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Product Data

PROSOCO OH Consolidation Treatment (Stone Srengthener)

It has become apparent in recent years that masonry materials are not as durable as once believed, particularly when placed in the urban environments of today – materials decay at an alarming rates. Some of this may be attributed to natural weathering, however some is also due to oversights in use, maintenance and the impact of industrialisation.

The intent of conservation treatment is to restore the structural integrity to the crumbling, decaying masonry, OH Consolidation Treatment is based on silicic ethyl esters. Their extremely small molecular structure enables then to penetrate deeply into deteriorated masonry surfaces, collecting at contact points between individual stone grains. An internal catalyst and atmospheric humidity then converts the liquid consolidant into a glass like silicon dioxide (siO_2) gel which binds the stone particles together. Exhibiting chemical characteristics which are virtually identical to that of the natural stone, the newly deposited SiO_2 cementing matrix replaces the stone's natural cement, which has been lost due to weathering influences.

Description and use

OH Stone Strengthener is a ready to use consolidation treatment that stabilises masonry by replacing the natural binding material, lost due to weathering, with silicon dioxide. When properly applied, OH penetrates deeply, does not form a dense surface crust and retains the substrate's natural vapour permeability. OH is an effective pre-treatment for friable substrates which need to be strengthened before cleaning, patching or coating. OH May be used on most types of natural stone, concrete, stucco, brick, terracotta etc.

Advantages

- One component – easy to use. Strengthens deteriorated stone and renders treated surfaces water repellent
- Low viscosity allows deep penetration. Will not form hardened surface crust
- The new binder is mineral – similar to the original stone – no synthetic polymers
- Rapid tack free drying – no dirt attraction No by products harmful to the masonry
- Good vapour permeability
- New binder is acid resistant – resists acid rain

Recommended as follows. Always test.

Substrate	Type		m^2 per litre
Architectural Concrete Block	Smooth	No	N/A
	Split faced	No	
	Burnished	No	
	Ribbed	No	
Marble Travertine Limestone	Polished	No	N/A
	Unpolished	yes	N/A
Granite	Polished	No	N/A
	Unpolished	Yes	1.5 – 2
Sandstone	Unpolished	Yes	0.5 – 1.5
Slate	Unpolished	Yes	1 – 1.5
Fired Clay	Brick	Yes	
	Tile	Yes	0.5 – 1.5
	Terracotta	Yes	
	Pavers	Yes	
Concrete	Block	Yes	
	Brick	Yes	
	Tile	Yes	0.5 – 1.5
	Precast Panels	Yes	
	Pavers	Yes	
	Cast in place	Yes	

Laboratory and field testing is necessary to confirm desired results and application procedures. Coverage rates will vary according to degree of deterioration

Limitations

- Effective consolidation requires through laboratory and field pretesting.
- Limited shelf life – remains storage stable in sealed containers for approximately 1 year.
- Treated areas may bond to silicone and polyurethane moulds (frequently used for casting replacement stone). Use a release agent to prevent moulding compounds from adhering to the treated surface.
- Not suitable for some types of marble.

Technical Data

Active substance:	Silicic ethyl ester
Solids content:	75% by weight
Solvent content:	25% by weight
Form:	Colourless to slight yellow
Specific gravity:	0.938
Flash point:	2^0C

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Preparation
Protect surrounding surfaces and beware of wind drift.

The Importance of Pretesting
Since building materials differ in their nature and degree of deterioration, each conservation project poses unique problems and requirements. To gain a full understanding of the ongoing deterioration and determine necessary stabilisation/conservation measures, a number of laboratory and field tests are required.

a. Evaluates the physical and chemical characteristics of the substrate(s) to confirm whether consolidation is possible.
b. Identifies the cause(s) of deterioration and surface preparation procedures necessary for conservation treatment.
c. Determines the most appropriate conservation agent(s) and field application procedures.

On site testing: following lab testing, a test area should be cleaned and allowed to dry. An application of OH Consolidation Treatment is made following specific recommendations provided by lab analysis. The test area should be as large as possible and representative of the condition of the entire project. The test area is necessary to confirm application procedures under job site conditions and allow calculation of the masonry's consumption rate. The on site tests also provide a visible sample of the effects of the treatment on actual job surfaces. Additional core samples can be taken from the test area and tested to verify depth of penetration and proper application procedures.

Surface Preparation
Clean the building with the appropriate ProSoco product. In most cases, surface contaminants such as carbon crust, salts, pigeon droppings, mildew and atmospheric stains must be completely removed to assure thorough penetration. Surface sealers and repellents which may have been applied must be thoroughly removed.

Protect surface to be treated from direct sunlight for several hours prior to beginning application. When possible, initiate treatment when surfaces are shaded. Keep surface temperature relatively cool to prevent too rapid evaporation and to ensure proper penetration. Do not apply during rain, to wet surfaces to when there is a chance of rain. Protect from rain for two days following application. Surface and air temperatures should be between 10^0C to 32^0C during application.

Dilutions
Use in concentrate. Do not dilute or alter. Stir or mix well before use.

Application Instructions
Apply by low compression sprayer, brush or dipping. Large surfaces should be treated using low compression sprayer, small areas with spray tanks. Mobile objects such as sculptures are best treated indoors by dipping or with the use of compresses.

Ensure proper penetration and prevent crust formations by applying OH in repeated applications referred to as "cycles". A cycle consists of 3 successive saturation applications at 5-15 minute intervals. Typical treatments involve two or three cycles (6-9 separate applications). Allow 20 to 60 minutes between cycles. Lab testing will determine the optimum delay between applications and between cycles. Additional material should be applied until excess material remains visible on the surface for 60 minutes following the last application. Once this degree of saturation is achieved over the entire surface, the first treatment is complete. Immediately flush excess surface material using industrial grade MEK (methyl ethyl ketone). If a second treatment is necessary, allow two to three weeks curing time following first treatment.

Note: lab testing will determine the absorption profile and conservation capacity of the substrate(s). from this information, the optimal delay between cycles will be prescribed. The work area should be limited to a size that can be treated within the prescribed time periods. Proper timing o the application process will maximise penetration of the treatment. Deep penetration is critical to the long term benefits of treatment.

Coverage Rates
These will vary with the condition of the stone, density, surface texture and application conditions.

Packing
1 x 25 litre plastic container.

Safety Information
Flammable liquid and may cause eye, nose and throat irritation. Do not swallow. Wear suitable PPE - goggles and gloves and other protective clothing to avoid splash to bear skin or eyes. Always refer to material safety data sheet before use.

Technical Data
Contains acetone, methyl ethyl keton and ethyl silicate.

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