



SECURITY GLASS STOREFRONTS

CLEANING AND MAINTENANCE GUIDE FOR ARCHITECTURALLY FINISHED ALUMINUM

1. General

1.1 Anodized Aluminum: As with any finished building material, anodized aluminum requires reasonable care prior and during installation and periodic cleaning and maintenance after installation. Although anodized aluminum possesses exceptional resistance to corrosion, discoloration and wear, harsh chemicals, rough conditions or neglect can mar its natural beauty. Such conditions usually affect only the surface finish and do not reduce the service life of the aluminum. However, the marks resulting from such mistreatment may be permanent. For example, mortar, cement and other alkaline materials quickly corrode anodic coatings if allowed to dry on the metal surface.

1.2 Painted Aluminum: Organic coatings on aluminum do not normally show appreciable amount of dirt collection. In many atmospheres dirt or soil would not indicate a detrimental risk to the coating, but cleaning and surface care may be desirable for the sake of appearance. Cleaning may become desirable in areas where heavy industrial deposits have dulled the surface, where materials from construction processes have soiled the surface or where cleaner run-down from other surfaces should be removed.

1.3 Both painted and anodized surfaces, exposed to the atmosphere, collect soil and dirt, the amount of which may vary on geographical area, environmental conditions, finish and location on the building. Local atmospheric conditions as well as building location within a geographical area quite naturally have an effect on cleanliness.

1.4 More frequent cleaning will be required in heavy industrialized areas compared to rural areas. Seasonal rainfall can affect washing frequency by removing water soluble deposits and less adherent soil. In foggy coastal regions, frequent cycles of condensation and drying can create a heavy build-up of atmospheric salts and dirt which may adhere tenaciously. In climates where rainfall is low, the opportunity for atmospheric washing of the surface is minimal. Los Angeles, for example, has a unique combination of limited rainfall, temperature fluctuation, smog, and condensation. The situation requires that cleaning be done more frequently than in other metropolitan areas where rainfall is more frequent.



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1.5 In both wet and dry climates, recessed and sheltered areas usually become more heavily soiled because of the lack of rain-washing. Frequent and longer periods of condensation also occur in protected areas increasing the adhesion of the soil. This is particularly true of soffit areas on some overhangs, bottom areas of fascia panels, sheltered column covers and the like. Periodic maintenance inhibits long-term accumulation of soil, which under certain conditions can accelerate weathering of the finish. The more frequently aluminum is cleaned, the easier and less costly succeeding maintenance is. It is recommended the finish supplier be consulted for proper cleaning schedule.

1.6 In any case, the aluminum-cleaning schedule can be integrated with other cleaning schedules for efficiency and economy. For example, both the glass and the aluminum curtain wall on the same building can be cleaned at the same time. If automatic wall cleaning equipment is to be used on the building, a test should be made early in equipment design to insure that the cleaning solutions, brushes, as well as the frequency of cleaning have no detrimental effect on the coating.

Reference: "AAMA 609 & 610-02"

1.7 Cleaning procedures to remove construction or accumulated environmental soils and discoloration should be initiated as soon as possible. Mortar, cement and other alkaline materials will quickly corrode anodic coatings if allowed to dry on the metal surface. Cleaning should start at the top of the building and proceed to the ground level in a continuous drop, the width of the stage or scaffolding. The type of procedure depends upon the degree of soiling.

2. Precautions When Cleaning Painted Surfaces

- Select the appropriate cleaning method after identifying the finish.
- Do not use abrasive household cleaners or a material like steel wool or hard brushes that can wear and harm finishes.
- Excessive abrasive rubbing should not be used since it can damage the finish.
- Strong solvents (like MEK) or strong cleaner concentrations can cause damage to painted surfaces.
- Over cleaning or excessive rubbing can do more harm than good.
- Avoid drips and splashes and remove run-downs as quickly as possible.



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- Consider the effects of run-downs on shrubbery, personnel and equipment and schedule cleaning appropriately.
- Strong cleaners should not be used on window glass and other components where they might come into contact with the aluminum.
- Avoid temperature extremes that can accelerate chemical reactions, evaporate or strengthen cleaning solutions, cause streaking, staining or blotching.
- Never use paint removers or aggressive alkaline, acid or abrasive cleaners.
- Always do a test on a small inconspicuous area first and follow manufactures recommendations for mixing and diluting cleaners.
- Make sure cloths, sponges and cleaning equipment are grit free.
- Do not mix or substitute cleaners.

3. Cleaning and Maintenance of Duranar Coated Surfaces

3.1 Using hot or cold detergent solutions. A 5% solution in water of commonly used commercial and industrial detergents will not have any deleterious effect on a DURANAR surface. These solutions should be followed by an adequate rinse of water. Use cloth, sponges or a soft bristle brush for application. Cleaning should be done on the shaded side of a building or, ideally on a mild, cloudy day.

3.2 Using organic solvents. Most organic solvents are flammable and / or toxic, and must be handled accordingly. Keep away from open flames, sparks and electrical motors. Use adequate ventilation, protective clothing and goggles.

3.3 Solvents that may be used to remove non-water soluble deposits (tar, grease, oil, paint, graffiti, etc.) from DURANAR surfaces include:

3.3.1 Alcohols

- Denatured alcohol (ethanol)
- Isopropyl (rubbing) alcohol
- Methanol (wood alcohol)
 - **Note: Methanol is toxic**

3.3.2 Petroleum Solvents



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- VM & P naphtha
- Mineral spirits
- Turpentine (wood or gum spirits)

3.3.3 Aromatic and Chlorinated

- Xylol (Xylene)
- Toluol (Toluene)

The above solvents should be used with caution on a DURANAR surface. Limit contact of DURANAR surface with solvent to five (5) minutes maximum and test before using.

3.3.4 Ketones, Esters, Lacquer Thinner

- Methyl ethyl ketone (MEK)
- Methyl isobutyl ketone (MIBK)
- Ethyl acetate (nail polish remover)
- Butyl acetate
- Lacquer thinner

The above solvents should be used very cautiously on DURNAR surface. Limit contact of DURNAR surface to one minute maximum and test prior to using. Storefront manufacture and coating manufacture are not responsible for damage from unrestricted use.

3.3.5 Acetone/Paint Remover

Do not use acetone or paint remover on DURNAR surfaces.

3.3.6 Chemical Solutions

- Sodium hypochlorite solution (laundry bleach, Clorox)
- Hydrochloric acid (muriatic acid)
- Oxalic acid



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- Acetic acid (vinegar)

Hydrochloric or 10% muriatic acid, diluted with ten volumes of water may assist in removing rust or alkali mortar stains from DURANAR surfaces. Limit contact to 5 minutes. Caution: acid solutions are corrosive and toxic. Flush all surfaces with water after use. Oxalic acid solutions or vinegar may be used for the same purpose. Flush with water. Laundry bleach may assist in removing certain stains.

3.4 Mildew Removal

3.4.1 Remove mildew with a basic solution of the following:

- 1/3 cup laundry detergent
- 2/3 cup trisodium hypochloride, (Soilex, for ex)
- 1 quart sodium hypochloride, 5% solution (Clorox, for ex.)

Rinse with clear water immediately.

3.5 Excess Sealant Removal

Should any sealants get on the painted surface it should be removed promptly with a solvent such as alcohol or a naphtha type. Caution, it may be possible for solvents to extract materials from sealants which could stain the painted surface or could prove harmful to sealants, therefore test a small area first.

3.6 DURNAR (DURACRON) Rework Procedures

There are no set rework procedures for all possible situations which arise. Anytime reworking the surface exposes the aluminum substrate, it is safe to assume the pretreatment of that area no longer exists and special conditions should be considered. When bare aluminum has not been exposed, generally, recoating is satisfactory. Touch-up enamel is intended only for scratches and minor defects.

3.7 Field Touchup Procedures

3.7.1 Surface Preparation

- Surface must be clean, dry and free of foreign contaminants.
- Lightly scuff sand surface to be recoated, feathering edges at the damaged area.



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- Remove sanding dust and other contaminants with solvent dampened lint free cloth or use tack cloths.
- Areas of bare aluminum must be pretreated with conversion coatings such as Amchems Alumiprep #33 and Alodine 1202 according to label directions on manufacturer's containers.
- Immediately prime any bare aluminum with PPG's 2 component wash primer. (UC-40082/UC-40083)

3.8 Application of Air Dry Touch up Enamel

- Ambient air temperatures and surface temperatures should be above 50 deg F for application of the paint and for a reasonable length of the initial drying period. (24 hours minimum)
- Application is usually made with air spray equipment. Rolling and brushing does not provide a smooth film due to the drying speed of the touch-up type coatings, although it is possible for small scratches or minor defects.
- A multiple light pass technique to slowly build to desired 1.0 mil minimum film thickness is recommended.

3.9 Touch up Product Reduction

- Follow specific instructions for the PPG product being used.

4. Cleaning recommendations for metal coated with TIGER Drylac

Proper maintenance and regular servicing of the coated surfaces are both prerequisites for the claims of any guarantee and require regular cleaning at least once a year. For severe environmental pollution regions the building must be cleaned more often.

If a coated component is soiled during transport, through storage or assembly, the cleaning of this component must be take place immediately with clear, cold or lukewarm water. Neutral or a weak alkaline detergent can be used against severe soiling.

4.1 Certified façade cleaning

The prerequisite for proper care of the coated construction is that the construction is regularly cleaned according to the guidelines of the *Registered Quality Association for the Cleaning of Metal Façade Elements*, and in accord with RAL-GZ 632-1996 and

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certified by the same association for the certified cleaning of facades with coated surfaces. Before every initial cleaning and before every change to another detergent and cleaning aid during ongoing cleaning intervals, these are to be additionally tested for their suitability. Cleaning should be to the following guidelines:

- Only clean water, with slight additives of neutral washing agents (pH 5-8), is to be used with the aid of soft, non-abrasive cloths, rags or industrial cotton. Strong rubbing is not to be undertaken.
- The removal of greasy, oily or sooty substances can take place with the use of white spirit free of aromatic compounds or isopropyl alcohol (IPA). Residues of adhesives, silicone cartouche or adhesive tapes, etc., can be removed in this way.
- Use no solvent or similar, containing ester, ketones, alcohol, aromatics, ethylene glycol or halogenated hydrocarbon.
- Joint sealants and other aids such as glazing aids. Lubricant agents, drilling and cutting lubricants, etc., which come into contact with coated surfaces, must be pH-neutral and free of paint-damaging substances. They must first be subjected to a suitability test.
- Due to the danger of changes in a color tone, or effect, a test for suitability is to be undertaken for metallic coatings.
- Use no scratching, abrasive agents.
- Use no strong acids or alkaline detergents and introfiers.
- Use no detergents of unknown composition.
- Detergents must not be used at temperatures higher than a maximum of 25 degrees C during cleaning.
- The maximum exposure period of these detergents must not exceed one hour: when necessary, the entire cleaning process can be repeated after at least 24 hours.
- Rinsing with cold water is to take place immediately after every cleaning process.

Reference: TIGER Drylac U.S.A., Inc. www.tigerdrylac.com



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5. Cleaning recommendations anodized finishes

Solvents should never be used on anodic finishes protected by clear organic coatings, such as lacquer, unless the organic coating has deteriorated and is to be removed. Organic solvents should only be used in accordance with manufactures safety recommendations. Certain precautions must be taken when cleaning anodized surfaces:

- Do not use abrasive household cleaners or materials like steel wool or hard brushes that can wear and harm finish.
- Excessive abrasive rubbing should not be used since it can damage the finish.
- Avoid drips and splashes and remove run-downs as quickly as possible.
- Consider the effects of run-downs on shrubbery, personnel and equipment and schedule cleaning appropriately.
- Strong cleaners should not be used on window glass and other components where they might come in contact with the aluminum.
- Avoid temperature extremes that can accelerate chemical reactions, evaporate or strengthen cleaning solutions, cause streaking, staining or blotching.
- Do not mix cleaners or substitute a heavy-duty cleaner for a safer, milder cleaner.
- Never use paint removers or aggressive alkaline, acid or abrasive cleaners.
- Always do a test on a small area first and follow manufactures recommendations for mixing and diluting cleaners.
- Make sure cloths, sponges and cleaning equipment are grit free.

5.1 Removal of stains on anodized finishes

Once all the general cleaning procedures have been exhausted, cleaning with an abrasive pad soaked in clean water or a mild detergent cleaner may be tried:



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- Using uniform pressure, hand scrub the metal surface using a palm size nylon cleaning pad. Thoroughly wet with clean water and a mild detergent cleaner or pumice powder. Start at the top and work down, rubbing all residue.
- After scrubbing, the surface should be rinsed thoroughly with clean water or wiped with solvent to remove all residues.
- The surface should then be air-dried or wiped dry with a chamois, squeegee or lint free cloth, particularly if cleaner has dried on the surface.
- A power-cleaning tool, such as an air-driven reciprocating machine fitted with cleaning pads, may be necessary for removal of unusually heavy soils. During this operation, the surface being cleaned must be continually wetted with clean water or a mild detergent cleaning solution to provide lubrication and a medium for carrying away the dirt. The machine should move in alternate vertical and horizontal strokes.
- After machine scrubbing, the area must be rinsed and thoroughly scrubbed again with a stiff bristle brush. A final rinse completes the operation and the cleaned surface is allowed to air dry or is wiped dry. It is important to remove promptly cleaner run-down on uncleaned surfaces to avoid staining.