

Technical Information Sheet Article No. 0608

Funcosil SL

Low molecular alkyl alkoxy siloxane with additives

Range of use

Funcosil SL is effective over a wide range, especially as an impregnation agent for natural stone and lime based natural stone in particular.

Property profile

Reactive, oligomer siloxane solution for water repelling impregnation of mineral building materials. The product was especially developed as a water repelling treatment for natural stone and limestone in particular (e.g. shell limestone).

Because of its low molecular structure in the packaged state, Funcosil SL has very good penetration capacity and reacts chemically in the building material in the presence of humidity to become a water repelling, UV-light proof and weather resistant material - polysiloxane. After application, the effective ingredients are deposited on the capillary and pore walls as a macromolecular layer that does not essentially influence water vapour diffusion capacity. Uneven absorbency of the substrate can lead to differences in the amount of impregnation agent that is absorbed which in turn may lead to differences in colour. Funcosil SL reduces the absorption of water and pollutants which are found in

Characteristic data of the product

Characteristic data of the product in the packaged state

Siloxane content:	approx. 7% by mass
Carrier:	aliphatic hydrocarbons
Flash point:	approx. 40 °C
Density:	approx. 0.79 g/cm ³
Viscosity:	44 sec. in a DIN 2 cup; 10 sec. in a DIN 4 cup
Appearance:	clear liquid

Characteristic data of the product after formation of active ingredients

Polysiloxane content:	approx. 5% by mass
Water absorption:	very low
UV-stability:	good
Resistance to weather:	highly pronounced
Long-term water repelling effect:	> 15 years (experience in practice)
Alkali resistance:	good
Non-tack drying:	given
Tendency to soil:	little

the form of water soluble acidic atmospheric gasses (SO₂, NO_x). Infestation of natural stone surfaces with micro-organisms is held in check by the impregnation and frost/de-icing salt resistance is improved. Energy loss is also reduced because the building material is protected against moisture penetration. Building material surfaces impregnated with Funcosil SL also show a much lower tendency to soil.

Substrate

The substrate must be in sound condition. Structural defects such as cracks, defective connections and the causes of rising damp must be corrected. It must be ensured that water and salts dissolved in the water cannot penetrate behind the hydrophobized zone since this can lead to frost damage, spalling and salt burst. A hydrophobizing treatment fixes the state of the substrate as it is at the time of impregnation. Before hy-

drophobic impregnation is carried out, the capillaries and pores of the building material to be treated must be opened or prepared by cleaning. Depending on the type and degree of soiling, we recommend our facade cleaner products. The mode of action and application procedures for these products are found in the respective Technical Information Sheets. When cleaning, make sure that the building substance is damaged as little as possible. Any residue left from previous cleaning (e.g. surface-active agents) could interfere with the hydrophobic impregnation and must be thoroughly washed off prior to treatment.

Chase out defective mortar joints and non-working cracks, then repair with Joint Mortar.

Close expansion and connection joints with elastic joint sealing compounds. Swelling capable stone should be pre-treated with Antihydro, Art. Nr. 0616, to reduce swelling. Friable natural stone should be strengthened or restored with stone strengtheners on a silicic acid ethyl ester base. Non-absorbent substrates such as, e.g. fine crystalline marble and polished stone surfaces are not suitable for hydrophobic impregnation since it is essential that the impregnation agent can penetrate into the stone.

Substrate Condition:

A prerequisite for an optimal impregnation effect is absorption of the impregnation agent. This depends on the respective pore volume of the building material and the moisture content of the stone. For this reason, the building material should be dry, if possible. If salts that damage the building material are present, a quantitative salt analysis must be carried out. High concentrations of damaging salts (especially chlorides, sulphates and nitrates) lead to grave damage that cannot be prevented by a hydrophobic impregnation.

Adjoining Surfaces:

Facade elements that should not come in contact with the impregnation agent, such as windows, var-

nished surfaces or surfaces to be varnished, as well as glass and plants must be covered with polyethylene sheet. Make sure that organic facade building materials are not irreversibly changed (carry out a resistance test).

When core insulation made of polystyrene (e.g. Styrofoam) and solvent-sensitive building elements such as, e.g. bitumen, plastic joint sealing compounds, latex materials, etc. are present, use Funcosil WS Silane Emulsion, Art. No. 0614.

Directions

The impregnation agent is to be applied by flow coating under gravity in such amounts that a 30-50 cm long film of liquid runs down the building material surface. The spray nozzle is lead in a horizontal direction along the façade without interruption. After the impregnation agent has been absorbed, the process is repeated once or several times. Spraying pressure and nozzle diameter should be adjusted so that misting does not occur. To avoid missing places, limited sections should be completely impregnated without interruption.

For smaller, more complicated surfaces that do not allow spray applications, a brush or lamb-skin roller can be used. With this method, insufficient application amounts or missed areas can only be avoided by working carefully in small sections and with well saturated tools. The freshly impregnated surface should be protected from rain for at least 5 hours. Strong wind as well as high temperatures can speed evaporation of the carrier agent which has a negative effect on penetration depth. On light-coloured and dense surfaces with low absorbency, it is recommended to wash down the surface with a pure solvent (V 101 thinner) one-half to one hour after application to remove excess material which might cause glossiness or spotting.

Working temperature

A hydrophobizing impregnation with Funcosil SL can be carried out at temperatures ranging between 5° C and 25° C. The evaporation of solvents and effective ingredient activation (polysiloxane) are delayed at temperatures that are too low.

Notes

When working with Funcosil SL and during the drying period, solvent vapours may enter the building especially at low temperatures and when there is no wind. Close all windows, doors and other openings during impregnation work and after the hydrophobizing impregnation has dried, ventilate living space.

Tools, cleaning

All solvent resistant, low pressure, conveyer and spraying equipment, liquid pumps are suitable. Tools must be dry and clean. After use and before longer pauses, clean thoroughly with V 101 thinner.

Packaging, application rate, shelf-life

Packaging:

5 l and 30 litre tin containers

Application rate:

Natural stone (fine pored): 0.2 - 0.5 l/m²

Natural stone (coarse pored): 0.4 - 1.5 l/m²

The required amount of impregnation agent for calculation and tender should be determined on a sufficiently large (1-2m²) trial area. The effectiveness of the hydrophobizing impregnation can also be determined on this area.

Shelf-life:

At least 2 years stored cool and dry in original, closed containers.

Testing the effectiveness

Water absorption in mineral building materials before and after hydrophobizing impregnation can be determined by means of the Fun-

cosil Test Plate (Art. No. 0732) or with a test tube developed by Prof. Karsten. With the Funcosil Test Plate, a non-destructive method of measuring water absorption, the w-value (water absorption coefficient in $\text{kg/m}^2 \text{h}^{0.5}$) can be determined directly without any problem on the object. Testing should be carried out 4 weeks at the earliest after the hydrophobizing proceedings and the measured data recorded.

Safety, ecology, disposal

Further information on safety when transporting, storing and handling as well as on disposal and ecology is found in the latest Safety Data Sheet.

The statements above are compiled from our field of production and according to the latest technological developments and application techniques.

Since application and working are beyond our control, no liability of the producer can be derived from the contents of this information sheet. Any statements made beyond the contents of this information must be confirmed in writing by the producer.

In all cases, our general conditions of sale are valid. With the publication of this Technical Information Sheet all previous editions are no longer valid.

0608-TI-02.07



Remmers (UK) Limited Crawley
United Kingdom
Tel: +44(0) 845 373 0103
Fax: +44(0)845 373 0104
www.remmers.co.uk

Remmers (Far East) Pte. Ltd.
Singapore
Tel: +65 6 7410277
Fax: +65 6 7417158