

SARSIL® OH-100, SARSIL® OH-300, SARSIL® OH-500

Hydrophilic consolidating agents – standard types

PRODUCT DESCRIPTION

Hydrophilic consolidating agents are single-component preparations containing ethyl esters of orthosilicate acid (active substance) of standard polycondensation degree. The agent is produced in three standard versions.

- **SARSIL® OH-100** for preservation of narrow-porous building materials
- **SARSIL® OH-500** for preservation of wide-porous building materials
- **SARSIL® OH-300** solvent free agent for preservation of building materials

CHARACTERISTIC

PARAMETERS	UNIT	SARSIL® OH-100	SARSIL® OH-300	SARSIL® OH-500
Appearance		colourless liquid	colourless liquid	colourless liquid
Colour	[Hazen]	max 50	max 50	max 50
Viscosity at 20°C max	[cP]	1,5	1,5	2,5
Active substance content	[%]	90	98	90
Dilution rate		ready to use	ready to use	ready to use

APPLICATION

Hydrophilic agents for consolidating disintegrated building materials are designed to strengthen building materials destructed by weathering processes occurring mainly under influence of atmospheric factors. These products are characterized by a very good ability to penetrate capillaries of such building materials as: natural stones, terracotta, brick, plasters. Initial test should be carried out prior to application of the products to the stones which contain swelling silty minerals. Strengthening actions of the preparations consist in creating silica in the structure of disintegrated building material. The silica formed in this way is a binding agent which strengthen building materials. Silica creation process is connected with hydrolytic polycondensation of ethyl esters of orthosilicate acid with water included in the capillaries of a specific building material and/or water vapour in air. The above-described process progresses under influence of a neutral catalyst contained in the preparation. Due to the fact that the rate of hydrolytic polycondensation depends in a considerable degree on humidity and temperature, seasoning of building material is necessary to be carried out in the following conditions:

- at relative humidity of 50% and temperature of 20°C the material must be seasoned for 4 weeks in order to be completely strengthened.
- at relative humidity of 75% and temperature of 20°C the material must be seasoned for 3 weeks in order to be completely strengthened.

APPLICATION

Initial works

According to good practice of preservation works, chemical and physical tests of the building material to be protected should be carried out prior to the consolidation treatment in order to eliminate errors in application of the product. The following properties of the material should be determined:

- absorbability, porosity,
- chemical composition of the building material,
- depth of a disintegrated layer,
- consumption of the product for impregnation of 1 m² of surface,
- colour of the building material after completed consolidation.

Substrate preparation

In order to guarantee proper impregnation of the whole weakened layer of building material, the surface to be treated must be dry and absorptive. If the surface to be treated is covered with a thick layer of soil, careful cleaning of the surface is recommended to be carried out e.g. by water spraying or applying a delicate cleaning paste. In case of a major disintegration of building material it may be beneficial to carry out initial strengthening that enables surface cleaning to be carried out prior to the strengthening process proper. Just before the treatment the surface should be protected against excessive solar radiation heating. The preparation is recommended to be used in a temperature from +10°C to +20°C. At a temperature above 20°C a quick evaporation of the product

may occur which prevents a proper impregnation depth to be achieved. The treatment should not be performed at a temperature below +10°C. The elements which are not to be strengthened (windows, roofs, metal fittings etc.) should be protected with polyethylene film. Additionally, if during preservation works silicone rubber castings are planned to be made, the surfaces strengthened should be anti-adhesion protected by wetting them with a solution of soap or detergents.

Impregnation of building material

Impregnation technique should be chosen depending on the type of a building. Impregnation can be carried out by sprinkling, spraying, brushing, immersion or by a continuous flow method. Smaller parts, such as sculptures and other architectural details which can be disassembled, are recommended to be immersed in an impregnation bath tightly shielded in order to reduce reaction of the preparation with air moisture. Impregnation treatment should be performed in such a way as to impregnate and strengthen a whole disintegrated surface. If impregnation depth is too small a strengthened layer may be separated from a disintegrated layer which has not been strengthened. Creating an external layer which is stronger than the substrate should be avoided. In order to achieve a proper impregnation depth, the treatment should be repeated by "wet-on-wet" method until the building material ceases absorbing the preparation. The impregnated surface should be protected against rain for 3-4 days after impregnation treatment.

Consumption of a hydrophilic consolidating agent should be always determined during initial laboratory tests because consumption of the preparation may be from 0.5 even to 20 l/m² depending on the building material properties. If excessive surface impregnation is found after completion of building material impregnation, the surface is recommended to be rinsed with painter's naphtha or acetone immediately after impregnation. Change of the surface colour shade can be avoided in this way.

Seasoning time depends on building material type as well as humidity and temperature. General recommendations with regard to seasoning specified at the point concerning product application should be adjusted to specific working conditions.

Advantages of the hydrophilic consolidating agent

- easy to use (a single-component agent),
- optimal penetration depth which enables the whole disintegrated surface to be strengthened,
- neutral catalyst,
- big amount of silica binding agent is created,
- when properly applied the agent guarantees uniform strength profile of the whole strengthened surface,
- unchanged water vapour permeability,
- very high resistance of a binding agent created to weathering processes occurring under influence of atmospheric conditions and UV radiation,
- no toxicological hazards,

Remark:

All the works connected with hydrophilic consolidating agents should be carried out using glasses, rubber gloves, protective clothing, headgear. When the preparation is applied by spraying, nose and mouth protecting masks should be used. During works connected with hydrophilic consolidating agents the same care should be exercised as while working with flammable solvents. Follow general health and safety at work principles and other requirements specified on the product label.

Storage:

Store in cool rooms which comply with the storage of flammable materials. Protect against humidity.

Warranty period:

12 months from the date of manufacture.

Packaging: V-5 (4 kg)

Approvals and certificates:

Tests performed by Instytut Zabytkoznawstwa i Konserwatorstwa UMK (Institute of Historic Monument Sciences and Preservation at the Nicolaus Copernicus University in Toruń).

Producer's notes

The information contained in this document is given in good faith based on our current knowledge. However, this shall not constitute a guarantee for any specific product features. Each user bears the full responsibility for making its own determination as to the suitability of product for its own particular purpose. Because actual use of product by the user is beyond our control, such use is within the exclusive responsibility of the user, and we cannot be held responsible for any loss incurred through incorrect or faulty use of the product. For more detailed information please contact us in writing or by phone.



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