



MAXCLEAR®
CONSOLIDATED

READY-TO-USE PRODUCT FOR THE CONSOLIDATION OF BUILDING MATERIALS

DESCRIPTION

MAXCLEAR CONSOLIDATED is made up on the basis of silicic acid ethyl ester. During the application, the building material's capillary system absorbs the product, and will transport it to the deeper zones. Aided by a neutral catalyst, the silicic acid ethyl ester reacts with the ambient humidity and with the water absorbed through the capillary walls. A silicic acid gel (SiO₂aq) is formed, a glass-like substance, and, as by-product ethanol, which will, however, volatilise.

The majority of the silicic acid ethyl ester will transform into silicic acid gel after 2 weeks under standard climatic conditions (20°C / 50% rel. atmospheric humidity) which means that final hardness is reached.

The product does not contain any hydrophobic additives such as silanes or silicone resins. During the reaction, the treated surfaces show a slight droplet effect, which should not be confused with the hydrophobic effect itself.

USES

MAXCLEAR CONSOLIDATED is mainly used in the restoration of natural stone, stucco and frescoes which are damaged by weathering influences. Besides, other building materials such as brick or terracotta can also be consolidated.

MAXCLEAR CONSOLIDATED is suitable for all mineral and absorbent building materials which, when saturated with it, will regain its original porosity and hardness.

ADVANTAGES

- One-component system - therefore easily applied.
- Low-molecular weight provides optimum penetration
- Tack-free drying- therefore no dirt attraction
- No by-products which badly affect the building material
- The new-formed binder is mineral- therefore it has an affinity with the building material
- The new-formed binder is acid resistant- therefore resistant to rainwater
- Pores are not sealed- the treated building material maintains its water vapour permeability

APPLICATION INSTRUCTIONS

Pre-examination, test area

Due to the fact that the building materials differ in their degree of deterioration, the following instructions can only serve as general guidelines for a successful restoration:

- a) Determine exactly the state of the substrate which is to be consolidated (binder, salt contents, porosity, etc.).
- b) Fix the necessary application steps and the material consumption.
- c) Apply over a sufficiently large test area (it will also help to determine the material consumption) and control the success by and optical assessment (colour change) and relevant physical measurements;
- d) Follow the application steps stated in b) and make sure material consumption is adequate.
- e) Carry out thorough final tests to evaluate the results of the application.

Kind of substrate

Buildings that are to be restored often have a thick, dirty surface (crust). These areas must be cleaned thoroughly and mildly, e.g. by spraying with cold or hot water, or damp-cleaning. In many cases, the stone is already friable so that cleaning without a further loss of substrate is unavoidable. It is, however, possible to initially consolidate the material with MAXCLEAR CONSOLIDATED to prevent any large loss. Then, the substrate should be cleaned and the main consolidation can take place.

In order to enable the MAXCLEAR CONSOLIDATED to penetrate the whole friable building material, it is necessary that the area is completely dry and absorbent. Already treated areas should be protected against rain and direct sunlight during the following 2-3 days. The product will evaporate quickly with too much warmth and therefore cannot penetrate sufficiently. The optimum application temperatures are those between 10 and 20°C. The relative humidity of the air should be > 40%. In order to prevent the effects of high temperatures, canvases can be used to provide shade.

Form of application

MAXCLEAR CONSOLIDATED may be applied by spraying, brushing or dipping, the appropriate kind being dependent on the object which is to be consolidated. Larger areas should be treated with spraying-devices, smaller ones with a spray-bottle. Mobile objects, e.g. sculptures, are best treated by dipping or with the use of swabs.

Amount to be applied

An indispensable pre-requisite for a successful restoration is that the product penetrates to the sane core of the stone, as otherwise, flaking due to crust formation cannot be excluded.

In order to reach the desired penetration depth, smaller areas of the building material (perhaps stone by stone) have to be treated and saturated with MAXCLEAR CONSOLIDATED till the material has fully absorbed the applied amount of strengthening material. It necessary, a further treatment can follow after 2-3 weeks at the earliest; here too, the complete saturation of the friable material must be ensured.

If the subsequent treatment is made before the formation of active substance is completely finished, the stone will not be able to absorb the stone strengthener. Consequently, the surface will become greyish.

The amount of MAXCLEAR CONSOLIDATED needed for the consolidation depends on the kind of building material. The consumption may range between 0,5 and 15 l/m². Example: a stone which was damaged to a depth of 6 cm needed in the first cycle of treatment 5 l/m² of MAXCLEAR CONSOLIDATED and in the second -executed after 3 weeks- 3,5 l/m². In another case an amount of 2,7 l/m² was applied and a penetration depth of 10 cm could be proved. The necessary amount of MAXCLEAR CONSOLIDATED must be determined on a test surface.

Post-treatment

In order to prevent the surface from changing its colour by the treatment with silicic acid ethyl ester, it is recommended to wash the stone surface with a solvent, e.g. white spirit, immediately after the saturation.

Application of stone-replacing-material and paints

Areas treated with MAXCLEAR CONSOLIDATED can receive stone replacing materials or a mineral silicate painting, if the transformation is completed. It is also possible to apply silicone paints to MAXCLEAR CONSOLIDATED treated areas. If the MAXCLEAR CONSOLIDATED is to be used only after the application of stone replacing material or the mineral silicone paint, allow at least four weeks for complete curing, before applying MAXCLEAR CONSOLIDATED.

Hydrophobization

The completion of every restoration should be a hydrophobization, i.e. a protection against precipitation.

This can be done by a treatment with MAXCLEAR or MAXCLEAR - D

CAUTIONS

- MAXCLEAR CONSOLIDATED contains easily flammable solvent. Please observe the usual safety precautions concerning application and storage of this type of products. Avoid flame and sparks.
- The containers must be protected against direct sunlight - otherwise the product will react with the atmospheric humidity and become useless (gel formation).
- The product should not come in contact with foodstuffs, or be used in the food industry.
- At high concentrations in the working place, e.g. in rooms (ensure good ventilation) or if the product is applied by spraying, specially when there is no wind, breathing masks with combined gas/mechanical filter should be used.
- Wear protective gloves and glasses. Clothes soaked with MAXCLEAR CONSOLIDATED must be changed at once.
- Plastic materials, which are not solvent-resistant, or windowpanes, etc. must be protected against MAXCLEAR CONSOLIDATED. When applying the product by spraying, take care of cars parked in the surroundings.
- When applied by dipping, the dip tank should be closed airtight in order to avoid gelling of the MAXCLEAR CONSOLIDATED, in the case of a long dipping time.
- If a droplet effect is formed which could complicate the application of stone-replacing material or mineral silicate paints, this effect can be removed by rubbing off the stone surfaces with NH₃-water.
- If areas treated with MAXCLEAR CONSOLIDATED are to be demoulded, it is necessary to previously treat the surface with a wetting agent, e.g. soap-solution, PVA-solution, so as to prevent the silicone demoulding compound from sticking to the surface.

TECHNICAL DATA

Contents of Silicic Acid Ethyl Ester %W/W	75
Contents of solvent %W/W	25
Specific Gravity at 25°C	ca. 0.94
Colour	Colourless to yellowish
Catalyst	Neutral
Flash Point	+2°C
Ignition temperature	+230°C

PACKAGING

5 and 25 litre drums.

STORAGE

12 months in its original, unopened container, protected from frost, in a dry covered place.

GUARANTEE

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