



## Cleaning solution for stone and painted surfaces.

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### IS IT:

*Product*

*Technology*

*Equipment*

### APPLICABLE FOR:

*Restoration*

*Rehabilitation*

*New Construction*

### APPLICABLE ON:

*1. Foundations and underground structures*

*2. Vertical structures*

*3. Horizontal structures and vertical connections*

*4. Roof and terraces*

*5. Façade and building envelope*

*6. Finishes and completion elements*

*7. Integrated services*

*8. General strategies for building recovery*

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***Related companies: AB57.***

## DESCRIPTION

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Formulation studied by the Italian Central Institute of Restoration (ICR) and used for several decades for cleaning frescoes and stone surfaces.

It belongs to the methods of chemical cleaning of surfaces of the non-harmful type, and is a mixture of salts, complexing agents, thixotropic and absorbent elements.

As it does not contain carboxy-methyl-cellulose having an emulsifying and thickening function, it is ideal when using compress support agents such as paper pulp, sepiolite, micronized silica, polyacrylic acid, waxy emulsion, hydroxypropyl cellulose...

## WHY TO USE

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The AB57 cleaning solution has the ability to remove patinas, crusts, sulphation stains, molds, algae and lichens in a localized and controlled manner; for this reason, it is used to clean frescoes and natural and artificial stone surfaces, even very porous and delicate, attacked by atmospheric and biological pollution.

### THIS LIQUID CLEANING SOLUTION IS ABLE TO:

- Removes sulfate stains and encrustations from external facing in natural and artificial stone material (marble, compact or porous limestone, sandstone, plaster, mortar, terracotta, ...);
- Removes chalky crusts from stone decorative elements (friezes, coats of arms, sculptures, ...);
- Removes even consistent patinas due to mold, algae and lichens;
- Cleans frescoes in a controlled manner;
- Eliminates dark spots, even from capillary rising damp;
- Eliminates carbonate deposits (calcium carbonate, lime residues, conversion of calcium sulphate, ...).

## HOW TO USE AND APPLY

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The AB57 cleaning solution acts rapidly by dissolving and extracting slightly soluble salts, such as sulphates, even from very porous materials.

Apply a few mm layer of AB57 on the surface to be cleaned, possibly placing a sheet of Japanese paper in

front of it, possibly adding ammonia to dissolve oxidized fatty components in the crust.

The action time is very variable (from 1 to 5 hours), to avoid the evaporation of the water in the solution, cover the surface with a non-breathable film (polyethylene, aluminum foil, etc.).

Repeat the operation if necessary, paying attention not to damage the calcium carbonate of the limestones.

A final wash with deionized water is always recommended, accompanied by a mild brushing action.

## THE APPLICATION OF THE AB57 LIQUID CLEANING SOLUTION

The application of this product usually takes place as a compress; therefore, we recommend adding a supporting or thickening product (carboxymethylcellulose, paper pulp, sepiolite, micronized silica, polyacrylic acid, waxy emulsion, hydroxypropyl cellulose, etc.) to the solution in order to being able to spread the product easily even vertically if necessary.

Once supported, the AB57 Liquid Cleaning Solution can be distributed in a 1-3 mm layer on the substrate to be cleaned. In the case of porous and dry materials, to improve the effectiveness of the AB57 Cleaning Solution, it is recommended to moisten the surface evenly and lightly by spraying demineralized water.

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The cleaning action of the AB57 Cleaning Solution is carried out as long as the pack remains sufficiently moist, therefore the maximum treatment time limit depends on the evaporation rate of the liquid component (water). On very hot days or in very ventilated places, it is possible to prolong the activity by covering the application with a film or by wetting the AB57 Cleaning Solution compress during the drying phase.

The laying time of the AB57 Cleaning Solution varies according to the thickness and type of encrustation to be removed, usually ranging from 5 minutes to 3 hours.

To avoid leaving residues of support/thickener on the treated substrate, we recommend always inserting a layer of Japanese paper of adequate weight.



It is always possible to modify the AB57 Liquid Cleaning Solution by adding concentrated ammonia to dissolve oxidized fatty components in the crust.

Once the AB57 Cleaning Solution has dried, remove the compress and remove any residues with the aid of a spatula or a damp sponge. Then rinse the treated surface with water and check the effect obtained from the treatment with the AB57 Cleaning Solution and possibly repeat a few application cycles following the methods described until the desired result is achieved.

## **TECHNICAL CHARACTERISTICS**

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### **Components:**

1000 cc water;

30 g ammonium bicarbonate;

Sodium bicarbonate g.50;

E.D.T.A. (disodium salt) g. 25;

Desogen (quaternary ammonium salt) cc. 10 (surfactant, fungicide);

Carboxymethylcellulose g. 60.

It must have a PH around 7-5 and the amount of E.D.T.A. it can be varied and brought, if deemed necessary, to 100 - 125 g.

Ammonia (NH<sub>4</sub>OH) or triethanolamine (C<sub>3</sub>H<sub>4</sub>OH<sub>3</sub>) can be added to the mixture in order to facilitate the dissolution of the "fatty components" present in the crust.

Sodium hexametaphosphate (NAPO<sub>3</sub>)<sub>6</sub> and ammonium formate HCOONH<sub>4</sub>

The effect of the sodium and ammonium salts contained in the Liquid Cleaning Solution AB57 have an alkalizing effect and favor the mechanical detachment of the crust, while the EDTA. complexes the calcium present in the crust bringing it into solution.

The quaternary ammonium base has a surfactant and fungicidal action, while the presence of ammonium bicarbonate can lead to the conversion of calcium sulphate into ammonium sulphate with the formation of a much more soluble salt in water.

However, it is advisable to always carry out preliminary tests with the AB57 Liquid Cleaning Solution to determine the optimal conditions and times of use.

## **RECOMMENDATIONS AND OTHER INFORMATION**

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Mixture that has the property of dissolving the gypsum without affecting the calcium carbonate.

They must be used in solutions with 5-20% water in order to obtain a greater solvent capacity.

A neutral or slightly alkaline liquid soap (5-10 cc. each liter) can also be added in order to favor a better wettability and export of fatty crusts produced by aliphatic hydrocarbons.

## **EXAMPLES**

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N/A

## **REFERENCES / SOURCES AND LITERATURE**

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L. DEI, P. BAGLIONI, G. SARTI, E. FERRONI, Aging effects on ammonium carbonate/acetone solutions and cleaning of works of art, in Studies in conservation, vol. 41, n. 1, pp. 9-18 (1996)

<https://bmcstonecare.com/istituto-centrale-del-restauro-di-roma/>

[https://www.antichitabelsito.it/soluzione\\_pulente\\_ab57.html](https://www.antichitabelsito.it/soluzione_pulente_ab57.html)

<http://www.impresedilnews.it/pulitura-del-paramento-lapideo-eliminare-cio-che-e-dannoso/>

<https://vimeo.com/118225832>

## **WEBSITE OF THE COMPANY**

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[https://www.antichitabelsito.it/soluzione\\_pulente\\_ab57.html](https://www.antichitabelsito.it/soluzione_pulente_ab57.html)

<http://www.impresedilnews.it/pulitura-del-paramento-lapideo-eliminare-cio-che-e-dannoso/>

<http://www.brescianisrl.it/newsite/ita/xprodotto.php?id=4160&hash=9d8ab216aab8339529a858c6d5267583>



## IMAGES AND CAPTIONS



Fig.1: Making a compress using the AB57 cleaning solution. © [https://www.antichitabelsito.it/soluzione\\_pulente\\_ab57.html](https://www.antichitabelsito.it/soluzione_pulente_ab57.html)



Fig.15-16: Trento Cathedral, Italy. Execution of the cleaning intervention and after removing the packs, a washing with distilled water and brushing is performed to facilitate the dissolution of black crusts and remove solvent residues.

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