

WACKER

CREATING TOMORROW'S SOLUTIONS

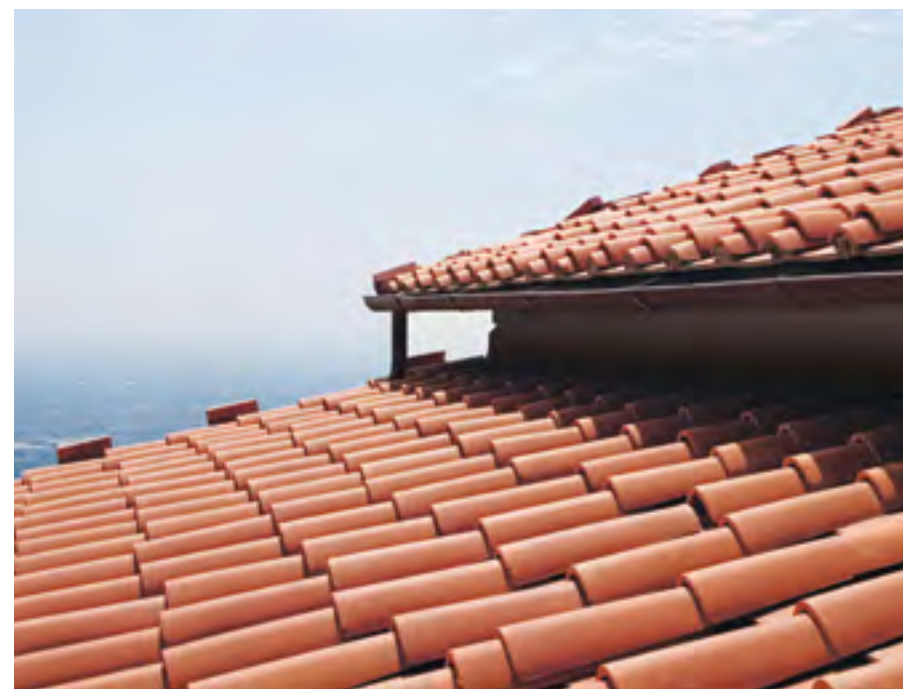
SILRES® MAKES THE
DIFFERENCE

ARCHITECTURAL COATINGS AND CONSTRUCTION MATERIALS

SILRES® PORTFOLIO – PRODUCT OVERVIEW

SILRES®

THE SILRES® PORTFOLIO: PROTECTING YOUR BUILDING MATERIALS AGAINST WATER





SILRES® MAKES THE
DIFFERENCE

SILRES® protects buildings and surfaces from water damage, improving functionality and aesthetics. Facades look better for longer and remain energy efficient, even when in contact with humidity and water.

Partnering with the Pioneer

By choosing our portfolio, you also profit from more than 50 years of experience and expertise. The first silicone resins for building protection originated from

WACKER laboratories. Today, we provide you with a comprehensive, time-tested and innovative portfolio that includes tailored solutions for many applications, climates and substrates.

Profiting from Individual Services

Partnership is one of our core competencies. Our experienced technical service engineers offer personalized and comprehensive services through a close network of technical centers worldwide.

We work hand in hand with you, helping you select products and optimize formulations, testing your products and using our experience to assist you with application issues. Our dedicated experts and well-equipped labs are at your disposal.

PRESERVING BUILDING MATERIALS – PROTECTING ASSETS

Based on water-repellent silicones, WACKER's SILRES® brand has been synonymous with effective building protection for decades. Its purpose is to preserve the value of old and new buildings and to protect them against weathering and structural damage.

Various construction materials, such as mineral substrates or wood, are porous, and contact with water produces a capillary effect. This can allow large volumes of water to penetrate the building material within a short time. SILRES® utilizes capillary active forces, penetrating into the pores of the mineral building material, where it is deposited on the pore walls. Water can no longer wet these siliconized pores, yet water-vapor permeability is unaffected.

Chemical Reaction

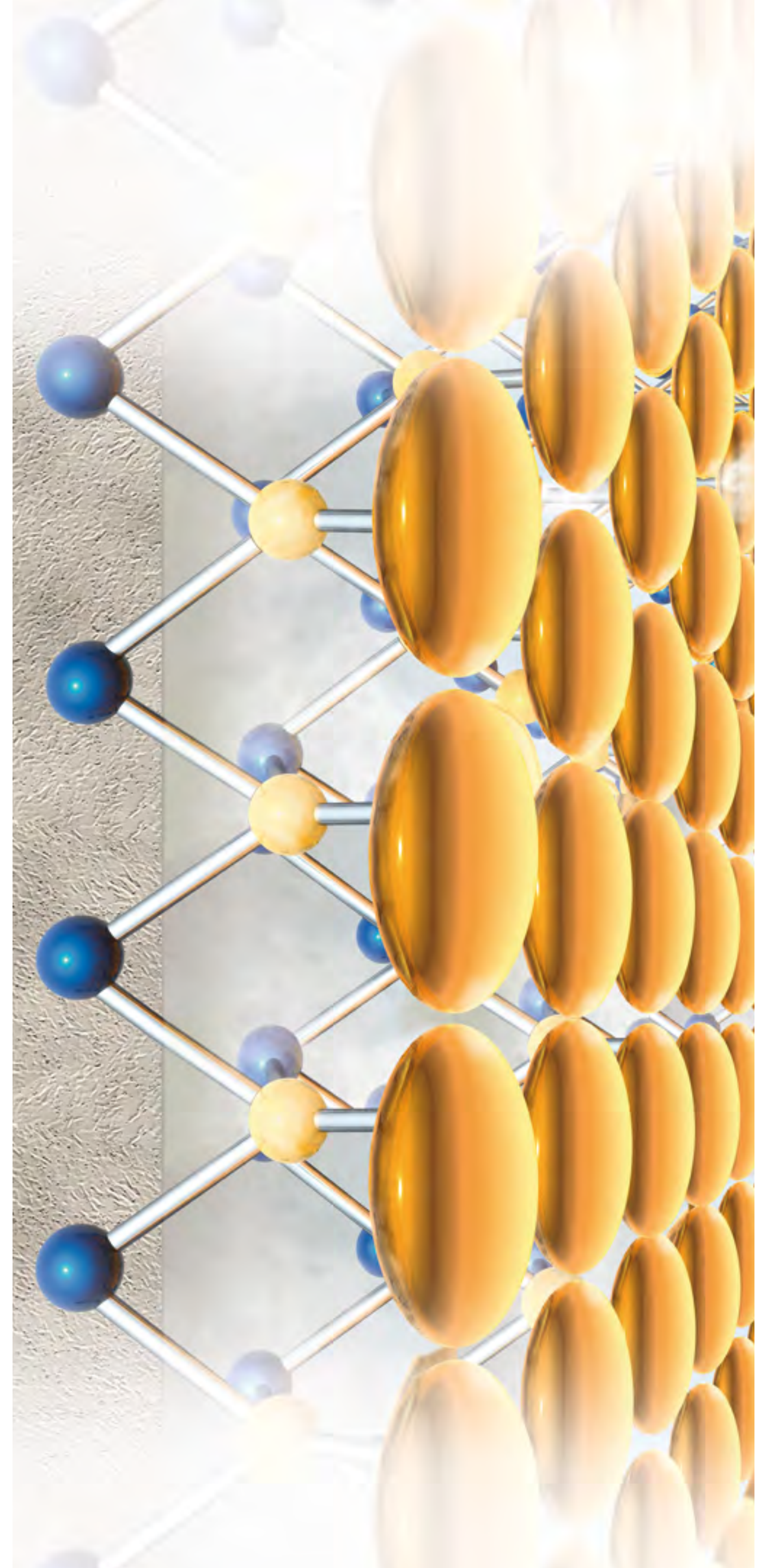
The basic material for the production of silicone resin is quartz. Organo-modified silicones have a molecular structure that is compatible with the silicate matrix of mineral substrates. This accounts for the extraordinary efficiency of hydrophobic impregnation. The organic groups are directed toward the center of the capillaries and pores, while the active ingredient reacts with the silicate matrix of the building material, reducing surface tension within the capillaries and pores and blocking capillary action. The result is long-lasting hydrophobic protection.

Effects

- Low water uptake
- High water-vapor permeability
- Barrier against harmful, water-soluble salts
- The resulting hydrophobic impregnation is extremely resistant to cold, heat and UV light.

More information

www.wacker.com/silres



SILRES® BS FOR DECORATIVE COATINGS



SILRES® BS DECORATIVE COATINGS

Decorative coatings formulated with SILRES® BS remain visually attractive and retain their functionality for longer. Their water-repellent effects prevent moisture from penetrating the substrate – an action that could otherwise impair the energy efficiency of the facade. Primers based on SILRES® BS show additional benefits.

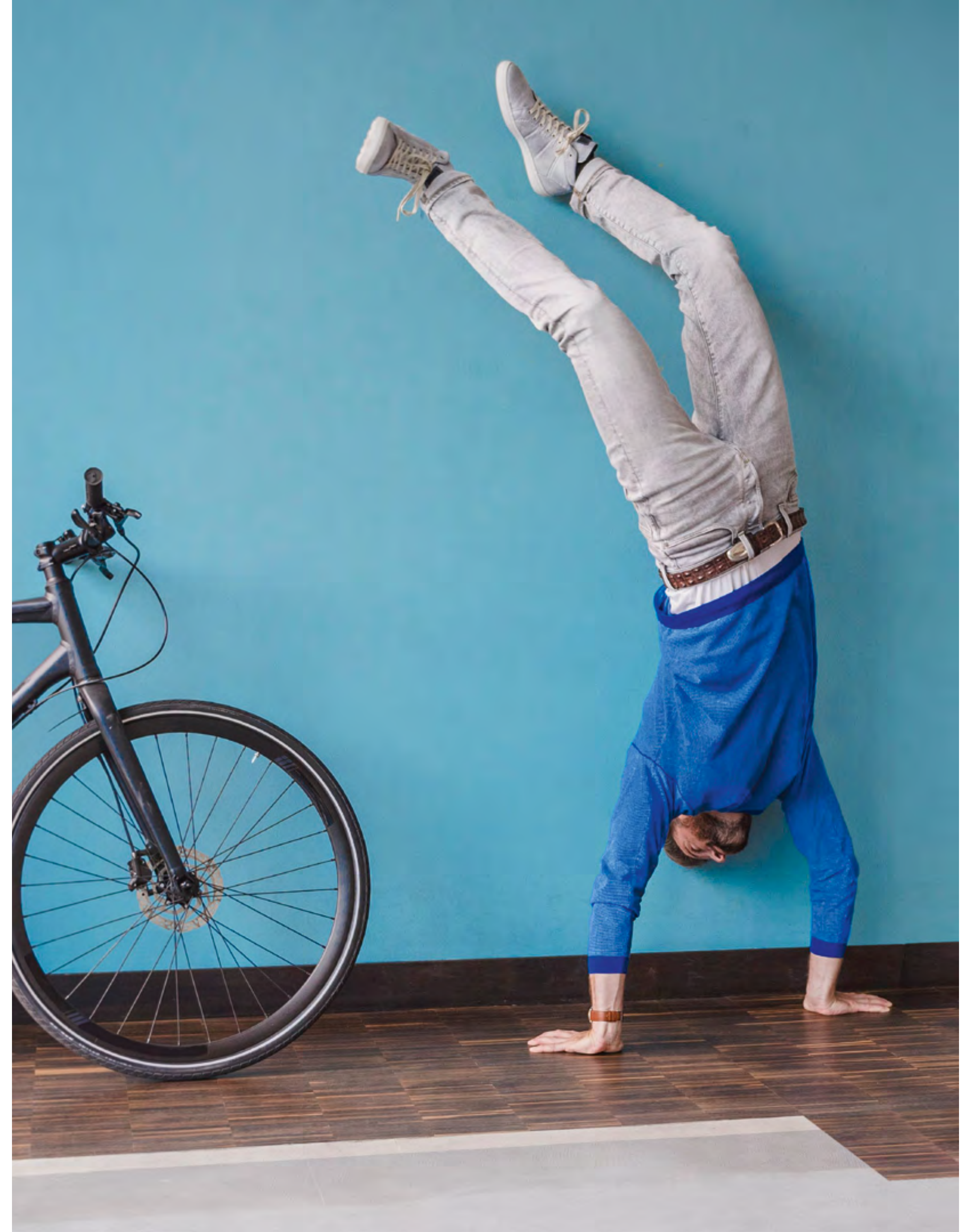
Decorative Coatings

SILRES® BS silicone products are used for formulating hydrophobic paints and plasters with the following properties:

- Low water uptake
- High water-vapor permeability
- Reduced dirt pick-up
- Scratch resistance
- Anti-stain

More information

www.wacker.com/deco



SILRES® BS

DECORATIVE COATINGS

Decorative Coatings Paints and Plasters							
Product	SILRES® BS 54	SILRES® BS 60	SILRES® BS 6042	SILRES® BS 1306	SILRES® BS 1346	SILRES® BS 1310	SILRES® BS 333
Product group	Silicone resin emulsions	Silicone resin emulsions	Modified silicone resin emulsions	Polysiloxane / functional silicone resin emulsions	Reactive polysiloxane emulsions	Polysiloxane / functional silicone resin emulsions	Reactive polysiloxane emulsions
Applications							
Silicone resin emulsion paints and plasters – SREP®	•••	•••	•••	•••	•••	•••	
Silicate emulsion paints and plasters					•••		••
High-PVC emulsion paints	•••	•••	•••	•••	•••	•••	•••
Medium-PVC emulsion paints	••	••	••	••	•••	••	•••
Lime paints (whitewash paints)				••	•••	•	••
Top coats for ETICS	•••	•••	•••	•••	•••	•••	
Pronounced water-beading effect in paints and plasters				••	•••		
Interior paints and plasters (stain-resistant, low VOC)					••		•••
Properties							
Solids content [%]	57	60	54	55	55	50	50
pH approx. [-]	5	7	5	6 – 7	7 – 8	6 – 7	7 – 8

SILRES® BS

DECORATIVE COATINGS

Primers

Silicone-based primers create a hydrophobic zone beneath the coating. This leads to additional benefits, such as improved adhesion, and provides decorative coatings with lasting protection from water.

Powder Additives

The WACKER SILRES® POWDER additives portfolio comprises silane/silicone-based products manufactured by two different technologies. In one, the active substance is deposited on the surface of an inorganic carrier while, in the other, it is encapsulated. SILRES® POWDER additives can be easily added to dry formulations without compromising hardness, adhesion and strength in the end product. They are compatible with a broad range of dry additives and remain stable in alkaline formulations.

pH Adjuster

SILRES® BS 168 is a water-based, solvent-free and silicone-based pH-adjuster for use in waterborne emulsion paints and plasters, for interior and exterior applications.

SILRES® BS 168 contains 55% solids and is an excellent option for low-VOC and low-odor systems.



Primers			
Product	SILRES® BS 1001	SILRES® BS 3003	SILRES® BS 290
Product group	Silane / siloxane emulsions	Silane / siloxane emulsions	Silane / siloxane
Applications			
Waterborne primers	••	•••	
Waterborne emulsion primers	••		
Solventborne primers			•••
Properties			
Active content [%]	50	60	100

Powders			
Product	SILRES® POWDER A	SILRES® POWDER D	SILRES® POWDER E
Product group	Silicone on carrier	Encapsulated functional silane	Encapsulated functional silane
Applications			
Grouts for tiles and stones	••	•••	•••
Stuccos and plasters	•••	••	•••
Thick-layer plasters (monocouche/monocapa)	••	•••	•••
In bulk hydrophobic mineral-based systems	•••	•••	•••
On surface hydrophobic mineral-based systems	••	••	•••
Properties			
Active content [%]	50	35	65

Suitable • Recommended •• Highly recommended •••

SILRES® BS FOR FACADE IMPREGNATION

SILRES®

MAKES THE
DIFFERENCE

SILRES® BS

FACADE IMPREGNATION

Hydrophobic impregnation of facades reduces maintenance and repair costs. Impregnation makes the surface easier to clean, enhances the value of the property, and potentially reduces heating costs. Impregnation with SILRES® BS products combines excellent technical performance with easy application.

Key Factors for Durability

- Significant reduction of water uptake by at least 80%
- High water-vapor permeability, substrate stays breathable
- Hydrophobic barrier due to extensive penetration
- Strong bonding with substrate
- Resistance to UV-light

More information

www.wacker.com/facadeimpregnation



SILRES® BS

FACADE IMPREGNATION

Facade Impregnation							
	Water-Based					Solvent-Dilutable	
Product	SILRES® BS 1001	SILRES® BS 3003	SILRES® BS 4004	SILRES® BS CREME F	SILRES® BS SMK 1311	SILRES® BS 290	SILRES® BS 280
Product group	Silane / siloxane emulsions	Silane / siloxane emulsions	Silane / siloxane emulsions	Silane / siloxane cream	Silane / siloxane microemulsion concentrate	Silane / siloxane concentrates	Silane / siloxane concentrates
Main advantage	High compatibility with polymer dispersions	Very stable in dilution & concentrate	Outstanding beading effects	Single-step application, ready-to-use	Offering for professional applicators	Well-known, solvent-dilutable all-rounder	Specialty for lime-based natural stone
Applications							
Water repellent top coats by roller, brush or low-pressure equipment							
Brick, clinker	••	•••	•••	•••	•••	•••	••
Mortar, grout	••	•••	•••	•••	•••	•••	••
Sand-lime brick	•••	•••	•••	•••	•••	•••	•••
Sandstone	•	••	•••	•••	•••	•••	•••
Limestone, marble				•	•	•	•••
Granite	•	•	•	••	•	••	••
Mineral plaster	••	••	•••	•••	••	•••	•••
Properties							
Active ingredient [%]	50	60	50	25	100	100	100

SILRES® BS FOR CONCRETE PROTECTION



SILRES® BS

CONCRETE PROTECTION

WACKER offers particularly long-lasting and cost-efficient concrete protection agents for surface impregnation, integral treatment, and coating.



More information

www.wacker.com/concreteprotection

Hydrophobic Impregnation

Octylsilanes and silane-based creams are well known high-quality impregnating agents for long-lasting protection of all kinds of concrete against structural damage. Used for prevention, this technology reduces maintenance costs especially of infrastructure concrete (e.g. bridges) significantly.

The benefits are:

- Drastic reduction in water uptake
- Chloride barrier against reinforcement corrosion
- Retention of high water-vapor permeability
- Extensive penetration
- UV-resistant and long-lasting
- Invisible

Concrete Admix

SILRES® BS silanes and dedicated silane/siloxane emulsions are high-quality products for integral treatment of load-bearing concrete structures and concrete artifacts. Their mechanical properties must not be affected when they are used for waterproofing concrete or protection of concrete structures against water-initiated deterioration processes (e.g. alkali silicate reaction, reinforcement corrosion). In pavers and blocks, the main purpose is efflorescence reduction, water beading is a desirable optical effect.

The benefits are:

- Drastic reduction in water uptake
- Stopped or slowed alkali silicate reaction
- Reduction of chloride ingress
- Little impact on mechanical properties
- Reduction of efflorescence
- Beading effect in pavers and blocks

Flooring Protection

SILRES® BS 6920 is a new alpha-silane terminated binder based on a patented technology for cement-bound floors. It provides excellent properties in all thin-layer applications.

The benefits are:

- Water vapor permeable (no blistering)
- 1K formulation (avoids mixing errors on the construction site)
- Easy to apply
- Solvent-free
- High heat resistance
- Easy to refurbish
- Suitable for refurbishment of PU/EP floors
- Application possible below 15 °C
- Thin-layer technology (app. 100 g/m²)

More information

wacker.com/flooringprotection

SILRES® BS

CONCRETE PROTECTION

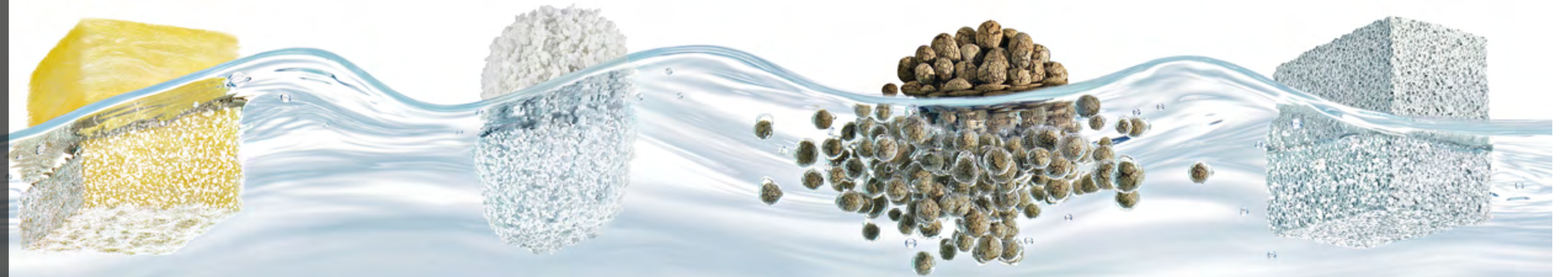
Concrete Protection						
	Surface Impregnation		Admixture			Coating
Product	SILRES® BS 1701	SILRES® BS CREME C	SILRES® BS 1801	SILRES® BS 1802	SILRES® BS 1803	SILRES® BS 6920
Product group	Silane	Silane cream	Silane	Silane / siloxane emulsion	Silane / siloxane emulsion	Hybrid polymer
Applications						
Infrastructure (EN 1504-2)	•••	•••				
Concrete facades / elements	••	•••				
Waterproof C. (EN 934-2)			••	•••		
Alkali-silica protection			•	•••		
Paver anti-efflorescence			•	•	•••	
Floor coating						•••
Properties						
Active content [%]	100	80	100	50	60	100

Suitable • Recommended •• Highly recommended •••

SILRES® BS FOR INSULATION MATERIALS

SILRES®

MAKES THE
DIFFERENCE



SILRES® BS

INSULATION MATERIALS

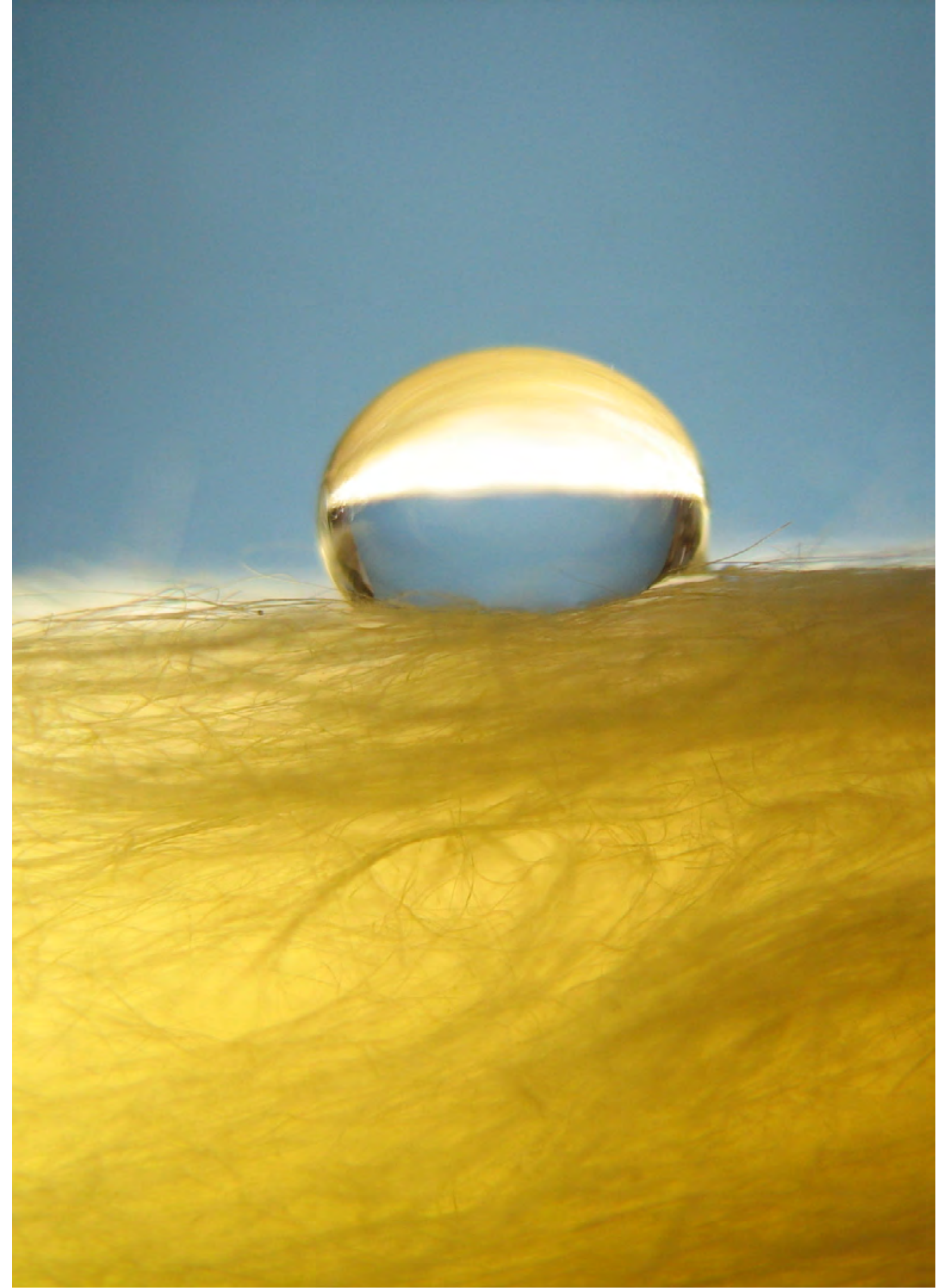
To a greater or lesser extent, all mineral construction and insulation materials are hydrophilic in character. Together with the large pore volume of construction, and especially insulation, materials, this leads to an increase in capillary water absorption. Hydrophobization with SILRES® BS increases and maintains the insulation performance of inorganic insulating materials and prevents damage.

The benefits are:

- Maximum reduction of capillary water uptake
- Minimal reduction of water-vapor permeability
- Extensive penetration depth
- Adequate alkaline resistance
- Resistance to UV-light, high and low temperatures
- Surfaces not rendered shiny or tacky; no yellowing
- Environmentally compatible
- Saves energy and reduces CO₂ emissions
- More comfortable indoor climate

More information

www.wacker.com/insulation



SILRES® BS

INSULATION MATERIALS

Insulation Materials							
Product	SILRES® BS 1042	SILRES® BS 1052	SILRES® BS 5133	SILRES® BS 5137	SILRES® BS 45	SILRES® BS 16	SILRES® BS 5350
Product group	Emulsion of reactive siloxane	Emulsion of non-reactive siloxane	Emulsion of reactive siloxane	Emulsion of reactive siloxane	Emulsion of silicone resin	Siliconate	Silicone fluid
Applications							
Glass and stone wool	•	•	•	•	•		
Blowing wool		•					
Expanded minerals	•					•	
Aerated lightweight concrete							•
Properties							
Active content [%]	60	60	56	50	50	34	100

Suitable •

SILRES® BS
FOR
HORIZONTAL
BARRIERS
AGAINST
RISING DAMP



SILRES® BS

HORIZONTAL BARRIERS AGAINST RISING DAMP

Rising damp is particularly common in buildings that do not have horizontal moisture barriers and that are close to the groundwater level or in direct contact with the soil or water.

Chemical damp proofing involves the injection of an agent directly into the masonry through drilled holes. SILRES® BS Silicone Microemulsion Concentrate and SILRES® BS CREME have proven particularly successful here. Injected into the masonry, they form permanent bonds that yield a highly efficient horizontal barrier. This puts a stop to capillary rising damp and any associated transport of harmful substances, and allows the wall to dry out. It provides lasting protection for buildings, as verified by long-term studies and various reference objects.

Benefits of a Horizontal Barrier with SILRES® BS

- Long-lasting aesthetic enhancement of walls
- Increased value of the building
- Improved indoor air quality and comfort
- Unusable rooms made habitable again
- Can help reduce maintenance costs and renovation work
- Saves energy by lowering heating requirements

How a Horizontal Barrier with SILRES® BS Works

More information

www.wacker.com/dampproofing

Damp Proofing		
Product	SILRES® BS SMK 550	SILRES® BS CREME D
Product group	Silane / siloxane micro emulsion concentrate	Silane based creme
Main advantage	Protection of monuments, heritage	Easy and fast application
Applications		
Injection	With pressure, packers needed	Pressure less
Details	Multi injection possible	
Dilution	With water	No, ready to use
Substrates	All kind of humid construction materials	
External approvals	WTA & CSTC	
Wall thickness	No limits	Max. 40 cm
Properties		
Active ingredient [%]	100	80

SILRES® BS FOR BRICK & ROOF TILE IMPREGNATION



SILRES® BS

BRICK & ROOF TILE IMPREGNATION

Post-production hydrophobic impregnation with SILRES® BS protects clay-based construction materials against efflorescence, allowing them to remain breathable.

Applications

SILRES® BS offers solutions for the hydrophobization of:

- Roof tiles
- Facade bricks
- Flower pots
- Floor tiles

Mode of Action

Application is very easy: the clay products are simply dipped into or sprayed with the hydrophobization agent.

More information

www.wacker.com/roof

How Hydrophobic Treatment of Open Pore, Heavy Clay Ceramic Works

In-Plant Surface Treatment		
Product	SILRES® BS 16	SILRES® BS 17
Product group	Siliconates	Silane / siloxane concentrates
Main advantage	Best available cost-benefit ratio for clay roof tiles	Suitable protection for engobe and alkaline roof tiles
Applications		
Water-repellent treatment by dipping or spraying		
Clay-based construction materials	•••	•
Concrete roof tiles		••
Engobed, fired clay		•••
Properties		
Active ingredient [%]	34	100

Suitable • Recommended •• Highly recommended •••



SILRES® BS FOR GYPSUM

SILRES® MAKES THE
DIFFERENCE



SILRES® BS GYPSUM

Gypsum is a traditional building material that is becoming increasingly important in modern construction applications. Gypsum boards in particular are lightweight, can be installed quickly and are easy to replace. The biggest disadvantage of gypsum-bound construction materials is their low moisture resistance. This challenge can be met with SILRES® BS. Thanks to the chemical interaction between the gypsum crystals and the silicone, these materials provide far more efficient protection than organic water repellents.

More information
www.wacker.com/gypsum

SILRES® BS is used for the water-repellent treatment of gypsum-based products used in wet or humid areas:

Wallboards

Used as admixture with significant benefits over wax additives (for all wallboard plants)

Fiberboards

Surface treatment with excellent hydrophobic properties

Blocks

Emulsion additives with improved miscibility. Siliconates produce a treated surface.

Dry mix

Dry powder admix with excellent hydrophobation properties and storage stability.



Gypsum				
Product	SILRES® BS 94	SILRES® BS 46	SILRES® BS 16	SILRES® BS POWDER G
Product group	Polymethylhydro-siloxane	Polymethyl-hydrosiloxane emulsion	Siliconate	Carrier-based powder containing Silicone resin
Applications				
Gypsum wallboard	•	•		
Gypsum fiberboard			•	
Gypsum blocks		•	•	
Gypsum drymix				•
Properties				
Active ingredient [%]	100	50	34	34

SILRES® BS FOR FIBER- CEMENT BOARDS

SILRES®

MAKES THE
DIFFERENCE

SILRES® BS

FIBER-CEMENT BOARDS

SILRES® BS can be used for the hydrophobic treatment of fiber-cement boards. WACKER offers the right solution for surface and integral treatment to achieve a drastic reduction in capillary water uptake.

Benefits:

- Increased freeze-thaw resistance
- Better dimensional stability in wet areas
- Integral treatment impregnation prevents additional water ingress at cut edges
- Keeps paint from peeling
- Suitable for air-cured and autoclaved process

Fiber-Cement Boards		
	Surface Treatment	Integral Treatment
Product	SILRES® BS 3003	SILRES® BS 1703
Product group	Silane / siloxane emulsions	Siloxane concentrates
Main advantage	Water-based	Suitable for autoclaved and air-cured fiber-cement
Applications		
Air-cured	•	•
Autoclaved	•	•
Properties		
Active ingredient [%]	60	100

More information

www.wacker.com/fibercementboards

Suitable •



SILRES® FOR WOOD APPLICATIONS



SILRES®

WOOD APPLICATIONS

For Long-Lasting Protection

Water damages wood in two ways: by accelerating the rotting process and by causing swelling and shrinking. The use of the right SILRES® silicone product can provide long-lasting protection from water by keeping the water absorption very low – even after years of outdoor weathering.

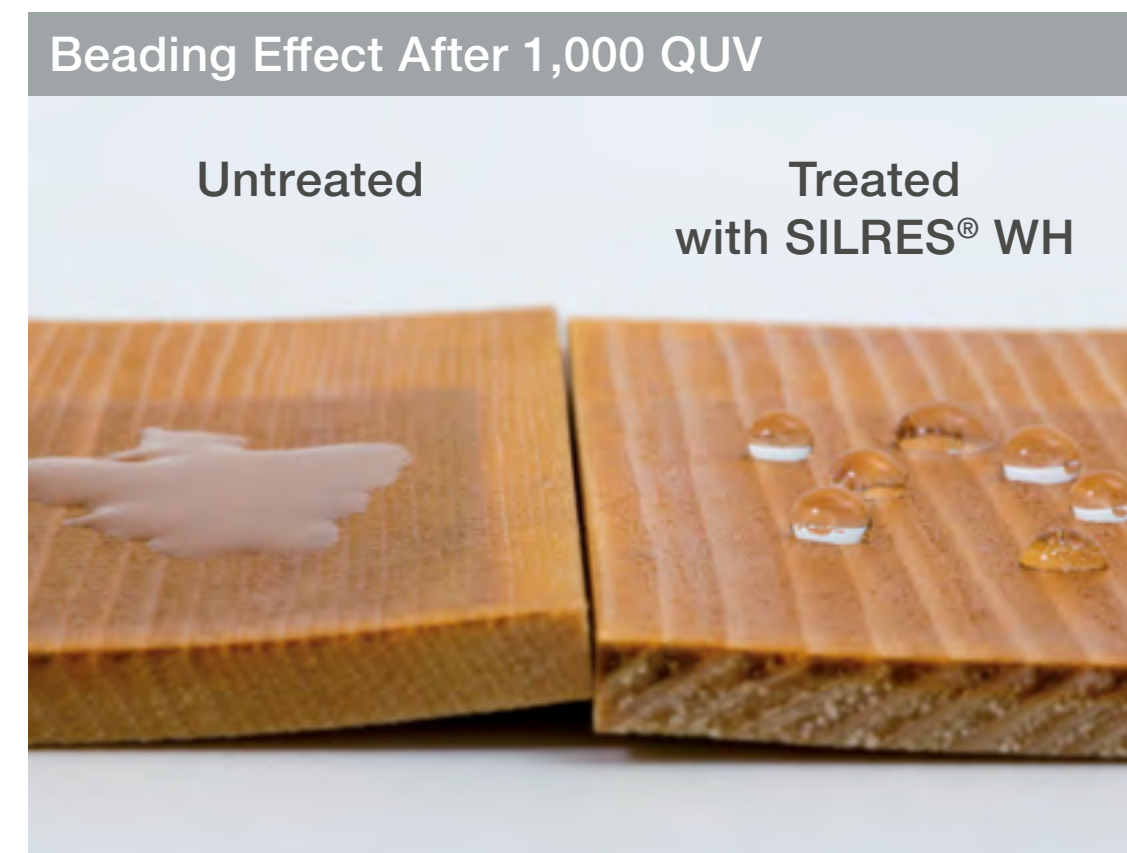
Water-Based Solution

SILRES® WH is a water-thinnable, solventless functional emulsion of a silicone resin. It is used to achieve a long-lasting beading effect and to reduce capillary water absorption. The beading effect is only visible after weathering, not immediately. Wood stains or wood coatings formulated with SILRES® WH are durable and long-lasting, and minimize the harmful effects caused by water uptake.

Solvent-Based Solution

SILRES® BS 290 is a solventless silicone concentrate-based on a mixture of silane and siloxane.

The hydrophobicity of solvent-borne wood applications can be improved by incorporating SILRES® BS 290 into the formulation.



More information

www.wacker.com/woodcoating



Wood Hydrophobization

Product	SILRES® WH	SILRES® BS 290
Product group	Silicone resin emulsions	Silane / siloxane
Applications		
Waterborne impregnants	•••	
Waterborne stains or coatings	••	
Solventborne impregnants		•••
Solventborne stains or coatings		•••
Properties		
Active content [%]	54	100

Suitable • Recommended •• Highly recommended •••

SILRES® BS
FOR
ANTI-STAIN,
COLOR-
ENHANCING
AND ANTI-
GRAFFITI



SILRES®

MAKES THE
DIFFERENCE

SILRES® BS

ANTI-STAIN, COLOR-ENHANCING AND ANTI-GRAFFITI

SILRES® BS provides very effective solutions for anti-stain, color-enhancing, anti-graffiti effects.

Application is suitable for various substrates:

- Concrete
- Natural stone (porous and non-porous), e.g. marble, granite
- Synthetic stone
- Ceramic tiles (glazed and non-glazed)

Application of special silicone-based primer enables protection of:

- Metals, coated & non-coated
- Glass
- Plastics
- Wood
- Coated surfaces with common facade coatings
- Graffiti art

More information

www.wacker.com/surfacetreatment

Benefits:

Anti-Stain Treatment

- Resistant to water- and oil-based stains
- No impact on surface appearance
- Improved cleaning properties

Benefits:

Color Enhancement

- Matt or gloss finish options available
- Excellent water and stain resistance
- Improved surface appearance

Benefits:

Permanent Anti-Graffiti Coating

- Graffiti is easy to remove
- Clean with just cold water using a pressure washer or wet sponge
- Posters detached easily
- Pigmentable
- Water-vapor permeable
- Use on all kinds of mineral substrates

More information

www.wacker.com/antigrffiti



SILRES® BS

ANTI-STAIN, COLOR-ENHANCING AND ANTI-GRAFFITI

Surface Treatment				
	Anti-Stain		Color Enhancer	Anti-Graffiti
Product	SILRES® BS 38 N	SILRES® BS 39 N	SILRES® BS 30	SILRES® BS 710
Product group	Silane / siloxane with fluorine componentes	Silane / siloxane emulsions with fluorine components	Silane / siloxane concentrates	Silicone elastomers
Main advantage	Without impact on surface appearance		Improvement of surface appearance	Permanent 1K coating, free of oxime and tin
Applications				
Water repellent top coats by roller, brush or low pressure equipment				
Protection against water- and oil based stains	•••	••	•••	•
Color enhancement			•••	•
Anti-graffiti	•			•••

Suitable • Recommended •• Highly recommended •••

CREATING TOMORROW'S SOLUTIONS

A Diverse Array of Products for Growing Markets

Our product portfolio ranges from silicones, binders and polymeric additives to bioengineered pharmaceutical actives. In addition, we offer hyperpure silicon for semiconductors and solar applications.

Innovations That Improve the Quality of Life

As a technology leader focusing on sustainability, WACKER promotes products and ideas that offer considerable value-added potential to ensure that current and future generations enjoy a better quality of life, based on energy efficiency and protection of the climate and environment.

Global Knowledge for Local Markets

When you work with WACKER, you have 100 years of chemical expertise at your disposal, with access to the research findings and best practices of our experts throughout the world. Our knowledge base consists of a network of 23 technical centers, 14 training centers and our basic research center.

And most importantly: we are there. Worldwide. Wherever and whenever you need us.

Our local specialists know your markets and speak your language. By working with them, you will find innovative solutions that win over your customers and make you more competitive.

Follow us:

Find us on LinkedIn, YouTube and Twitter. We'll keep you up to date on the latest issues.



All figures are based on fiscal 2021.



Silicones and Polymers

3,200 specialty products from organic and inorganic chemistry



Global Market Leader

In dispersions and dispersible polymer powders based on vinyl acetate-ethylene (VAE), in building-protection silicones and in the production of cyclodextrin and cystein.



Globally Active

- Sites worldwide
- Headquartered in Munich
- 26 production sites in Europe, Asia and the Americas
- 23 technical centers
- 14 WACKER ACADEMY training centers
- 52 sales offices



Employees: 14,400



Total Sales

€6.21 billion



WACKER

Wacker Chemie AG
Hanns-Seidel-Platz 4
81737 Munich, Germany
www.wacker.com/contact

www.wacker.com

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