

# AboSil 14

## Water Masonry Repellent

Effective Protection through Water-Repellent Treatment



Concrete is one of the most durable and stable building materials. However, even concrete buildings can be brought to their knees. Moisture is always a culprit in damage to concrete. When water freezes and thaws, the damage can be extensive. Water also acts as an undesirable transport medium for aggressive substances, such as the chloride ions present in road salt. Furthermore, it serves as a medium in which reactions can take place and as a reagent in destructive chemical processes, foremost among these being the corrosion of reinforcing steel. The best way to afford permanent and reliable protection for concrete is to use AboSil 14 product that prevents water from being absorbed in the first place.

### Concrete Absorbs Water

When concrete and other mineral building materials come into contact with water, they absorb an amount which depends on their porosity. This contributes to the following forms of damage:

### Typical Structural Damage

- Concrete destruction by corrosion of the reinforcing steel (chloride induced)
- Chemical corrosion, e.g. binder transformation by acidic gases (SO<sub>2</sub>, NO<sub>2</sub>, CO<sub>2</sub>)
- Cracks by swelling and shrinkage
- Frost damage and freeze/thaw damage by road salts
- Efflorescence and salt damage by hydration and crystallization
- Lime leaching
- Rust stains
- Dirt pick-up and stains
- Fungal, moss, lichen and algal growth

### Freeze/Thaw Cycles, Road Salts and Sea Salt Attack Concrete

Concrete damages always involve moisture. Although water is important in making concrete, it can also be destructive. Furthermore, it carries aggressive substances such as chloride ions from road salts into the concrete. Water is also a reaction medium and partner for destructive chemical processes that particularly attack the reinforcement steel by corrosion.

## Hydrophobic Impregnation ENHANCES CONCRETE'S DURABILITY

## AboSil 14

### Product description

AboSil 14 is a mixture of octyltriethoxysilanes isomers, with iso-octyltriethoxysilane as the main component. AboSil 14 is used in undiluted form for the hydrophobic priming and impregnation of concrete and reinforced concrete.

### Special features

#### AboSil 14 is characterised by:

- Excellent penetrating power
- no solvents, environmentally compatible
- low volatility
- high resistance to alkalis

#### Treated concrete will have the following permanent properties:

- dramatic reduction in chloride and water absorption
- no loss in breathability
- improved durability against freeze-thaw de-icing salt stress
- enhanced durability
- provides good adhesion for paints

In the construction material, AboSil 14 reacts with atmospheric moisture and / or the water in the building material's pores, eliminating alcohol. The active thus substance formed greatly reduces the concrete's absorptivity in the active zone (penetration depth after post treatment), but without blocking any pores or capillaries. The impregnated building material retains very high water-vapor permeability.

### Application

AboSil 14 is recommended for the hydrophobic impregnation and priming of concrete and reinforced concrete in road, bridge and building construction.

**Processing: The work performed (preparing the concrete surface, setting up a reference surface, application and quality control) must follow the applicable regulations.**

- Concrete should not be impregnated until at least four weeks after it has been produced so that the setting of the cement is not affected.
- New surfaces that are still unsoiled must be cleansed of coarse particles and dust deposits by sweeping or, if necessary, using compressed air. Surfaces already weathered, and those heavily soiled by oil, rubber residue, etc., must first be cleaned using superheated steam or high-pressure water before commencing treatment.  
It is imperative that the water used be siphoned off immediately to prevent saturation of the concrete.
- Impregnation should always be performed on superficially dry concrete, i.e., when the surface of the concrete appears evenly dry, no more damp patches are visible and the moisture content equilibrium is established. To this end, moisture in the surface zone of the concrete must be measured using a suitable technique
- The surface-zone moisture content of the concrete (from the surface to a depth of 20 mm) should not exceed 4 wt%.
- Evenly apply the impregnating agent to the building material in two coats, wet-on-wet. The two coats are absolutely essential to prevent the formation of defects in the impregnated surface. Do not allow puddles to form. The impregnating agent is applied by flow coating at reduced pressure. A lambskin roller may be used afterward for more even coverage.
- In the event of unexpected rain, cover surfaces already impregnated and halt all further impregnation.
- AboSil 14 should never come in direct contact with bitumen. The resistance of insulating materials to AboSil 14 must be tested on a case-by-case basis for the required temperatures.

## Storage

The containers must be protected against sunlight.

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.

## Additional information & Safety notes

Under Abolin Co Company's Private Test Investigations (Not Independent Labs or Third Party certification Schemes) AboSil 14 was found to perform:

Depth of Penetration, acc. to EN 1504-2, Class II ( $\geq 10$ mm)

Drying Rate for Hydrophobic Impregnation, acc. to EN 1504-2, Class 1 > 30%

Water Ratio Absorption, acc. to EN 1504-2, < 7% compared to untreated sample

Comprehensive instructions are given in the corresponding Material Safety Data Sheets. They are available on request from Abolin Co Representatives.

## Product data

### Typical general characteristics

Silane content

molecular weight

Density at 20 °C

Viscosity, dynamic at 25 °C

Boiling point / Boiling range at 1013 hPa

Flash point

### Inspection Method

DIN 51757

DIN 51562

ISO 3679

### Value Appearance

clear, colorless

approx. 99 % Mo-

approx. 276 g/mol

0,88 g/cm<sup>3</sup>

1,9 mPa.s

236 °C

> 40 °C

The data presented in this leaflet 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 leaflet 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 recommendations do 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 products for a particular purpose.