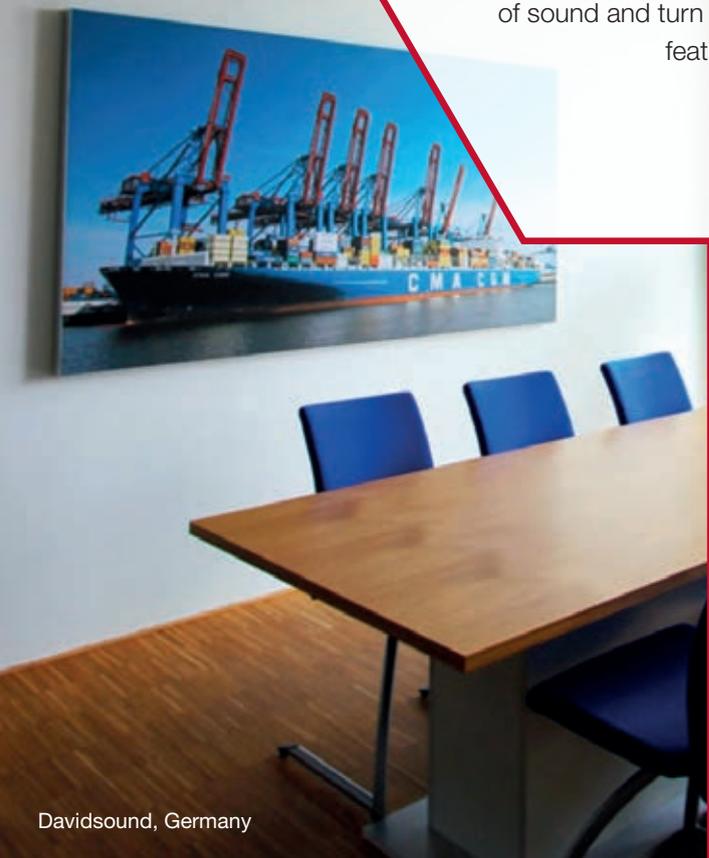
Thanks to its versatility and light weight, Basotect® can fit in with any architectural features – whether used as ceiling tiles, hanging baffles, wall-mounted absorbers, or room dividers.



Dauidsound, Germany

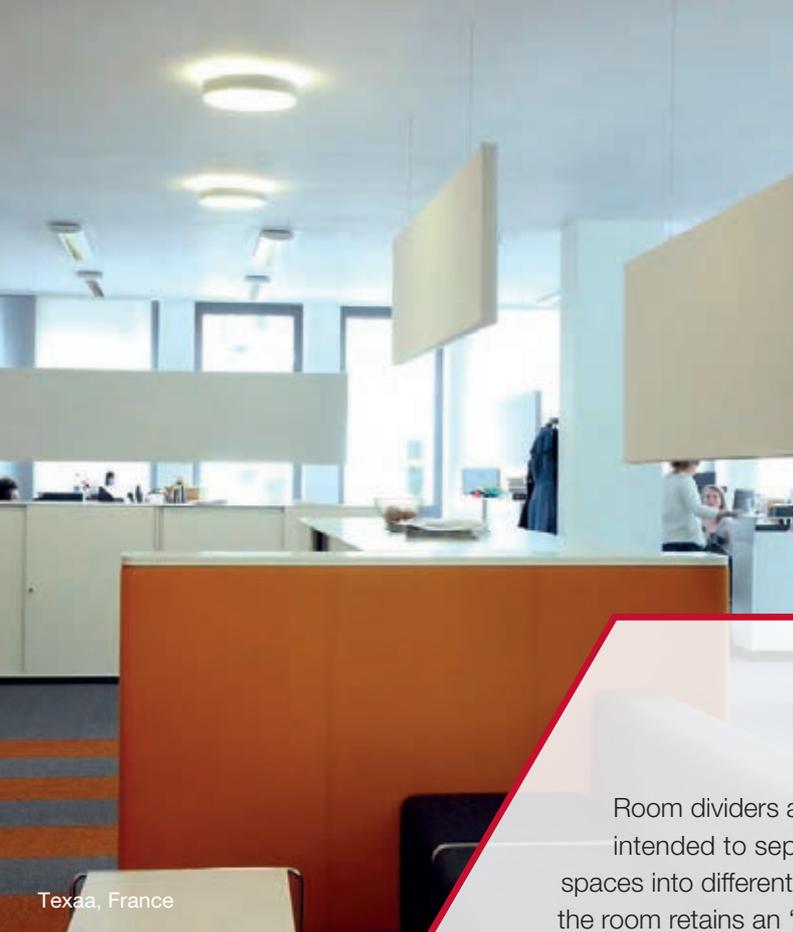
Isomo, Belgium

Basotect® is ideally suited to use in wall-mounted absorbers. The melamine resin foam can also be printed or covered with other material without sacrificing precision or color reliability. This can help disguise its function as an absorber of sound and turn it into a decorative feature.



Dauidsound, Germany

Video projector canvas | Bosig, Germany



Texaa, France



Texaa, France

Room dividers and partitions are intended to separate large open spaces into different areas, while ensuring the room retains an 'open' feel. If they can also help improve the acoustics, they may prove twice as valuable. The big advantage with Basotect® is how easy it is to install, with no need for structural changes.



Texaa, France



Daidsound, Germany



Texaa, France

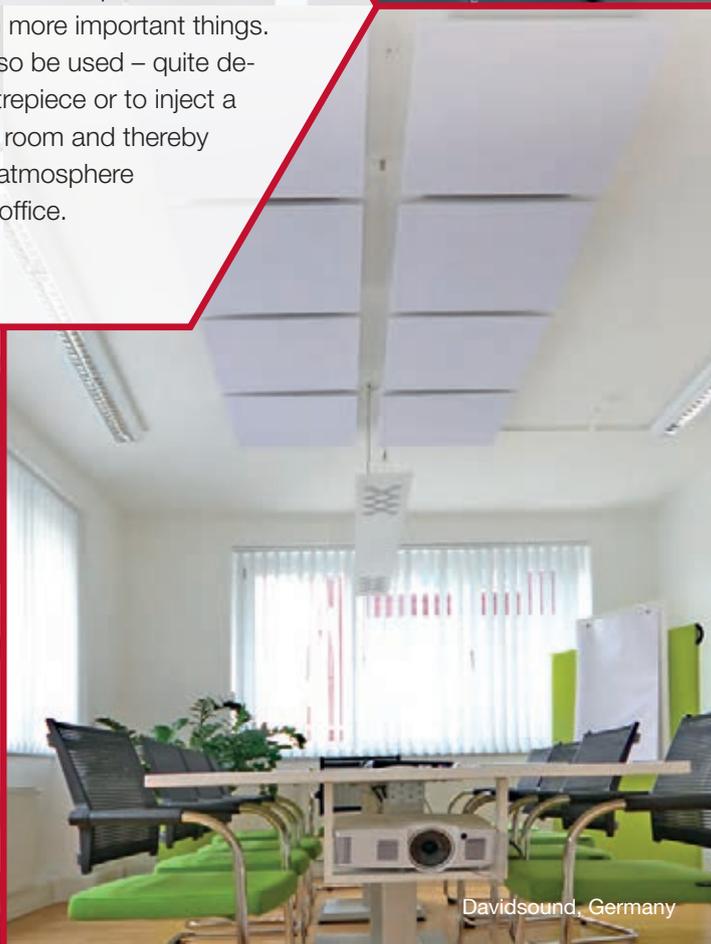


Isomo, Belgium

Ceiling tiles and suspended baffles are often the most discreet form of Basotect® when used as sound absorbers. In unobtrusive colors or shapes, they contribute to a pleasant workplace atmosphere without diverting attention from more important things. That said, they can also be used – quite deliberately – as a centrepiece or to inject a dash of color to a room and thereby lighten the atmosphere in an office.



Texaa, France



Davidsound, Germany



## Music and media

Balanced acoustics are critically important for crystal-clear recording studios and perfectly tuned performance halls. The aim is effective reduction of reverberation so the sound of the instruments and/or voices can be heard as fully as possible. With its high sound absorption and adaptability, Basotect® is ideally suited to use in acoustic rehearsal areas, sound studios, concert halls, TV studios, and cinemas.

15 Basotect® cubes of different sizes for the concert hall and rehearsal room at the Musiktheater in Linz | Eurofoam, Austria



Genesis Theater Singapur,  
VI-SON

Given how easy it is to work with and the tremendous freedom it allows designers, Basotect® is really versatile. Particularly when shaped into nodules or pyramids, Basotect® is excellent for sound absorption in medium and high frequency ranges (500 to 5,000 Hz). For lower frequencies, the melamine resin foam can be combined with materials such as wood, plaster, metal, or even plastic.



Sonatech, Germany

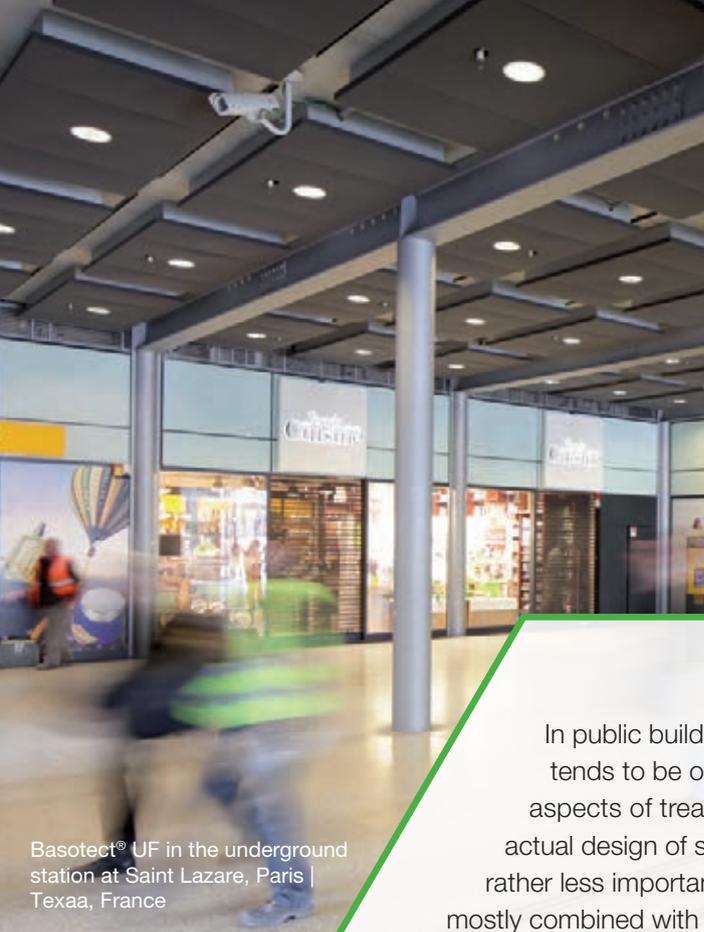


Sonatech, Germany



## Public buildings

Ceilings and wall systems made of Basotect® are used in public buildings, but not only because of their very good sound absorption. Basotect® also satisfies many specifications that ensure higher levels of fire safety in public buildings, creating safer spaces as well as delivering comfortable acoustics.

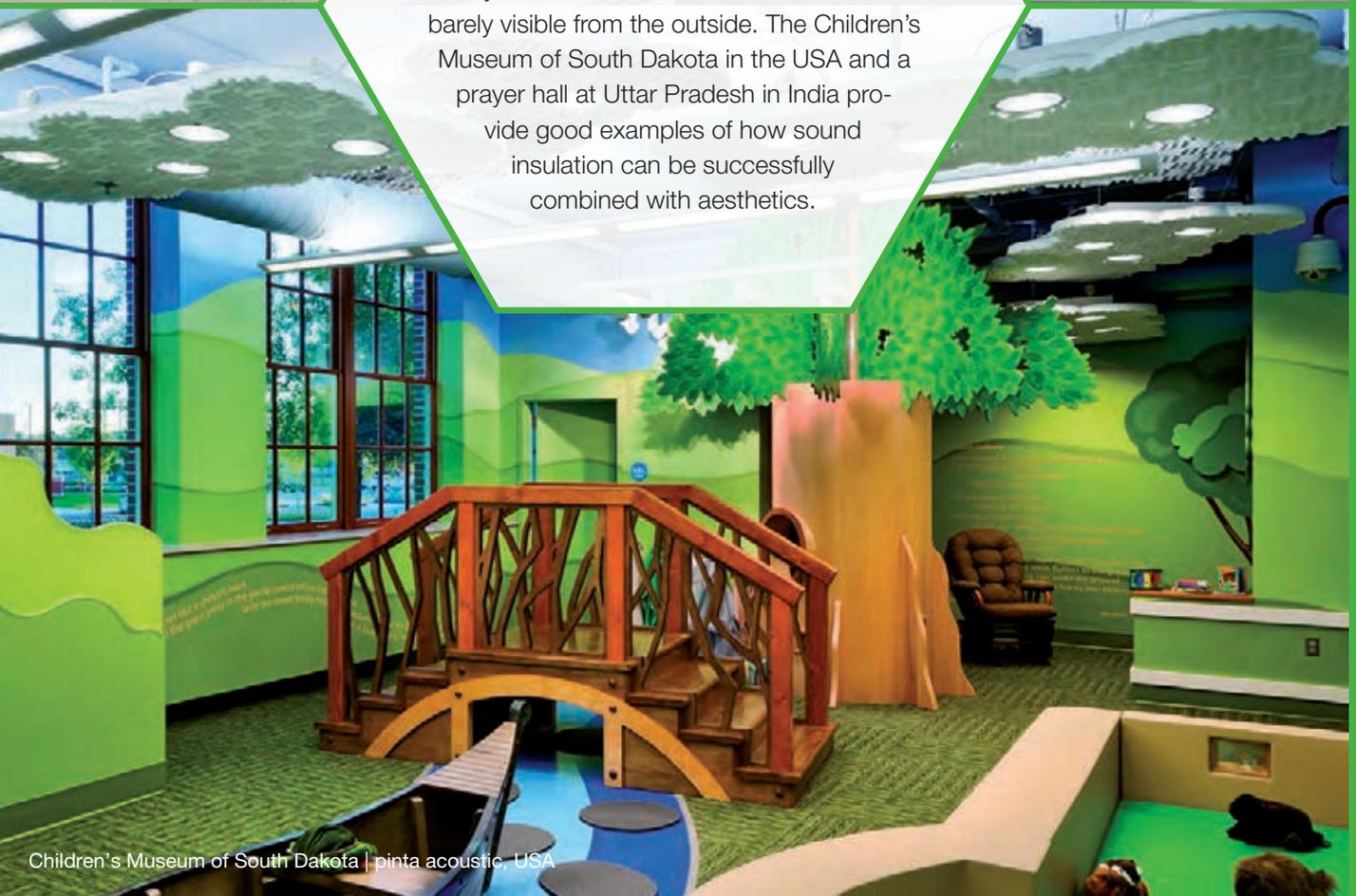


Basotect® UF in the underground station at Saint Lazare, Paris | Texaa, France



Subway Line 9 in Seoul | Entech, China

In public buildings, the focus tends to be on the practical aspects of treating sound. The actual design of sound absorbers is rather less important, because they are mostly combined with other materials and are barely visible from the outside. The Children's Museum of South Dakota in the USA and a prayer hall at Uttar Pradesh in India provide good examples of how sound insulation can be successfully combined with aesthetics.



Children's Museum of South Dakota | pinta acoustic, USA



## Sport and leisure

The problem with sport stadiums and arenas is no secret: lots of people gather in one place and the volume soon skyrockets. This phenomenon is easy to hear and appreciate at sporting contests attended by large crowds. Which is why suitable measures need to be taken to protect the hearing of athletes and spectators alike.

30,000 m<sup>2</sup> of roof baffles made of Basotect® in the retractable roof of the National Fitness Center Stadium in the Chinese city of Ordos | Entech, China

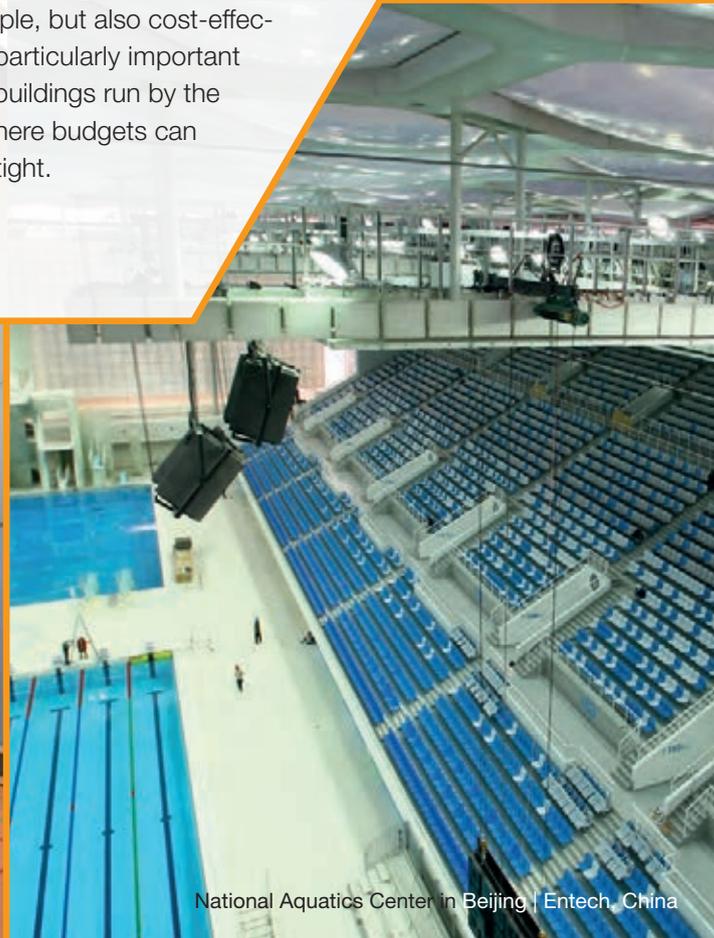


"Splash" sculpture made of Basotect® at an indoor pool in the USA | pinta acoustic, USA

And indoors sports halls and swimming pools are something of a special case – noise levels can really get out of hand at such venues. Here, Basotect® offers a solution that is not only quick and simple, but also cost-effective. The latter is a particularly important consideration for buildings run by the public sector, where budgets can be tight.



Tschuschke, Germany



National Aquatics Center in Beijing | Entech, China



## Hotels and restaurants

There can not be many industries where a pleasant and engaging atmosphere is quite so important as the hotel and restaurant sector. Noise has a seriously negative impact on how guests feel, which is why sound insulation requires particular attention. The challenge is to find the right material to meet the highly demanding design criteria.

Covered ceiling baffles with fabrics | Bosig, Germany

Since the very simplest methods can be used when working with Basotect®, the possibilities in terms of color and shape are pretty much limitless. This makes it really easy to adapt the melamine resin foam to specific design specifications and concepts put forward by planners and architects.



## Education

When noise levels remain high for long periods, it has been shown to affect the concentration and receptiveness of students. Teachers, too, have to suffer the negative effects of excessive noise, making lessons stressful and fraught occasions. Even the buildings that often house schools and nurseries exacerbate the problem with their reflective bare concrete walls, making for a noisy learning environment. Basotect® is able to reduce sound levels to a comfortable level, especially in the medium and high frequency range between 500 and 5,000 Hz.



Eurofoam, Germany



Baffles made of Basotect® in a school building | Merford, Netherlands

Basotect® can be installed using the very simplest tools, leaving architectural features intact. This makes it possible to achieve sustainable acoustic improvements without spending too much time or money.



Ceiling and wall elements made of grey Basotect® in a class room | Setaplast, Germany

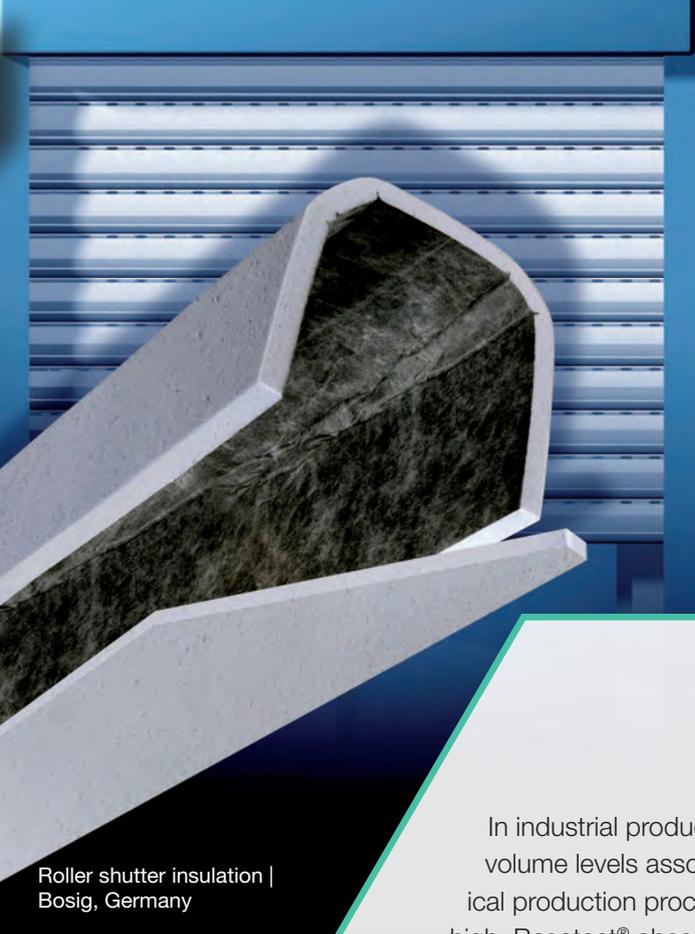


Texaa, France



## Manufacturing and industry

We are now aware of just how important sound absorption is to both new build and renovation projects. This means Basotect® can also be used in multifunctional cooling and heating ceilings for office and administrative buildings. It makes sense to use specific combinations with lighting and speakers in such cases. Ceiling recesses (prepared in advance) can accommodate strip absorbers made of Basotect®, with or without housings fashioned from perforated metal. Even if only 15 per cent of the surface is covered, this can significantly reduce reverberation times.

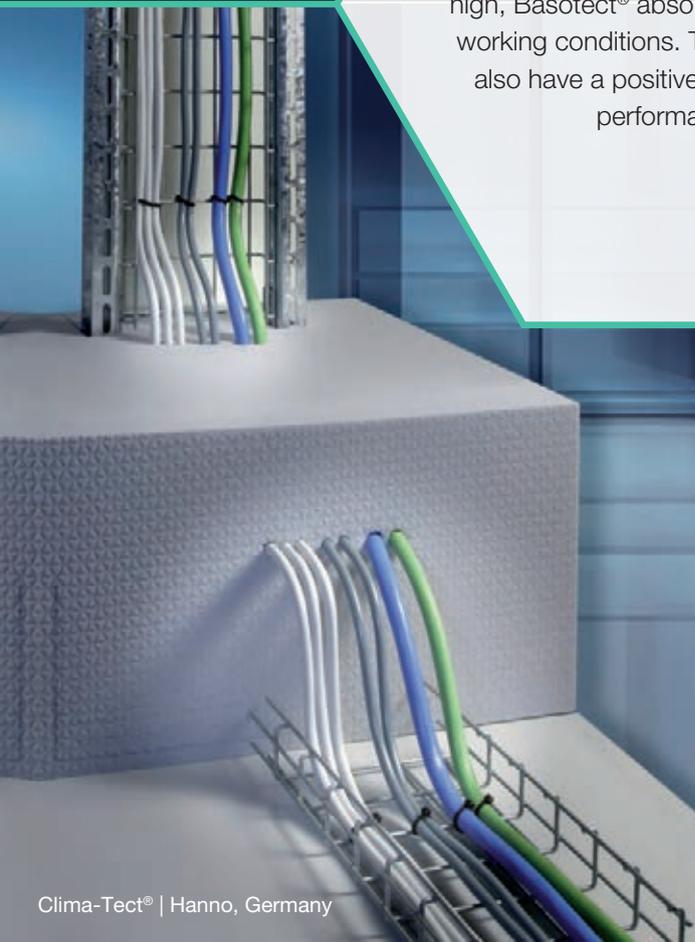


Roller shutter insulation | Bosig, Germany

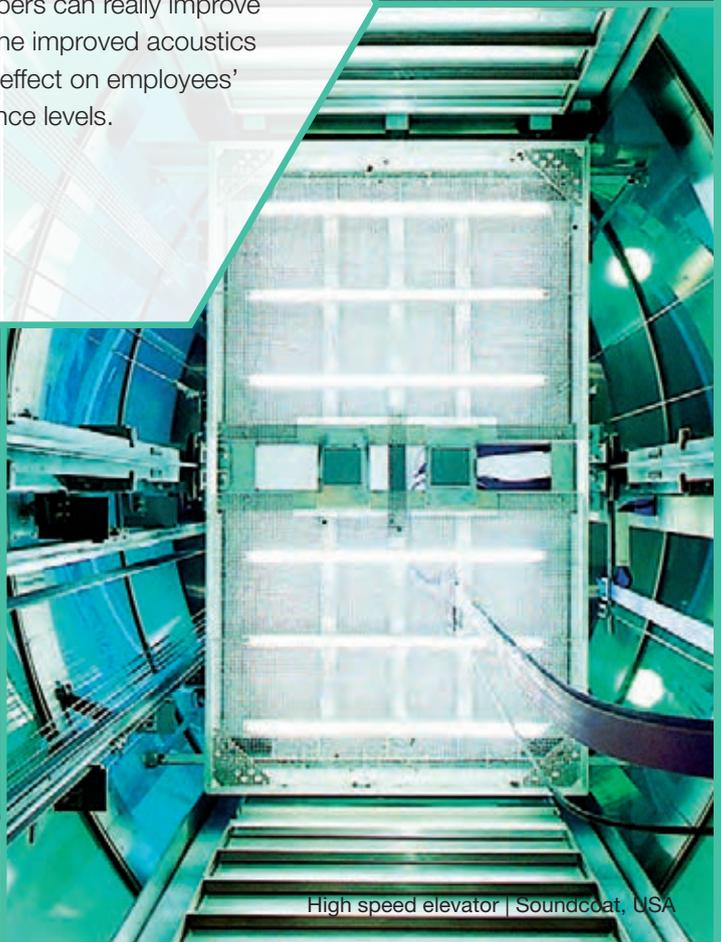


Acoustic test space | Hanno, Germany

In industrial production halls where the volume levels associated with mechanical production processes tend to be quite high, Basotect® absorbers can really improve working conditions. The improved acoustics also have a positive effect on employees' performance levels.



Clima-Tect® | Hanno, Germany



High speed elevator | Soundcoat, USA

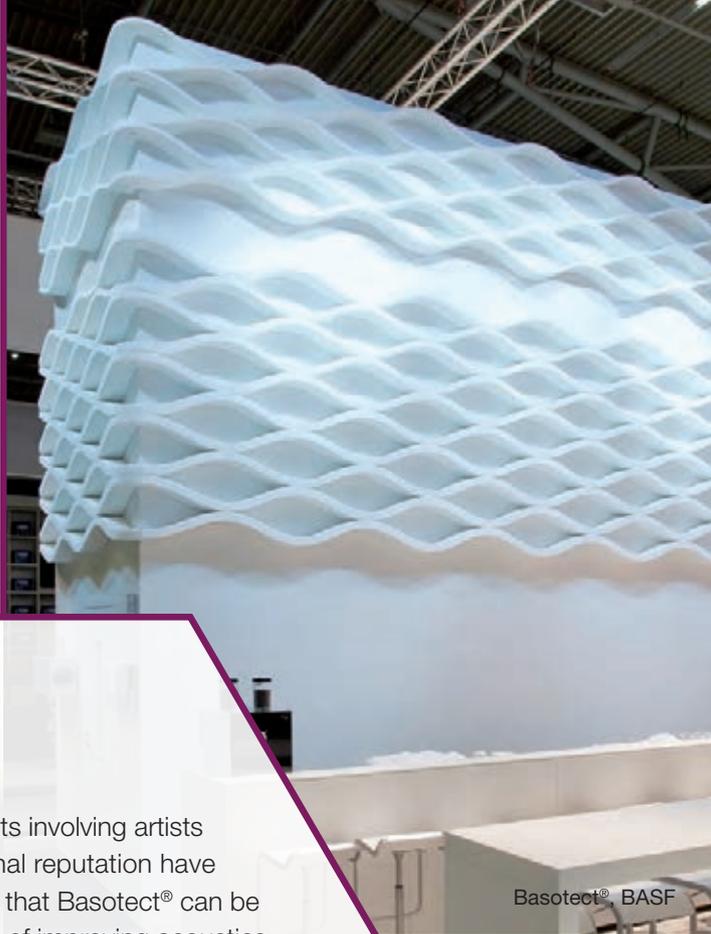


## Art

Basotect® is ideally suited to practical sound insulation solutions, but because it is so easy to work with, it also appeals to many creative artists, making it an interesting material for a wide range of artistic creations. The sculptures by the Dutch artist Niek Pulles (above) as well as the artistic installation, Synthetic Desert III, by artist Doug Wheeler at the Salomon R. Guggenheim Museum in New York (right below) are impressive examples for the multiple design options that Basotect® offers.

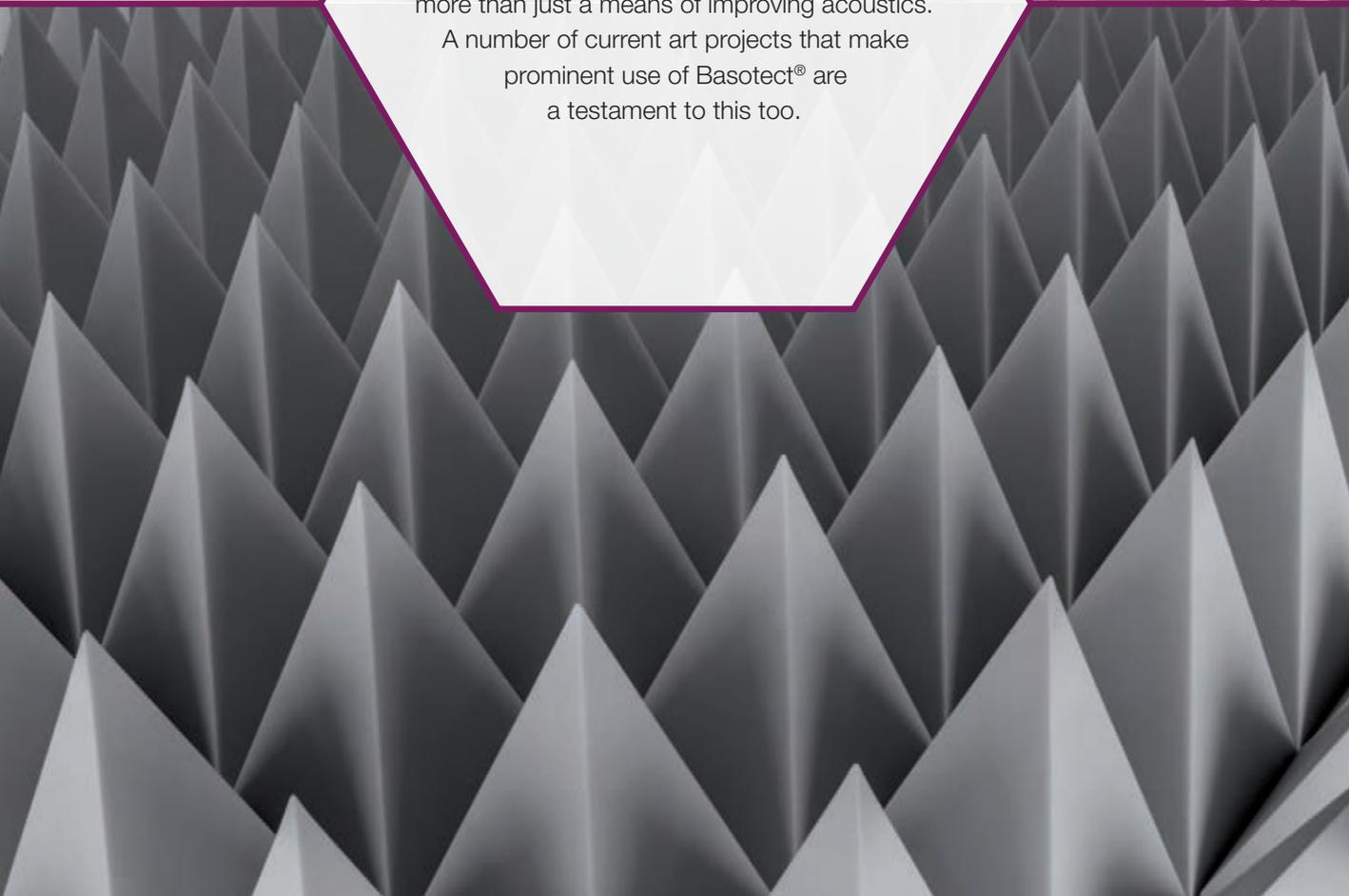


Isomo, Belgium



Basotect® BASF

Various art projects involving artists with an international reputation have already demonstrated that Basotect® can be more than just a means of improving acoustics. A number of current art projects that make prominent use of Basotect® are a testament to this too.

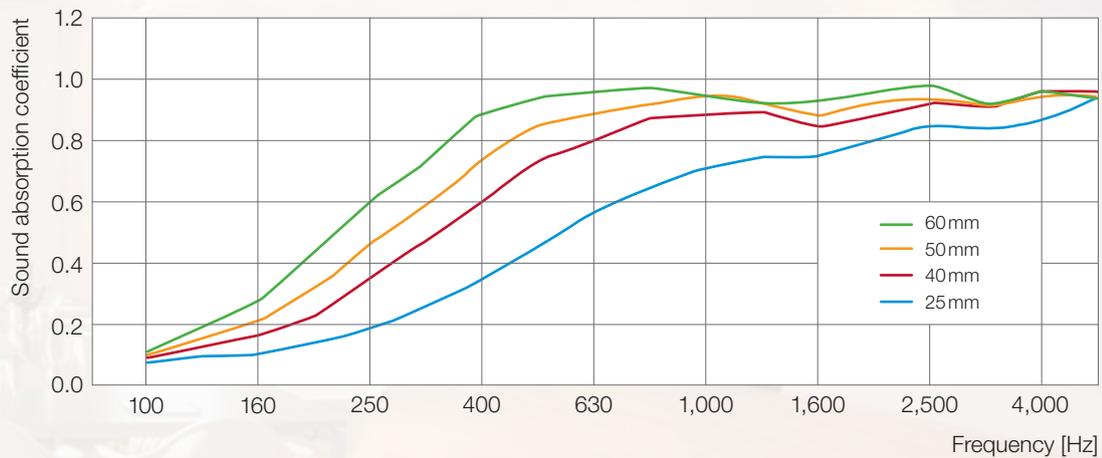


# Technical information

Basotect® offers excellent sound absorption capabilities in the medium and high frequency range. At lower frequencies of 100 to 125 Hz, acoustic optimizations can be achieved using an additional heavy layer. Alternatively, it is also possible to attach the absorbers at a pre-defined spacing from the wall.

Properties	Standards	Units	Values
Density (Average value)	EN ISO 845	kg/m <sup>3</sup>	9+/-1.5
Compressive strength (Average value)	EN ISO 3386-1	kPa	> 9
Tensile strength (Average value)	EN ISO 1798	kPa	> 130
Elongation at break (Average value)	EN ISO 1798	%	> 21
Fire behavior			
- Germany	DIN 4102-1		B1
- Europa	EN 13501-1		B/C
- USA	ASTM E84		Class A

Physical properties of Basotect® G+



Degree of sound absorption of Basotect® G+ as a function of the thickness, according to DIN EN ISO 354 (reverberation room)

Basotect® G+ thickness (mm)	Individual value $a_w^*$	Sound absorption class*	Noise Reduction Coefficient NRC**
25	0.50 (M/H)	D	0.60
40	0.65 (M,H)	C	0.75
50	0.80 (M,H)	B	0.85
60	0.95	A	0.90

Value of sound absorption of Basotect® G+ as a function of the thickness, according to

\* DIN EN ISO 11654

\*\* ASTM C 423

# Installation recommendations

## Suspended grid ceilings

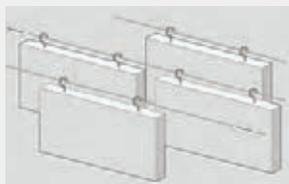
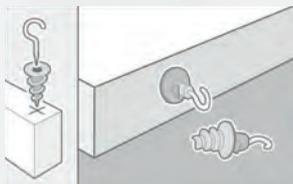
The panels of the grid ceiling are placed into load-bearing profiles. Grid ceilings are removable and allow inspections or maintenance work to the installed systems to be carried out quickly and easily. The ceiling panels can also be fitted with attachments for ventilation and lighting systems.





## Vertical and horizontal cable systems

This highly flexible type of installation is recommended if the use of tiles adhered to the ceiling is not possible. This could be due to the ceiling being difficult to access or built-up with facility equipment. Another reason would be to position the absorber at close proximity to the source of the sound or the area to be silenced. When suspended vertically, Basotect® can be attached using conventional spiral anchors or plasterboard fixings. When suspended horizontally, steel cords with the corresponding tensioners and clips are suitable.



## Adhesive-based systems

In room interiors, acoustic panels made from Basotect® can be stuck directly to walls and ceilings. Generally speaking, the panels can be stuck to almost any type of surface, such as concrete, masonry, plasterboard, metal or wood. The surface must be grease, dust and oil free and must be capable of supporting the weight of the panels. The panels can be attached using any dispersion-based adhesive.



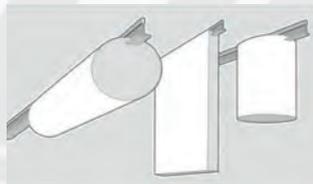
without shadow gaps



with shadow gaps

## Track-based systems

Compared to cord systems, a track-based system enables the panels to be fixed in a more stable manner. Track-based systems are therefore more suitable for environments in which the ventilation systems are expected to produce strong air currents. For use with this type of system, the absorbers are supplied from the factory with a T-groove (either on the long side or the narrow side) that enables them to be suspended. The sub-structure is made up of load-bearing tracks.



### Note

The data contained in this publication are based on our current knowledge and experience. In view of the many factors that may affect processing and application of our product, these data do not relieve processors from carrying out own investigations and tests; neither do these data imply any guarantee of certain properties, nor the suitability of the product for a specific purpose. Any descriptions, drawings, photographs, data, proportions, weights etc. given herein may change without prior information and do not constitute the agreed contractual quality of the product. It is the responsibility of the recipient of our products to ensure that any proprietary rights and existing laws and legislation are observed. (August 2017)

**Additional information on our products,  
product properties and applications:**

[www.basotect.de](http://www.basotect.de)  
[basotect@basf.com](mailto:basotect@basf.com)