

Protectosil® WS 410

Aqueous emulsion based on organofunctional silanes for the water repellent impregnation of absorbent, mineral substrates

Technical Data

Properties and test methods	Value	Unit	Method
Appearance	white liquid	-	-
Active content	50	%	-
Density (20 °C)	ca. 0.94	g/cm ³	DIN 51757
Viscosity (20 °C)	approx. 15	mPa·s	DIN 53015
Flash point	> 65	°C	EN 22719

Registration

Protectosil® WS 410

EINECS/ELINCS (EU):	Yes
AICS (Australia):	*
DSL/NDL (Canada):	*
PICCS (Philippines):	Yes
TSCA (USA):	Yes
IECSC (P.R. China):	Yes
ENCS (Japan):	Yes
ECL (South Korea):	Yes
*= Information upon request	

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Safety and Handling

Before considering the use of Protectosil® products please read its Safety Data sheet (SDS) thoroughly for safety and toxicological data as well as for information on proper transportation, storage and use. The Safety Data Sheet is available on our website www.protectosil.com or upon request from your local representative, customer service or from Evonik Resource Efficiency GmbH, Product Safety Department, E-MAIL sds-hu@evonik.com.

Packaging and Storage

Protectosil® WS 410 has a shelf life of 12 months when stored in originally sealed containers.

Storage temperatures are between 3 °C and 40 °C.

Protectosil® WS 410 is available in 25 l and 200 l drums and 1.000 l containers.

Properties and Use

Protectosil® WS 410 is suited for the water repellent impregnation of porous, mineral substrates

- shows very high reactivity and resistance against alkali
- penetrates deeply in porous, mineral substrates
- shows no formation of sticky silicone films
- gives invisible and water vapor permeable protection
- reduces significantly the uptake of water
- reduces the uptake of water soluble pollutants (e.g. chlorides)
- effective on micro cracks up to 0,3 mm
- may be further diluted with water

For most applications a concentration of from 5% (1 part Protectosil® WS 410 9 parts of water) to 25% (1 part of Protectosil® WS 410 1 part of water) of the active ingredient in demineralized water is recommended. The amount of Protectosil® WS 410 to be applied and the concentration to be used are highly depending on the absorbance of the substrate and the desired penetration depth. Very absorbent substrates may require up to 1 l/m² of Protectosil® WS 410.

The substrates to be treated should be dry and clean. Acceptable surface cleaning methods include sandblasting and water blasting.

Protectosil® WS 410 should be applied by wet-on-wet flow coating to the saturation point. The solution should be applied in 2 - 3 coats without drying between the coats. On vertical surfaces the solution should run down in the form of a clearly visible descending wet curtain. This is achieved by allowing the solution to flow against the surface of the building material without pressure. Most liquid delivery devices e.g. airless pumping equipment are suitable. The material should not be atomized or applied with a brush.

The water repellent effect of Protectosil® WS 410 can develop within minutes or require up to several days depending on the substrate and weather conditions. Therefore, the impregnation should be applied continuously and without a break to avoid overlapping.

Due to its high water content Protectosil® WS 410 is frost-sensitive and therefore should not be used at temperatures below 0 °C. The ideal temperature range for the application is 4 °C to 40 °C. Do not apply if rain is expected or if high winds or other ambient conditions prevent proper application.

The impregnation of delaminations should not be done with Protectosil® WS 410. Protectosil® BHN or Protectosil® 40 S are better suited for this purpose. A substrate which has already been made waterrepellent no longer allows a penetration of any reapplied aqueous silane/siloxane emulsion.

Protectosil® WS 410 reacts with the interfaces in pores and capillaries of the mineral surface and forms invisible, waterrepellent interfacial compounds. To determine the exact amount to be applied and to check whether previous or following treatments are compatible with the Protectosil® WS 410 treatment it is recommended to do a small test patch first.

Non-absorbent substrates such as window frames, window sills, plastic fittings, window glass, etc., should be covered before application. Surfaces which accidentally come into contact with Protectosil® WS 410 can be cleaned with alcohol (spirit) or aqueous soap solution. Cleaning should be carried out as quickly as possible (within a few hours), otherwise formation of a silicone resin film can make cleaning more difficult. Silicone resin films are best removed using ethanol (or spirit). Plant life should be protected from overspray.

Application Details

Substrate:	Application rate / Mode of application
concrete, aerated concrete	min. 200 g/m ² (dilution 1:1,5) / airless pumping
clinker masonry	min. 240 g/m ² (dilution 1:4) / airless pumping
sand limestone	min. 250 g/m ² (dilution 1:1,5) / airless pumping
roof tiles	min. 300 g/m ² (dilution 1:4) / airless pumping, immersion

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