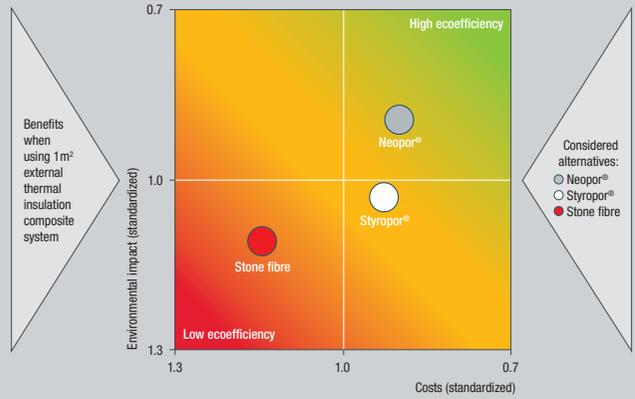
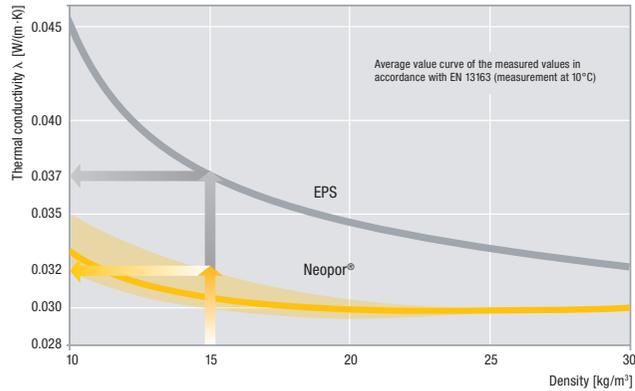


Cost effectiveness and the environment

Thermal conductivity

Particularly with insulation materials with very low densities, significantly better insulation performance is achieved with Neopor®. The figure shows that insulation materials made of Neopor with a density of 15 kg/m³, for example, achieves a thermal conductivity of $\leq 0.032 \text{ W/(m}\cdot\text{K)}$. The thermal conductivity of conventional EPS with the same density is $\geq 0.037 \text{ W/(m}\cdot\text{K)}$.

This means a lower installation height and less insulation material while achieving better thermal insulation. In addition, it contributes to the sustainable conservation of the environment!



Ecoefficiency analysis of external thermal insulation composite systems using the example of the three-liter house in the Brunck district in Ludwigshafen, Germany, in the year 2000, certified by the Oeko-Institut in Freiburg, Germany, and by TÜV (German technical inspection authority).

Applications with insulation materials made of Neopor®

Insulation materials made of Neopor® can be used in any construction application where the white, classic insulation material Styropor® has been used in the past 55 years. This includes:

- Interior and exterior insulation
- Flat roof and tapered roof insulation
- Cavity wall insulation
- Civil Engineering
- Underfloor Heating



Flat roof insulation with Neopor®

Insulation materials made of Neopor can significantly reduce the consumption of heating energy on cold days. In warm regions, effective insulation can also save cooling energy for air conditioning systems.

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 their 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. (November 2012)

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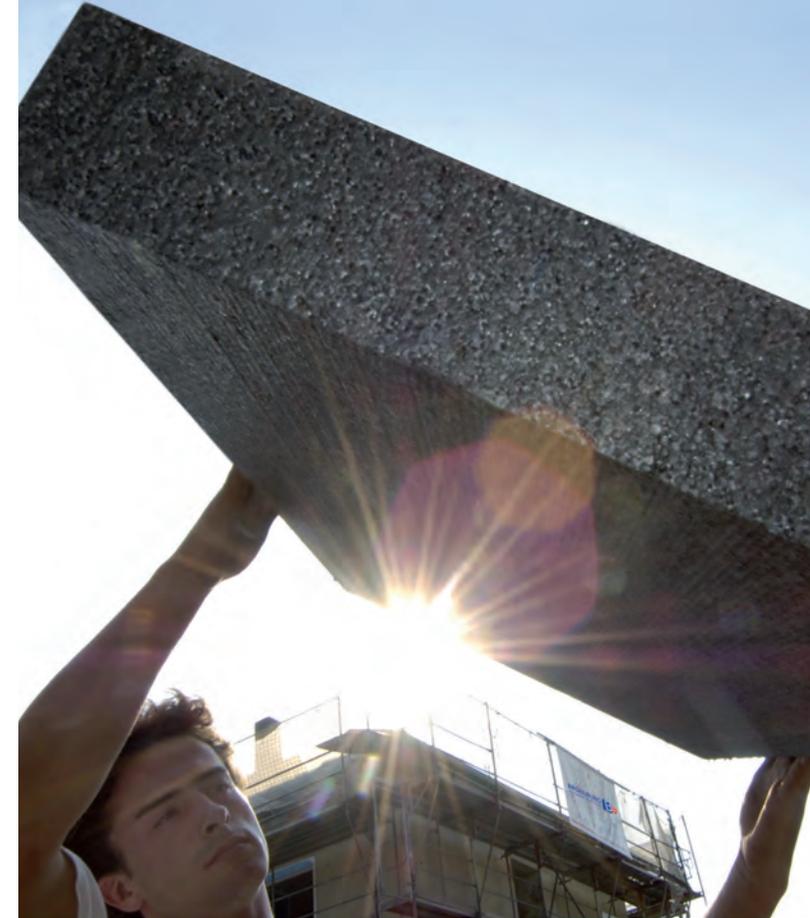
You can find more technical information on Neopor® at: www.neopor.de

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KTRN 1208 FE

Neopor® in a new light

S and B Eps produces insulation materials with Neopor® from BASF called Lambdatherm®



Neopor® does not get “sunburned” – insulation materials made of Neopor have proven their worth

Neopor® represents BASF's further development of the classic Styropor®. The added graphite particles absorb and reflect radiant heat and improve insulation performance by up to 20 percent.

All S and B Eps Lambdatherm® insulation materials are made of Neopor. Today, S and B Eps use Neopor in all of its low lambda External wall applications. The positive experiences made in the manufacturing and subsequent use in construction applications are convincing, provide security, and make a long-term contribution to CO₂ degradation. External thermal insulation composite system (ETICS) suppliers and the installers all trust the tested quality of insulation materials made of Neopor by S and B Eps Ltd.

More than ten years of positive experience with insulation materials made of Neopor vouch for their quality. Millions of square meters of facades, roofs, and other building elements in all parts of the world have been successfully insulated with these silver-grey boards. Test objects, even in the hot desert emirate of Abu Dhabi, prove that insulation materials made of Neopor can be used reliably.

Additional scientific measurements by the Fraunhofer Institute for Solar Energy Systems (ISE), the largest solar research institute in Europe, provide additional facts. The surface heating of white, white-grey-mixed, and grey insulating boards was measured there.

Conclusion:

Even when submitted to high solar radiation, high-quality insulation materials made of Neopor are reliable. The following pages provide further information.

The ultimate test: wall made of Neopor® in Abu Dhabi



Investigations at the Fraunhofer Institute for Solar Energy Systems (ISE)

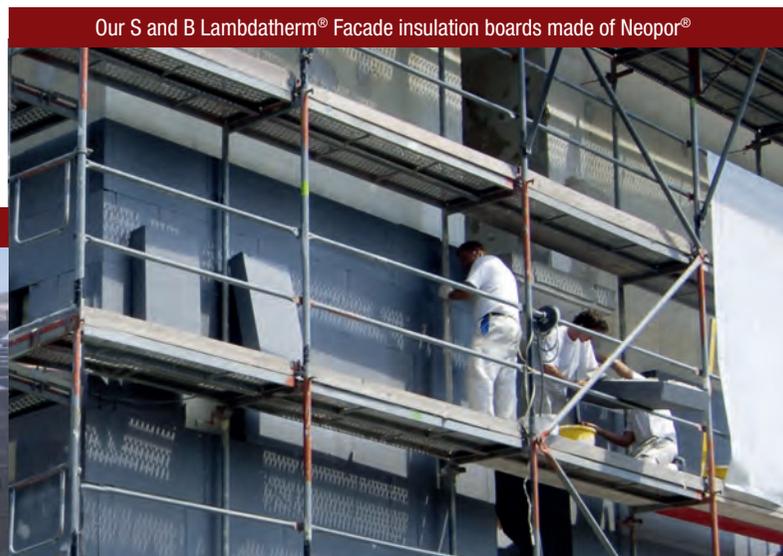
Different insulation board colours (grey, white-grey mixed, white) produce different surface heating properties under direct solar radiation.

In order to establish a comparison of various insulation boards, BASF commissioned the Fraunhofer Institute for Solar Energy Systems (ISE) to perform measurements in a sun simulator. The temperatures at the surface as well as at a depth of 1 cm were measured. Temperatures of 25 °C, 35 °C, and 40 °C were simulated with simultaneously high radiation intensity.

The result:

The grey and white-grey insulation materials exhibit nearly similar surface temperatures, and under extreme conditions of 40 °C with vertical radiation exposure, the surface of both types of boards can heat up to approx. 80 °C.

Depending on the thermal conductivity, the measured temperature at the surface of the different EPS boards is conducted differently into the depth of the insulation boards. The temperature drops considerably with each centimeter below the irradiated surface.



Storage at the construction site and processing information – quality assurance for EPS insulation materials

Use only quality approved products as S and B Lambdatherm® Insulation boards a product made from Neopor®.

Outdoor storage of Grey cut boards

The Neopor insulation boards are packaged in opaque or nontransparent film; there is no burning glass effect when packaged this way.

Tip:

In general, EPS products – like other construction materials – should not be stored in direct sunlight any longer than necessary. However, if the board packages were stored in the sun for a longer period of time, it is recommended to place aside the top insulation board, or the one that was exposed to the sun, for the time being and to first use the boards underneath.

Substrate and adhesive mortar

There are isolated reports of insulation boards detaching themselves from the wall under strong solar radiation. This is caused by the “burning up” of the adhesive. The adhesive prematurely loses the moisture required for bonding. This generally happens when the solar radiation heats up the wall excessively, and is not caused by the colour of the insulation material manufactured according to the norm. It helps to shade areas that are subject to high levels of radiation or are at particular risk.

Tip:

Another helpful and well-established work practice is to carry out the installation of the insulation boards opposite to the course of the sun. Consequently, the adhesive mortar can generally be applied in the shade.

Important:

Adhesive mortar and other system components must be used according to approval and the manufacturer's instructions. If too little or the wrong adhesive mortar is used, a loosening of the boards cannot be ruled out.