



TECHNICAL DATA SHEET No. 34/04 rev.04

ANODIZED ALUMINIUM AND VARNISHED ALUMINIUM FOR OUTSIDE APPLICATIONS: **SURFACE CLEANING**

AITAL .Varnished Products. has processed this document in cooperation with QUALITAL and would replace the card VECTAL “Maintenance of varnished aluminium surfaces” and CIOA “Sale conditions..... Anodised aluminium testing” concerning the cleaning of the surfaces

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ANODIZED ALUMINIUM AND VARNISHED ALUMINIUM FOR OUTSIDE APPLICATIONS

SURFACE CLEANING

INTRODUCTION

Before dealing with this subject details we shall the better explain what it is intended for cleaning.

With such term, all those operations to which either the varnished or anodised aluminium frame or the handwork must undergo for the purpose to bring, as much as possible, the surface to its initial aspect.

However, with such operation not only such goal is reached, but also it is avoided that on its surface remained, for long time, all those persistent agents present in the atmosphere that may trigger corrosive phenomena, sometime if neglected for long time, or could form encrustations more or less difficult to remove.

The purpose of this card is to supply all the broad indications that may be used as suggestion in choosing the time and the modalities for cleaning, but that, necessarily, must be verified case by case.

Sometimes, there could be other problems not directly linked to the cleanliness, but affecting the required infrastructures.

In fact, carrying out the cleanliness interventions may require also special equipments, as, as an example, movable platforms and nacelles that must ensure the maximum safety to the operator (anchorage by stiff structures, solid support points, etc.).

For this reason, it is necessary never to neglect upon designing everything that must be expected for proper and effective cleanliness interventions¹.

In this card, it is started from assuming that in economic calculation of the design, installation and

life of either varnished or anodised aluminium handwork, directed to outside architectural applications, costs linked to the cleanliness must be duly taken into account.

Such costs must be related to the value of the works where the varnished or anodised aluminium handworks are placed (windows, continuous façades, etc.) to protect both their aspect and the handworks against the attacks of the outside agent. In our comments, we have always given the priority to these two features, being convinced of the importance to keep high, as much as possible, the value of the architectural works.

Obviously, in case the economic calculation ignored these costs, this card would totally be meaningless.

Further, it must be stressed the circumstance that there are no precise and specific responsibilities in each stage of the life of a handwork, starting from its installation. In the case in point, the installation of the window and door frames must be carried out at the end of the building works to avoid possible mortar deposits, or similar products that may attack both the anodised oxide strata and the varnished covers. Then, the liability of the window and door frames installer/layer, except for any hidden faults, finishes upon delivery of the works to the owner of the building, with a proper (and documented) cleanliness of the window and door frames.

In the stage of the management of the building, the liability for the proper maintenance of the window and door frames falls on the owner who/that must implement regular scheduled and documented activities, to clean window and door frames, to show in case of controversies.

¹ REFERENCE:

- UNCSAAL UX 10 card

CLEANING FREQUENCY

The choice of a given cleaning frequency depends on the aggressiveness of the existing atmosphere in the area where the varnished or anodised handwork is placed.

As a general rule, the atmosphere aggressiveness in respect of the varnished or anodised aluminium depends on three main factors:

- a) The degree of the humidity, meaning the time during which the condense remains in stagnant contact with the surface;
- b) The pollution, meaning the presence, in the air, of industrial fumes (particularly, sulphurous anhydride), coal, etc.;
- c) Substance with chlorine (particularly in areas up to 500 m. from the sea, in the industrial fume compounds containing chlorine, etc.).

These factors may take dimensions more or less high that may be divided, indicatively and on a case by case basis, in the following 2 levels:

1. **Light:** occasional presence of condensate and/or vicinity to industrial areas and/or distance from the sea of less than 1,500 m;
2. **High:** persistent condensate deposit and/or direct and continuous exposure to industrial fumes and/or distance from the sea of less than 1,500 m.

To chose the frequency, one must base himself on the following indications:

- a) Normal cleanliness frequency (every 3-6 months) in those cases of **light** dirtiness inside and outside: limited traffic, far from sea areas.
- b) Intense cleanliness frequency (every 1-3 months) in case of **high** dirtiness inside and outside: high traffic and industries concentration, nearness to sea areas.

PERIOD TO PERFORM THE CLEANING

Once scheduled the frequency, also consistent with any previous indications, the choice of the

period in which there must be cleaned must not be neglected.

A proper choice is, certainly, that keeping into account the monthly rain, responsible to transport aggressive substances which are in the atmosphere and to run into the buildings.

As an example, bearing in mind any previous remarks, should the cleaning be performed twice a year it is recommended to clean in March and October.

Should the cleaning be performed thrice a year, during the months of March, June, and October that seem the more indicated.

GENERAL REMARKS FOR A PROPER CLEANLINESS

Before cleaning, it is necessary knowing the finishing typology, as well as its behaviour and its compatibility with the cleaning products².

When the handwork is covered with a thick layer of dirtiness and must be cleaned for the first time after many years from its installation, it is required performing some preliminary tests, agreed with the customer, with different methods and products, to find the most suitable technique.

The operator must be able to understand whether the either varnished or anodised surface has undergone deterioration or whether it is a simple accumulation of dirtiness that may easily be removed.

For cleaning operations, in general, detergent products manufactured by several manufacturers and sold under different commercial names are used.

In general, three products type are available:

- Alkaline type
- Neutral type

² REFERENCES:

- UNI 10731 Norm . Aluminium and *anodised* aluminium alloys . assessment of the resistance to the chemical products used in
- UNI 10733 Norm . Aluminium and *varnished* aluminium alloys . assessment of the resistance to the chemical products used in the surfaces cleaning

- Acid type

During the cleaning, absolutely, it is required bear attention to the following features:

1. Never use either acid or alkaline detergents;
2. Never use abrasive products and/or materials;
3. Never use organic solvents (on varnished surfaces);
4. Never use detergents of unknown chemical make up;
5. Never apply the products directly on the surfaces to clean;
6. The surfaces, during the cleaning, must be "cold" (Max. temperature = 30° C.) and must not expose to direct sun;
7. The detergents used must, in turn, be "cold" (Max. temperature = 30° C.) and equipments by steam spray must not be used.

When one must choose between the different products that may be used, it is needed to bear in mind that the façades of the buildings are always be made of various materials, such as the aluminium, concrete, steel, stony materials, plastics, sealing, etc.

Above all, it must be paid a lot of attention to the very strong cleaning products that, though may appear to a first visual examination more effective, may lead, as final outcome, to actual disasters.

In case of the continuous façades, normally, the cleaning of the aluminium is done together with the cleaning of the glasses. Obviously, it is needed that the cleaning firm was specialised and able to execute the cleaning of both the surfaces.

In any case, the last stage of the cleaning is always a suitable rinse using water on those parts treated and, afterwards an immediate drying with either cloths or soft skin.

The importance of the cleanliness has been considered, for some time, in some European Countries, among which Italy. However, though there is certain sensitiveness to such problem, always the work is given only on the base of

economic considerations regardless from the actual capabilities or knowledge of the cleaning firms.

USABLE PRODUCTS

To this end, various products are available on the market, though not all of them are suitable for cleaning the either varnished or anodised aluminium.

There is a list of products that may be utilised on anodised or varnished aluminium with GRM label (Gutemeinschaft für die reinigung von Metallfassaden e.V.), Marientorgraben 13, 90402 Nuremberg, processed for cleaning Quality.

For more informations we suggest you consult the web-site: [LINK](#)

In Italy there are some specific products (for information, please get in touch with AITAL) suitable to reinstate surfaces that appear, visually, strongly damaged.

We particularly refer to the problem concerning the appearance of the iridescence phenomenon on anodised surfaces.

The use of only water and detergent cannot remove the surface patina, but a product containing elements lightly abrasive is required.

These products are able to eliminate the defect, unless the iridescence would indicate a deeper deterioration phenomenon.

FURTHER INSTRUCTIONS FOR A PROPER CLEANING OF VARNISHED BY METALLIC EFFECTS FACING

Over the last few years, the final customers have been, more and more interested in the finishing by metallic effect, thus significantly increasing its use.

In the architecture, contrarily to what happens in the car industry, these kinds of varnishes consist of one coat only. As the metallic effect is due to the presence of small chips in the surface layer of the varnish film, the use of unsuitable products to clean

may cause the removal of such chips, thus jeopardising the aesthetic aspect of such finishing.

To keep the metallic effect and to prevent any metallic effect from changing due to either the actions of outside agents or to dirtiness deposits, these covers must be cleaned with suitable products.

Other recommendations concerning the cleaning of the surfaces by metallic effect are the following:

- Before cleaning an entire façade, trials are necessary to choose the most suitable detergent and of non-abrasive auxiliary products. The technique consists of cleaning a small part of the façade, and, then, comparing it with an adjacent surface. The evaluation is a positive one in case aspect changes do not occur between the clean part and the previously protected adjacent part.
- The surfaces, normally, may be cleaned using water including the wetter agents (detergents available for sale) through the use of a soft, and non-abrasive, sponge.
- For a more effective intervention, in particular when there are dirtiness deposits, the application of a protecting product is recommended.
- To choose the detergents, it is appropriate evaluating the effectiveness of the products, according to the provisions of norms UNI 10731 and UNI 10733.