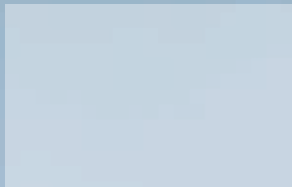
**WACKER**

SILRES® BS

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6528e/08.12 replaces 6528e/08.10

CONSTRUCTION | HYDROPHOBIZATION

WATER REPELLENCE – OPTIMIZE YOUR INSULATION MATERIALS!

The data presented in this brochure are in accordance with the present state of our knowledge but do not absolve the user from carefully checking all supplies immediately on receipt. We reserve the right to alter product constants within the scope of technical progress or new developments. The recommendations made in this brochure should be checked by preliminary trials because of conditions during processing over which we have no control, especially where other companies' raw materials are also being used. The information provided by us does not absolve the user from the obligation of investigating the possibility of infringement of third parties' rights and, if necessary, clarifying the position. Recommendations for use do not constitute a warranty, either express or implied, of the fitness or suitability of the product for a particular purpose.



INSULATION MATERIALS – ONE DROP MAKES THE DIFFERENCE

Mineral insulation materials provide basic properties like

- non-combustibility
- mold and mildew resistance
- minimum organic content
- water vapor permeability

TODAY'S REQUIREMENTS

Improving insulation materials and upgrading to state-of-the-art technology reduces the energy consumption of buildings by an average of 30%. This is ideal for climate protection and gives an additional boost to energy-efficient construction. In this way, people can increase the comfort of their homes and lower heating or cooling costs.¹

Correctly insulated exterior walls and roofs contribute significantly to enhancing a house's energy balance. An average detached house built in the 1980s, for example, loses around 72% of its thermal energy through exterior walls and so-called heat bridges.

So, effective insulation not only saves a lot of money, but also contributes to environmental protection, makes the house nice and cozy, and significantly increases the property's added value.

Mineral Insulation Materials – Overview

	Characteristics and Properties	Main Applications
Glass and stone mineral wool	Thermal conductivity λ : 0.035-0.045 W/ (m·K)	<ul style="list-style-type: none"> • Insulation of residential, office and industrial buildings (roofs, walls, floors, EIFS) • Technical insulation
Expanded perlite and vermiculite	Thermal conductivity λ : 0.040-0.050 W/ (m·K)	<ul style="list-style-type: none"> • Insulating filler (packed beds or filled insulating structural bricks) for private homes • Insulating panels (EIFS) • Insulating plasters or mortars • Absorbers for spilled liquids
Expanded clay	Thermal conductivity λ : 0.090-0.160 W/ (m·K)	<ul style="list-style-type: none"> • Insulation of foundations (packed bed) for private homes • Insulating filler • Insulating concrete, plasters or mortars • Lightweight concrete
Aerated lightweight concrete	Thermal conductivity λ : 0.040-0.090 W/ (m·K)	<ul style="list-style-type: none"> • Insulating structural building blocks for private homes • Insulating panels (EIFS)

¹ Irrespective of the climate zone

ENERGY LOSS AS A RESULT OF MOISTURE

All mineral construction and insulation materials exhibit a more or less hydrophilic character. Together with the large pore volume of construction and especially insulation materials, this leads to an increase in capillary water absorption of between thirty and several hundred percent.

Why should mineral insulation materials be treated hydrophobically?

- Evaporative heat loss of wet construction or insulating materials
- Higher thermal conductivity λ of humidity compared to dry air
- Increased heat capacity of wet masonry

The thermal conductivity λ of a wet insulating material can easily be doubled compared to the same dry (hydrophobized) material! For modern high-performance insulating materials, this is a lot.

Further demands from a construction physics point of view:

- Protection against mold and mildew growth
- Protection against corrosion and frost damage
- Protection against salt efflorescence

Conclusion:

For high-performance insulating materials, water repellency is inevitable. Your customers expect long-lasting efficiency in practice.

OPTIMIZE INSULATING MATERIALS WITH SILRES® BS



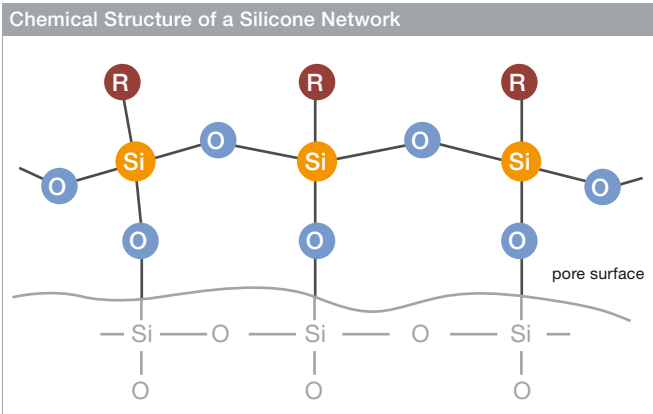
Impregnation with SILRES® BS offers the following benefits:

- Maximum reduction of capillary water uptake
- Minimal reduction of water-vapor permeability due to open pores
- Extensive penetration depth
- Adequate resistance to alkalinity
- Resistance to UV light as well as high or low temperatures
- Surfaces not rendered shiny or tacky, or caused to yellow
- Environmentally compatible
- Long-lasting

Environmental benefits:

- Energy savings
- Reduction of CO₂ emissions
- More comfortable indoor climate
- More sustainable use of construction materials due to longevity and durability

THE “SECRET” LIES IN THE FORMATION OF A SURFACE-BOUND HYDROPHOBIC SILICONE NETWORK



Application Recommendations	
Material	Industrial Application (Siloxane Prod. Type)
Glass wool or stone mineral wool	Spraying during fiberizing (emulsion)
Perlite or vermiculite	Spraying after expansion (emulsion/solution)
Perlite or vermiculite composites	Spraying or dipping (emulsion/solution)
Aerated concrete	Integral treatment (pure, mass hydrophobation)
Expanded clay	Spraying or dipping after firming (emulsion/solution)

SILRES® BS PRODUCTS

Application Recommendations	
Product	Product Characteristics
Glass or Stone Mineral Wool	
SILRES® BS 1042	Water-based siloxane emulsion
SILRES® BS 5137	Water-based siloxane emulsion (optimized for phenolic resin binders)
Expanded Perlite, Vermiculite and Clay	
SILRES® BS 1042	Water-based siloxane emulsion
SILRES® BS 16	Water-based silicate solution
Expanded Vermiculite	
SILRES® BS SMK 1311	Self-emulsifying silane/siloxane concentrate
SILRES® BS 97	Water-based siloxane emulsion
White Blowing Wool	
SILRES® BS 46	Water-based polymethyldiorganosiloxane emulsion
Aerated Concrete	
SILRES® BS 66	Pure alkaline stable siloxane fluid
SILRES® BS 17040	Water-based silane emulsion

Safety Notes

Comprehensive instructions are given in the corresponding Material Safety Data Sheets. They are available on request from WACKER subsidiaries or may be printed from WACKER's website <http://www.wacker.com>

Conclusion:

- The thermal conductivity can be permanently kept at a “realistic” minimum
- Insulation and construction materials are protected from moisture-based damages
- The capillary water absorption can be drastically reduced
- Water vapor permeability – accidental water ingress can evaporate

Remember:

It's not only about the insulation, it's about the whole construction.