

SILRES® BS 290

MASONRY WATER REPELLENTS

Product description

SILRES® BS 290 is a solventless silicone concentrate that is based on a mixture of silane and siloxane. SILRES® BS 290 is dilutable with organic solvents.

Dilute solutions of SILRES® BS 290 in organic solvents serve as high-quality general-purpose water repellents for impregnating and priming mineral and highly alkaline substrates.

Special features

- good depth of penetration
- high resistance to alkalis
- tack-free drying
- effective even on damp substrates
- rapid development of water repellency

After application to the mineral substrate, SILRES® BS 290 reacts with the atmospheric moisture or pore water in the substrate, thereby generating the active ingredient while liberating alcohol. The active ingredient greatly lowers the water absorbency of the substrate, which nevertheless retains a very high degree of water vapour permeability since neither pores nor capillaries are clogged.

Application

SILRES® BS 290 is suitable for imparting water repellency to absorbent, porous, mineral construction materials, e. g.:

- brickwork
- all kinds of concrete
- aerated concrete
- sand-lime brickwork
- cement fiberboards
- mineral plasters
- mineral-based natural and artificial stone
- mineral paints

SILRES® BS 290 is also suitable as primer for exterior paints.

SILRES® BS 290 is not suitable for rendering gypsum water repellent.

Processing

Flooding, preferably not under pressure, is the best technique for applying SILRES® BS 290, which is ready to use after dilution. Apply several coats, wet on wet, until the substrate is saturated. Generally, at least two applications suffice for all substrates.

Do not leave long breaks between coats. Apply the next when the substrate has absorbed the previous one and is no longer shiny (wet-on-wet working). The substrate must not have damp spots, i. e., it should look dry. The requisite quantity of SILRES® BS 290 depends on the adsorbency of the substrate. The amount of impregnating agent required for a substrate and the effectiveness of the impregnation should be determined on site by testing a small area of the material to be treated.

Dilution

The solvents best suited for diluting SILRES® BS 290 are aliphatic hydrocarbons (e. g. White Spirit 130/175), aromatic hydrocarbons (solvent naphtha, e. g. Shellsol A) or low-odor isoparaffin hydrocarbons (e. g. Isopar H). The solvent used should have a boiling range of 140-190°C and an evaporation number of 30-90.

If the above-mentioned hydrocarbon solvents are used, SILRES® BS 290 should be diluted in a weight ratio of 1:11 to 1:15. Anhydrous alcohols, such as ethanol or 2-propanol, could also be used and are even indispensable whenever contact of the impregnating agent with solvent-sensitive materials (such as expanded polystyrene, bitumen, etc.) cannot be avoided. The alcohol must be completely anhydrous. If alcohol is used as a solvent, a dilution ratio of 1:12pbw is recommended. When impregnating slightly damp substrates, SILRES® BS 290 will give better results if diluted with hydrocarbons than with alcohol.

Stir vigorously when adding the diluent to SILRES® BS 290. Since SILRES® BS 290 reacts with humidity, prolonged contact with air must be avoided. The containers must be hermetically sealed.

Before applying SILRES® BS 290, be sure to cover

windows and other non-absorbent surfaces properly because the product cures so quickly that it will be extremely difficult, if not impossible, to remove after a few hours. Wipe off any splashes on window panes immediately, using a solvent if necessary.

For this reason, the figures quoted below are intended as a guide only:

Concrete	[l/m ²]	0.25 – 0.5
Plaster	[l/m ²]	0.5 – 1.0
Sand-lime brick	[l/m ²]	0.4 – 0.7
Brickwork	[l/m ²]	0.4 – 2.0
Aerated concrete	[l/m ²]	0.5 – 2.0
Cement fibreboard	[l/m ²]	0.1 – 0.3
Natural stone	[l/m ²]	0.05 – 3.0

Storage

The 'Best use before end' date of each batch is shown on the product label.

Storage beyond the date specified on the label does not necessarily mean that the product is no longer usable. In this case however, the properties required for the intended use must be checked for quality assurance reasons.

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 via WACKER web site <http://www.wacker.com>.

Product data

Typical general characteristics	Inspection Method	Value
Appearance		colorless, hazy
Silane / siloxane content		approx. 100 %
Density at 25 °C	DIN 51757	1,05 g/cm ³
Viscosity, dynamic	DIN 51562	15 - 19 mPa.s
Flash point	ISO 3679	42 °C

These figures are only intended as a guide and should not be used in preparing specifications.

Approvals

The efficacy of SILRES® BS 290 is borne out in the following laboratory reports and test certificates:

Scientific et Technique de la Construction, Brussels, Belgium
 Results of masonry water repellent SILRES® BS 290 L (10% dilution of SILRES® BS 290 in organic solvents).

genössische Materialprüfungs- und Versuchsanstalt, Dübendorf, Switzerland
 Report no. 245/376, January 10, 1985:
 Resistance to frost and road salt of concrete surfaces impregnated with SILRES® BS 290 and BS 44"

for für Präparation und Methodik, Beinwil am See, Switzerland
 Report No. A-4729, February 13, 1985:
 Expertise of tests concerning the penetrative effectiveness of sealings with SILRES® BS 290 and BS 44".

eau Veritas, Gennevilliers, France
 Report No. CN 53B950305E01, July 17, 1995:
 Test of masonry water repellent SILRES® BS 290 in 1 : 15 dilution"

the USA, the following tests have been performed on SILRES® BS 290:

Laboratories, New York, April 30, 1992
 Product: SILRES® BS 290 (10 % in MS, 125 ft²/gal.)
 General Specification SS-WV-110C „Water-Repellent, Colorless, Resin Base"

Miss, Janney, Elstner Associates, Inc., Northbrook, Illinois
 Product: Code A25-172 (SILRES® BS 290, 15 % in MS, 125 ft²/gal.)
 NCHRP 244 Report "Concrete Sealers for the Protection of Bridge Structures" (April 12, 1988):
 Results Series I: (April 12, 1988):
 Reduction of water absorption: 87 %
 Reduction of chloride ion content: 89 %
 Water vapor transmission: > 100 % (within 7 days)
 Average penetration depth: 0.20 in.

Law Engineering, Atlanta, Georgia
 NCHRP 244 Report "Concrete Sealers for the Protection of Bridge Structures"
 Results Series I: (April 12, 1988):
 Reduction of water absorption: 85.1 %
 Reduction of chloride ion content: 92.1 %
 Water vapor transmission: 120.1 %
 Results Series IV: (January 13, 1989):
 Northern climate: very slight scaling, 97.5 % chloride reduction, no corrosion
 Southern climate: very slight scaling, 97.6 % chloride reduction, no corrosion

ASTM C 666 "Resistance of Concrete to Rapid Freezing and Thawing" (April 2, 1988)
 Result: Slight degree of scaling; durability factor 139 %
 ASTM C 672 "Scaling Resistance of Concrete Surfaces" (May 6, 1988)
 Result: Slight degree of scaling
 Ontario Provincial Standard 1351.08.01 "Salt Scaling Acceptance Test" (December 14, 1988) 12.2 g/m² (allowed max. 800 g/m²)
 visually no scaling detected

EBA Engineering Consultants Ltd., Edmonton, Alberta, Canada,
 September 20, 1988
 Product: Code: 350-187 (SILRES® BS 290, 15 % in MS, 125 ft²/gal.)

The data presented in this medium 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 medium 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.

The management system has been certified according to DIN EN ISO 9001 and DIN EN ISO 14001

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