CALOSTAT®
HIGH-PERFORMANCE INSULATION MATERIAL
Efficient – safe – sustainable
EVONIK IS A LEADING SPECIALTY CHEMICALS COMPANY THAT ALSO OFFERS INNOVATIVE SOLUTIONS IN MANY AREAS IN THE CONSTRUCTION INDUSTRY.

From the roof to the foundations, we stand for creativity, commitment, and passion in the protection of international cultural assets and the urban development of the future – passion for our products and for our customers. We are the specialty chemicals partner to the construction industry. Let’s build the future together!

CALOSTAT® is produced by the Resource Efficiency Segment. The Segment offers high-performance materials for environmentally compatible and energy-efficient system solutions for the automotive sector, the paints, coatings, and adhesives industries, the construction sector, and many other branches of industry. Resource conservation is at the root of energy-efficient, ecofriendly products and is therefore a key factor in business development.
CALOSTAT®

Efficient, safe, and sustainable

The best insulation value for efficient insulation

The thermal conductivity of CALOSTAT® is just 0.019 W/(mK). This enables thin build-ups that allow excellent performance even in challenging installation situations.

Less insulation – more space

Slim insulation pays off because it saves not only heating energy but also space. Low insulation space requirements allow more interior space that can be sold or leased.

Safe construction

CALOSTAT® is classified as A2-s1, d0 as specified in DIN 13501. This means that the insulation material is non-combustible, is classified in the lowest smoke emission category, and emits no burning droplets or particles as defined in the European standard.

Sustainability and healthy living

CALOSTAT® does not contain fungicides, pesticides, algicides, flame retardants, or binders. It is in addition a highly durable material designed for a lifetime of at least 50 years, and it can be recycled. CALOSTAT® is the only superinsulation material that is Cradle to Cradle Certified™ Gold and has been awarded the Material Health Certificate at the Platinum level.

Durability and stability

CALOSTAT® is permeable to water vapor but hydrophobic, which means that it does not absorb liquid water. The material is therefore durable over the long term and stable in performance over its entire lifetime, even, for example, in the event of leakages.
CALOSTAT® is always the right material

CALOSTAT® insulation panels are available in two variants, CALOSTAT® Pure and CALOSTAT® Sandwich.

CALOSTAT® Pure is a highly efficient and non-combustible insulation material. It is most suitable as insulation material in systems that are prefabricated or preassembled. CALOSTAT® Pure is used, for example, as insulation in various facade systems or prefabricated composite elements, in building elements, and also as flat-roof or facade insulation.

CALOSTAT® Sandwich is a more robust version with a CALOSTAT® Pure core mechanically bonded to two covering layers. CALOSTAT® Sandwich is particularly suitable for insulation of rainscreen facades and sloped roofs as well as the ceilings of underground garages and basements, and for optimization of technical building equipment.

CALOSTAT® Pure

CALOSTAT® Sandwich MW

CALOSTAT® Sandwich MW-F
CALOSTAT® makes it possible

CALOSTAT® – A CUTTING-EDGE BUILDING MATERIAL THAT IS HIGHLY EFFICIENT.

In the construction sector, CALOSTAT® is the long-awaited high-performance insulation material that combines the best insulation values with fire protection and sustainability. CALOSTAT® is a purely mineral insulation material based on silicon dioxide. Its outstanding values make it the material of choice for high-performance insulation in challenging situations.

CALOSTAT® has a thermal conductivity of just 0.019 W/(mK) and is classified as A2-s1, d0 as specified in DIN 13501.

CALOSTAT® allows:
- building envelopes to be efficiently and compactly insulated
- Innovation in high-end facades
- space gain due to less material
- energy renovation with a minimum of structural effort
- slim internal insulation (e.g. of listed buildings)
- energy savings in both summer and winter

CALOSTAT® allows:
- insulation that also protects against fire
- fire protection without compromising insulation performance
- just one single structural element for both insulation and fire protection
- safety for owners and users of buildings

CALOSTAT® allows:
- better ratings in certifications like DGNB, BREEAM, and LEED
- insulation without toxic additives
- sustainable construction in the sense of the circular economy
- a healthy and comfortable indoor climate
Highly demanding insulation requirements?

NO PROBLEM!!


The special properties of CALOSTAT® open up a wide range of applications in which the advantages of the material are fully exploited.

1. Pitched roof
2. Dormers
3. Balcony/terrace/flat roof
4. Facade
5. Door/window
6. Roller-shutter or venetian blind boxes/reveals/building elements
7. Interior insulation
8. Ceilings of basements or underground garages
CALOSTAT®

in application
Rain screen facades

CALOSTAT® Pure and CALOSTAT® Sandwich allow slim, non-combustible rain-screen facades. Advanced design and the highest degree of safety in the event of fire are now at last compatible, thanks to CALOSTAT®.

Curtain wall facades on lightweight substructure

Lightweight structures are currently popular and CALOSTAT® streamlines them further – without compromising fire protection performance.

Stuttgart’s tallest apartment block, CLOUD No. 7, has been insulated with CALOSTAT®.
Element facade

Slim elements for the facade in new buildings and especially in renovation are easily realized with CALOSTAT®. Together with partners in the construction sector, Evonik has developed panels that reduce installation depth by more than 50 percent in comparison to standard insulation materials.

CALOSTAT® provides safe and slim solutions even for difficult details such as insulation of shadow boxes or spandrel panels.

In the energy refurbishment of this office building in Switzerland, the slim facade elements allowed the existing support structure to be retained, saving the owner time, effort, and expense.

Other insulation solutions in the facade can be realized using CALOSTAT® Sandwich products.

Facade paneling with a U value of < 0.20 W/m²K using a combination of CALOSTAT® and VIP with a thickness of only 74 mm.

Non-combustible facade paneling insulated with two layers of CALOSTAT®.
Pitched or sloped roofs

CALOSTAT® can be used in sloped roofs as rooftop insulation or as insulation between rafters in refurbishment as well as new construction. As CALOSTAT® Sandwich the high-performance insulation material is easy to install and helps save space even on the roof.

Terraces and flat roofs

In the insulation of terraces and flat roofs, CALOSTAT® solves the problem of high insulation thicknesses coupled with restrictions on the space available for installation. CALOSTAT® also scores on fire protection and compressive strength. Particularly in refurbishment, flush appearance of the terrace or roof is thus possible, combined with the best insulation.

Sustainable and recyclable roof insulation is also possible with CALOSTAT®.
Internal insulation

It may not always be possible to insulate a building on the outside: Facades of listed buildings or a lack of space often make internal insulation necessary. Particularly in such cases the high insulating performance of CALOSTAT® can be used to good effect.

CALOSTAT® has received its Material Health Certificate also explicitly for internal insulation; it therefore ensures a healthy indoor climate.

Ceilings of basements and underground garages

Insulation of the ceilings of basements and underground garages often plays a major role in the energy balance of a building; shortage of space and high fire protection requirements often make the task more difficult. In cases such as this, CALOSTAT® can help.
Building components and building elements

Insulation of building components and building elements is difficult. These building elements often represent a weak point in the insulation; despite an insulated building envelope, this may lead to energy loss due to thermal bridges, or to water condensation.

CALOSTAT® is the solution here to provide slim and reliable insulation even at these difficult spots. Roller shutter boxes, reveal profiles, and dormers as well as narrow places in the facade can be easily and reliably insulated with CALOSTAT®.
FIRE PROTECTION and THERMAL INSULATION ARE FINALLY COMBINABLE

CALOSTAT® slim insulation also protects against fire. This innovative material from Evonik is purely mineral by nature: Its main component silicon dioxide is, chemically speaking, a special form of sand. That explains why CALOSTAT® is, quite simply, non-combustible – with no exceptions or restrictions.

Proven fire protection

CALOSTAT® is classified as A2-s1, d0 as specified in DIN EN 13501. This means that the insulation material is non-combustible, is classified in the category of lowest smoke emission, and, by the European standard, emits no burning droplets or particles. It also satisfies the requirements of the ASTM E 84 fire test as a class 1 or A material (flame spread index (FSI): 0/smoke development index (SDI): 5).
Insulation and fire protection in one

Depending on your viewpoint, it’s a fire-protection panel that also insulates – or an insulation panel that also protects against fire. Its use even in high-rise structures poses no problems. CALOSTAT® can likewise be used at areas in the facade that are particularly at risk (above windows, for example, or in roller shutter boxes or reveals).

AWARD

CALOSTAT® is the FeuerTRUTZ Network’s Product of the Year 2018 in the Structural Fire Protection category.
Now installing the FUTURE

INSULATION PAYS OFF – AND SUSTAINABLE INSULATION PAYS OFF EVEN MORE

CALOSTAT® also impresses by its sustainability. The award of the Material Health Certificate at the Platinum level for both internal and external application testifies to the safety of CALOSTAT® for people and the environment. The use of high-quality raw materials makes fungicides, algicides, pesticides, fire-protection agents, and binders totally unnecessary – which is a big plus because these substances are often toxic.

Builders also benefit financially by using CALOSTAT®. Insulation that is up to 50 percent slimmer avoids the use of additional building materials in construction. This results in direct savings and also helps the environment: Materials that are not used need not be produced or transported.

Buildings eventually reach an age at which they must be either restored or demolished. If, after a long life, they are available to subsequent generations as a raw-material source they are doubly useful. CALOSTAT® contributes toward this: After many years of use, the long-lived high-performance insulation material is easily recycled.

CALOSTAT® is the only superinsulation material to be Cradle to Cradle Certified™ Gold. This enables builders to improve their scores in the assessment of their building projects for DGNB, LEED, or BREEAM certification.
CALOSTAT®

pays off

HERE’S HOW:

Every building is different, obviously. Let’s simplify the calculation and assume that you opt for CALOSTAT® instead of mineral wool.

<table>
<thead>
<tr>
<th>Insulation material</th>
<th>R-value</th>
<th>U-value**</th>
<th>Space savings per 10 running meters of facade surface</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAOSTAT® [mm]</td>
<td>[m²K/W]</td>
<td>[W/m²K]</td>
<td>[m²]</td>
</tr>
<tr>
<td>20</td>
<td>1.170</td>
<td>0.855</td>
<td>0.20</td>
</tr>
<tr>
<td>30</td>
<td>1.670</td>
<td>0.599</td>
<td>0.30</td>
</tr>
<tr>
<td>40</td>
<td>2.170</td>
<td>0.461</td>
<td>0.30</td>
</tr>
<tr>
<td>50</td>
<td>2.670</td>
<td>0.375</td>
<td>0.40</td>
</tr>
<tr>
<td>100</td>
<td>5.170</td>
<td>0.193</td>
<td>0.80</td>
</tr>
<tr>
<td>150</td>
<td>7.670</td>
<td>0.130</td>
<td>1.20</td>
</tr>
</tbody>
</table>

* lambda = 0.035W/mK
** with contact resistance external / internal wall

So with CALOSTAT® you save approx. 45 percent on the area required for insulation. This means a larger net floor area for lease, sale, or your own use. In addition, a slim facade leads to construction savings in all areas of the building shell, and construction is less expensive overall. In many cases CALOSTAT® is therefore the more economical solution. We’d be happy to help you with your own calculations.

And if you miscalculated?

It may be – and this happens even on the best building sites – that the insulation doesn’t fit behind the downpipe, or a building element is too narrow for a conventional insulation material.

CALOSTAT® is the solution to your problems for all difficult installation situations. CALOSTAT® brings building insulation to perfection. Owners can be confident that the physical specifications are met throughout the entire insulation.
IN APPLICATION:

easy handling

FROM ORDERING TO SERVICE: CALOSTAT® MEETS ALL YOUR NEEDS.

From its delivery to its use after installation, CALOSTAT® is simply unbeatable. Installation is described in a few simple steps – and if you still have questions, support is available on our website.

STANDARD PALLETS

<table>
<thead>
<tr>
<th>Board Thickness [mm]</th>
<th>Boards per pallet [Number of Boards]</th>
<th>Area per pallet [m²]</th>
<th>Volume per pallet [m³]</th>
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<tbody>
<tr>
<td>20</td>
<td>48</td>
<td>28.8</td>
<td>0.576</td>
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<tr>
<td>25</td>
<td>38</td>
<td>22.8</td>
<td>0.570</td>
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<td>30</td>
<td>32</td>
<td>19.2</td>
<td>0.576</td>
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<td>40</td>
<td>24</td>
<td>14.4</td>
<td>0.576</td>
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<tr>
<td>50</td>
<td>19</td>
<td>11.4</td>
<td>0.570</td>
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</table>

TECHNICAL DETAILS

<table>
<thead>
<tr>
<th>PROPERTIES</th>
<th>UNIT</th>
<th>VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermal conductivity (λ)</td>
<td>W/(mK)</td>
<td>0.019</td>
</tr>
<tr>
<td>Design Value (λD)</td>
<td>W/(mK)</td>
<td>0.020</td>
</tr>
<tr>
<td>Standard dimension</td>
<td>mm</td>
<td>1000 x 600</td>
</tr>
<tr>
<td>Board thickness</td>
<td>mm</td>
<td>inch</td>
</tr>
<tr>
<td></td>
<td>20, 25, 30, 40, 50</td>
<td></td>
</tr>
<tr>
<td>Bulk density</td>
<td>kg/m³</td>
<td>165</td>
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<tr>
<td>Vapor diffusion resistance (μ)</td>
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<td>5</td>
</tr>
<tr>
<td>Water absorption</td>
<td>kg/m²</td>
<td>≤ 0.1</td>
</tr>
<tr>
<td>Moisture absorption</td>
<td>M-%</td>
<td>≤ 1.0</td>
</tr>
<tr>
<td>Compression strength at 10% deformation</td>
<td>kPa</td>
<td>≥ 90</td>
</tr>
<tr>
<td>Elastic recovery / recovery reversible</td>
<td>%</td>
<td>≤ 10</td>
</tr>
<tr>
<td>Color</td>
<td></td>
<td>gray</td>
</tr>
</tbody>
</table>

APPROVALS AND CERTIFICATES

CALOSTAT®

DIN EN 13501 | Construction material class A 2-s1, d0 (non-combustible)
DIN 4102 | Construction material class A (non-combustible)
European Technical Assessment (ETA) | 16/0587
DIBt approval | Z-23.11-1926: DI, DEO (dg), DAD, DAA, WI and WAB as specified in DIN 4108-10
DIBt approval | Z-23.12-1977: Cavity wall insulation
ASTM E 84 | Surface Burning Characteristics: Class 1 or A (Flame Spread Index (FSI): 0/Smoke Development Index (SDI): 5)
DELIVERY
CALOSTAT® is delivered on pallets protected by cardboard packaging. Please read the safety data sheet carefully; you can download it at www.calostat.de under the menu item Product Information. When you are opening the packaging, take care not to damage the panels in the process: Lift the cardboard directly upward.

CARRY THE PANELS VERTICALLY
Always carry the panels vertically. To lift the panels, first slide them a few centimeters away from the pile and then stand them upright. In this way you can hold the panels at the upper edge and transport them easily and safely. To store the panels, proceed in the reverse order.

CORNERS AND EDGES
The edges and corners of the panels are susceptible and can be damaged on impact. For this reason the panels should always be transported carefully and stored horizontally.

MANUAL CUTTING
CALOSTAT® can be cut using normal cutters. Make sure to use an anti-slip and cut-resistant base. Use an appropriate guide to ensure a straight cut.

MACHINE CUTTING
CALOSTAT® panels are quickly and easily cut to the required dimensions with circular knives, circular saws, or band saws. We recommend that the toothing or serration be as fine as possible, to prevent dust formation.

DRILLING
Any simple commercially available drill, including cordless drills, can be used to bore holes in CALOSTAT® panels. Be sure to use a suitable base.

VIDEO
A short video tutorial on handling CALOSTAT® is available on our home page.
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