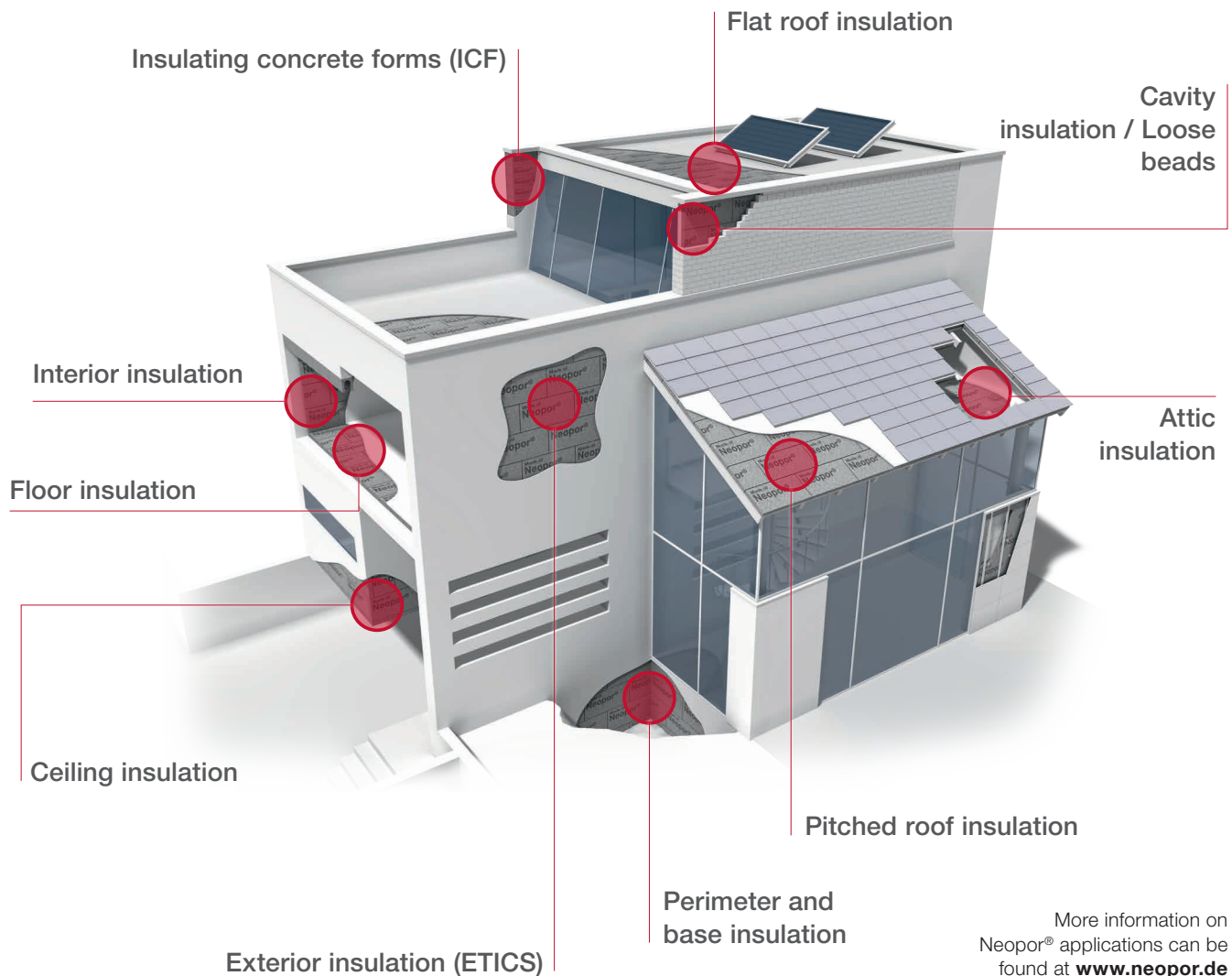


Neopor® – a Raw Material for Diverse Solutions

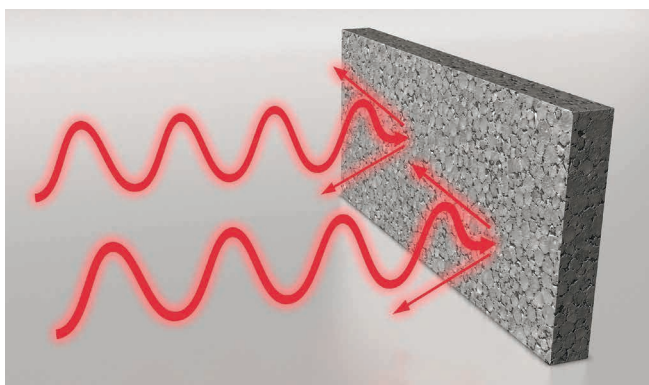


Neopor® is an enhancement of BASF's classic polystyrene foam, Styropor®. The raw material (expandable polystyrene or EPS) contains particles of graphite. This enables the production of insulation boards that perform up to 20 percent more effectively than conventional EPS.

Neopor® – The Power of the Original Grey

THERMAL INSULATION IS QUALITY OF LIFE— OPTIMIZED INSULATION PERFORMANCE WITH NEOPOR®

The excellent efficacy of insulation materials made of Neopor® provides architects, engineers, craftsmen, and builders with convincing benefits in building practice. The infrared absorbers or reflectors in Neopor significantly reduce the thermal conductivity. The heat permeability of the material is lower than with conventional insulation boards.



With Neopor, considerably improved insulation performance is achieved particularly for insulation materials with very low densities. The figure shows that insulation materials made of

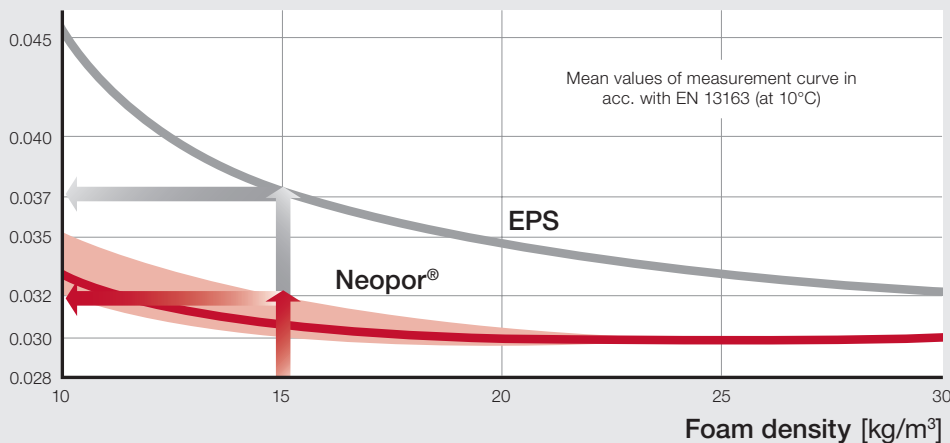
Neopor with a density of 15 kg/m^3 , for example, achieves a thermal conductivity of $\leq 0.032 \text{ W/(m}\cdot\text{K)}$. For conventional EPS of the same density, the thermal conductivity is $\geq 0.037 \text{ W/(m}\cdot\text{K)}$. The special product properties provide insulation boards made of this material with up to 20 per cent more performance than conventional EPS and thus further reduce energy consumption.

Insulation materials made of Neopor stand out thanks to their higher insulation performance compared to conventional EPS.

They also provide other significant advantages:

- Water-repellent
- Open to diffusion
- Firm and dimensionally stable
- Environmentally friendly through high eco-efficiency
- Resistant to aging and decay
- Easier handling through weight advantage
- Dust-free and fast laying
- Installation independent of weather conditions
- No skin-irritant effects

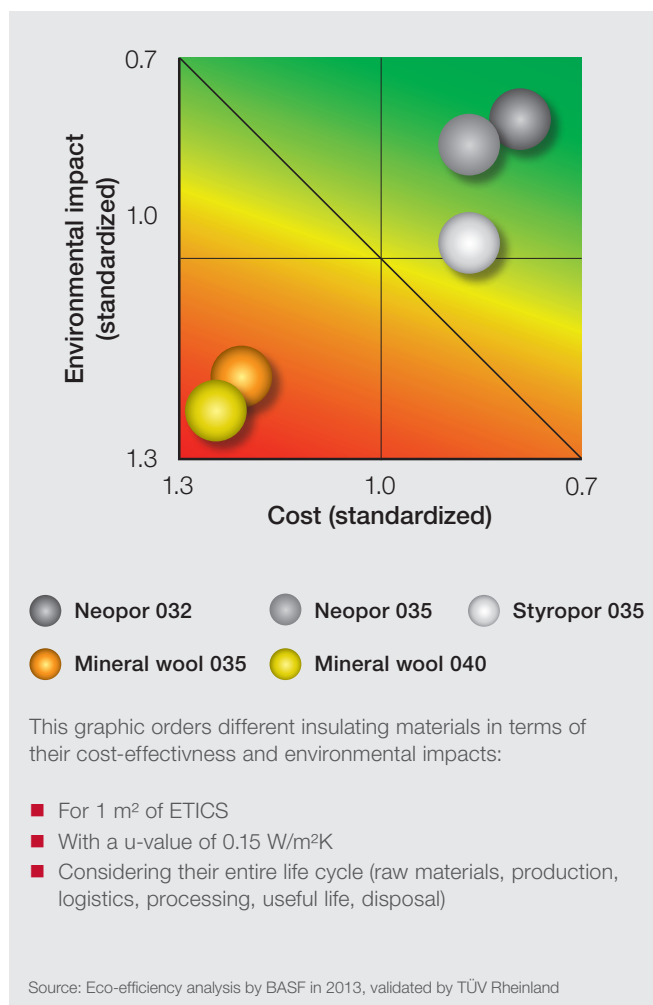
Thermal conductivity λ [W/(m·K)]



NEOPOR®—A STRONG CONTRIBUTION TO SUSTAINABLE BUILDING

While modernizing a residential block in Ludwigshafen’s Brunckviertel district back in 2001, BASF piloted a revolutionary insulating solution that greatly contributes to green construction. The result was Germany’s first “three-liter house” (i.e., consuming only three liters of heating oil per square meter of living space), which combined economic viability with responsible use of natural resources.

The buildings were extensively thermally insulated with Neopor®, which generated the largest savings in heating energy. The “three-liter house” has served as a model ever since. More than 10 years after the renovation project was completed, a study of the most important factors for creating modern living space has confirmed the correctness of the approach and the outstanding performance of Neopor.



High Living Comfort

Tenant surveys have given good marks to low-energy houses.

- Highly satisfied with the indoor climate
- More than 80 percent of the tenants asked describe the living comfort in their insulated apartment as “good” or “very good.”

Exemplary Eco-Efficiency

External thermal insulation composite systems (ETICS) with the same insulating performance were compared (in March 2013).

- High eco-efficiency, going easy on both the budget and the environment
- Neopor-based ETICS have been shown to offer the highest eco-efficiency.

Proven Energy Savings

An analysis of consumption values has shown optimal insulation performance, even after 10 years.

- In all of the buildings, the measured consumption is significantly below the values projected prior to renovation.

Durability Guaranteed

Expert report confirms good condition of the material.

- The condition of the insulation material was inspected by a publicly appointed and independent expert after more than ten years and was assessed as very good.



TECHNICAL DATA NEOPOR®

Properties	Unit	Key EN 13163	Key Features of Neopor® Insulating Materials			Standard
			EPS 70	EPS 100	EPS 150	
Thermal conductivity λ_D	W/(m·K)	–	≥0.031	≥0.030	≥0.030	EN 13163
Thermal conductivity, rated value	W/(m·K)	–	≥0.032	≥0.031	≥0.031	German NTA*
Compressive stress at 10% compression	kPa	CS (10)	≥70	≥100	≥150	EN 826
Tensile strength perpendicular to panel surface	kPa	TR	≥100	≥150	≥200	EN 1607
Flexural strength	kPa	BS	≥115	≥150	≥200	EN 12089
Shear strength	kPa	τ	≥35	≥60	≥85	EN 12090
Dimensional stability 48 h, 70°C	%	DS (70,-)	≤1	≤1	≤1	EN 1604
Deformation behavior 48 h, 20 kPa, 80°C	%	DLT (1) 5	–	≤5	≤5	EN 1605
Deformation behavior 168 h, 40 kPa, 70°C	%	DLT (2) 5	–	–	≤5	EN 1605
Water vapor diffusion resistance index μ	–	–	20–40	30–70	30–70	EN 12086
Thermal linear deformation coefficient	K ⁻¹	–	60–80 · 10 ⁻⁶	60–80 · 10 ⁻⁶	60–80 · 10 ⁻⁶	DIN 53752
Fire behavior	Euroclass	–	E	E	E	EN 13501-1
Chemical resistance	Insensitive to water, the majority of acids and alkalis, sensitive to organic solvents.					
Biological behavior	Insensitive to microorganisms. Does not rot or decompose. Chemically neutral, not water-soluble. No harmful effects on health known.					

Note: The technical and physical key data given in the table are standard values for insulation materials made of Neopor®. The values and properties may vary depending on the processing method. Neopor P is not provided with flame retardant.

Important Note

The information provided in this publication is based on our current knowledge. However, because of the many factors that can influence the processing and use of our product it does not free users from the obligation to carry out tests and trials of their own. No guarantee of certain properties or the suitability of the product for specific applications may be derived from our information. All descriptions, drawings, photographs, data, ratios, weights etc. contained in this publication may change without notice and do not represent contractually agreed properties of the property. Recipients of our product are responsible for observing any existing property rights as well as applicable laws and regulations. (November 2014)

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partner on our homepage.

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