Mitsubishi Chemical Infratec Co.,Ltd.

Cleaning Guide for ALPOLIC™ Coated with Lumiflon™

The following information is designed to provide a guideline only for fabricators, installers, builders and owners on suggested methods to maintain your ALPOLIC™ materials and keep looking like new. With all cleaning products used it is highly recommended to test on a small inconspicuous area to ensure gloss and colour is not affected prior to large scale cleaning.

1. Scope

This guide is applied to the cleaning and maintenance procedures for the external cladding of ALPOLIC™ panels on which Lumiflon™ based fluoropolymer paint is coated.

2. Purpose

The purpose of this guide is to assist stakeholders such as architects, contractors, building owners, etc., who are concerned with and/or engaged in the cleaning and maintenance of the external cladding of ALPOLIC™ panels, especially in establishing safe and sound cleaning procedures.

3. General

3-1. Generally speaking, not only Lumiflon™ based fluoropolymer coating but also normal organic coatings onto aluminum will not show an appreciable amount of dirt collection. But the dirt and soil depend largely on the local atmospheric conditions where the building is located. In heavily industrialized areas, coastal areas and areas where construction works are being carried out, it might be necessary to increase the cleaning frequency, not only for the sake of appearance but also for the purpose of removing the dirt and soil likely to be detrimental to the coating surface.

Very often, rainfall is sufficient to remove dirt and to keep the external cladding clean. In areas of low rainfall, this effect may not be expected and accordingly the cleaning frequency may need to be increased. Even in the same building, portions which are in direct sight at lower levels might be cleaned more frequently, and less obvious portions might be cleaned less frequently, or in some instances, hardly at all. And in these areas, detrimental components might be deposited on the coated surface. These factors would determine the cleaning schedule.

In planning the actual cleaning schedule of the external cladding, the schedule might be adjusted with other cleaning operations for glass and painted aluminum components.

3-2. Generally speaking, cleaning will be required more often in the following areas:
- Areas of low rainfall
- Heavily industrialized areas
- The areas where construction works are being carried out
- Coastal regions with high salt spray
- Foggy coastal regions with frequent cycles of condensation and dry

In foggy and coastal regions, frequent cycles of condensation and dry take place, and salty components and dirt tend to deposit. Especially, sheltered areas such as overhangs may be soiled easily because of lack of washing by rain.

3-3. If automatic wall cleaning machine is to be used, pre-test should be done in the early stage of equipment design to confirm that there is no detrimental effect on the coating as well as to clarify the cleaning effect and frequency.

4. Cleaning guidelines

After completion, construction soils including concrete or mortar, etc., should be removed as quickly as possible. Generally speaking, the following frequency will be required to keep the coated surface clean at anytime:

Circumstances	Frequency (times/year)
Rural area	0.5
Urban area	0.5 - 1
Low rainfall and/or coastal area	1
Heavily industrialized area	1 - 2

4-1. Removal of light surface soil

In order to remove light soil, it is recommended to do some tests to determine the degree of cleaning actually necessary to accomplish the task. Prior to any cleaner application, a forceful water rinse from the top to down is recommended as an initial step of tests. The low water volume with moderate pressure is much better than the considerable water volume with little pressure. When cleaner is applied, physical rubbing with soft sponges or soft rags fully dipped into the liquid solution can also be helpful.

4-1-1. The simplest procedure would be water rinse with moderate pressure to remove the soil. If this does not remove the soil, then a concurrent water spray with sponge should be tested. If the soil is still adhering after dry, then a mild detergent or 5-10% IPA (Isopropyl Alcohol) solution may be necessary.

4-1-2. When a mild detergent or 5-10% IPA solution is used for removing soil, it should be used with soft sponges and/or soft rags. The washing should be done with uniform pressure, and normally the operation is done with a horizontal motion first and then with a vertical motion. After washing, the surface should be thoroughly rinsed with clean water, and the rinsed surface is air-dried or wiped with chamois, squeegee or lint-free cloth.

4-1-3. Dripping of cleaner to the lower portions of the building should be minimized. When some dripping is unavoidable, the areas should be rinsed as soon as possible, to eliminate streaking. Generally, the clean and rinse operation moves from top to bottom of the building. In case of one story or low elevation buildings, it is recommended to clean from bottom up and rinse from top down.

4-2. Removal of medium to heavy surface soil

4-2-1. Some type of mild solvent such as IPA, ethanol or N-hexane may be used to remove such stubborn stains as those caused by sealant and caulking compounds. When alcohol is used, it is safe to dilute less than 50% with water. If undiluted solution is required, pre-tests should be done at the small inconspicuous area, to confirm no damage to the finish. Solvents and emulsion cleaners, likely to have harmful or softening problems to the coating surface, should be also spots-tested before use. Dilution with water or alcohol is recommended also for these cleaners. After cleaning, the remaining residues should be washed out and rinsed with water.

4-2-2. It is very difficult to remove sealant and machine oils after hardened. During construction, the protective film should be remained as long as possible (max. 6 months), to protect the coated surface from stains caused by sealant and machine oils. If adhered, these stains should be removed as early as possible before hardening, with suitable detergents. Generally speaking, the cleaner containing abrasives cannot be used. Do not mix cleaners. Avoid excessive rubbing, as it may alter the surface gloss.

5. General notes to cleaning procedures

5-1. Do not use strong organic solvents, such as MEK (Methyl Ethyl Ketone), MIBK (Methyl Iso butyl Ketone), Triclene and paint thinner. Do not use strong alkali, strong acid and/or abrasive cleaners. If these solvents and cleaners be used, the paint might be swelled or removed.

5-2. Do not mix different cleaners. If cleaners to be mixed, please follow the manufacturer's instructions.

5-3. Avoid extreme temperature to clean the coated surface. Heat may accelerate chemical reactions and may evaporate the water from solution. Extremely low temperature may give the poor cleaning effects. On the contrary, cleaning under higher temperature may result in streaking or straining. Ideally, cleaning should be done on the shaded side of the building under moderate temperature.

5-4. Avoid drips and splashes during cleaning. Remove rundown as quickly as possible.

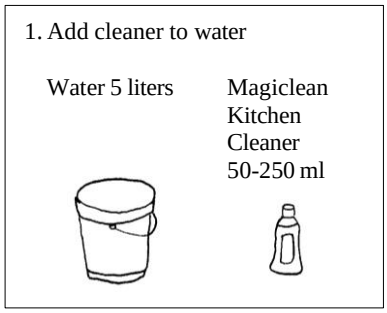
5-5. Make sure that cleaning sponges or rags are grit-free, to prevent the coated surface from scratch. Avoid over cleaning or excessive rubbing.

Example of practical cleaning way

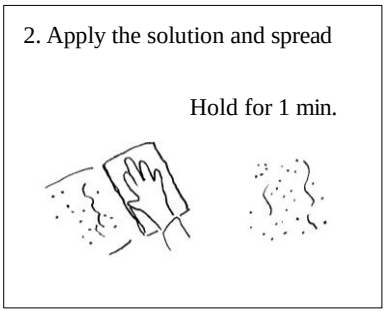
Cleaners and detergents are normally local products. A cleaner or a detergent widely available in one country may not be available in another country. This method is an example of practical cleaning method suitable for Lumiflon-based fluoropolymer coating. The cleaner called “Magiclean” Kitchen Cleaner is a household cleaner from Kao Corp and widely available in East and Southeast Asian countries. “Sharpshooter” is a versatile cleaner from 3M and available worldwide.

1. Light surface soiling

Firstly, try a water rinse using a soft sponge with modest pressure to remove the soiling (stain). If the soiling remains after drying then use dilute Magiclean Kitchen Cleaner.



Dilute Magiclean Kitchen Cleaner to 1-5% (50-250ml Magiclean Kitchen Cleaner to 5 liters water). Magiclean Kitchen Cleaner is a household cleaner with pH 8 from Kao Corp.



Spread the solution around ALPOLIC surface. Use soft towel or sponge. Wait for about 1 minute, the foam will be blackened.

Dry with squeegee and finally wipe the surface with wet towel containing clean water.

2. Medium to heavy surface soiling

Use undiluted Sharpshooter or 50%Magiclean. As Sharpshooter is an alkali (pH12) and Magiclean Kitchen Cleaner is a weak alkali (pH8), we require a water rinse after using these cleaners. Also, eye protection is necessary to handle these solutions. Follow the manufacturer’s safety instructions.

1. Use undiluted Sharpshooter or 50% Magiclean Kitchen Cleaner	2. Apply undiluted Sharpshooter or 50% Magiclean Kitchen Cleaner with sprayer, soft cloth or sponge.	3. Rinse with a wet cloth containing clean water.
		
Use undiluted Sharpshooter, or dilute Magiclean Kitchen Cleaner by 50% (100ml Magiclean Kitchen Cleaner to 100ml water).	Apply the solution on ALPOLIC with sprayer, towel, or sponge. Slight rubbing is required to remove heavy surface soiling. Use a soft towel.	Rinse with a wet cloth soaked in clean water.