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CLEANING PROCESS RESOURCE GUIDE ALPOLIC® SURFACES

Alpolic® is a surface covering / building material manufactured by Mitsubishi Chemical FP America for use in construction and design projects. Manufactured using Lumiflon® resin and other fluoropolymer coatings, Alpolic is one of the leading Metal Composite Materials (MCM) available today.

Mitsubishi Chemical FP America has specified that Mirachem products be used when it becomes necessary to clean Alpolic surfaces. The manufacturer's instructions can be found online at <http://www.alpolic-usa.com/TechService/Cleaning.html> . Mirachem has prepared this resource guide to further assist users in the cleaning of Alpolic surfaces.

Application Description:

The cleaning of Alpolic surfaces can be generally described as wall cleaning. While Alpolic may in fact be used in a variety of applications and design elements, both interior and exterior, there is little to distinguish the process from more traditional types of wall cleaning.

Information provided by the manufacturer indicates that Alpolic surfaces should easily shed routine airborne contaminants, dust and dirt with a simple water rinse, including that provided by rain showers. When cleaning is required, users are advised to clean using a soft cloth, a pressure washer and a mild detergent. Mirachem products are specified for "stubborn stains, graffiti, etc."

Mirachem's experience indicates that in the case of exterior surfaces, it is unlikely that just water rinsing will provide satisfactory results owing to the hydrocarbons from automotive exhaust and other airborne emissions that will be present with the particulates.

According to the Mirachem Application Ratings & Standards System (MARSS), the cleaning of Alpolic surfaces is categorized as an Appearance & Detail Cleaning Activity, with a Visibly Clean standard. In this category of application, the necessary level of cleaning is based on aesthetics and visual appeal, rather than a need for manufacturing or production tolerances, health and safety considerations, or other "critical cleaning" factors.

The primary challenge in cleaning an Alpolic surface is the maintenance of the glossy finish. In this respect, Alpolic cleaning will bear many similarities to cleaning windows.

Soils:

The most common soils to be removed from Alpolic surfaces are common dust, dirt and other airborne particulates. In the case of exterior surfaces, various hydrocarbons from airborne exhaust are also likely to need removal. These soils have a MARSS Soil code of 4 (Dirt and grime build-up; carbon) and 2 (organic grease, oil, hydraulic fluids, fuels, or lubricants (hydrocarbons)). It would also be possible that surfaces could be contaminated with synthetic hydrocarbons from other exhaust sources (MARSS Soil code 3 - Synthetic grease, oil, hydraulic fluids or lubricants) or stains from vegetation (MARSS Soil code 1 - Organic plant or animal matter).

Material Compatibility:

Alpolic is an extremely durable material that has been designed to withstand significant exposure to environmental conditions. It is unlikely to be compromised by any cleaning process that would conceivably be used on the material. However, in the interests of maintaining the finish of the

material, the prudent user will select products with a pH of 10 or less and which do not contain bleaches, ammonia or caustic ingredients such as sodium hydroxide, potassium hydroxide or sodium metasilicate. It is also recommended that users avoid abrasive materials or tools such as scouring powders, fiber pads or brushes.

The use of solvent-based cleaners would not be indicated on Alpolic surfaces due to the likelihood of product residue and the capacity to attract additional contaminants.

Product Recommendations:

The soils that are most likely to need removal from Alpolic surfaces are all organic in nature. This indicates the use of a Mirachem Cleaner / Degreaser product for cleaning.

Historically, the manufacturer of Alpolic has specified the use of Mirachem's flagship degreasing products, such as Mirachem 500 Cleaner / Degreaser Concentrate. While certainly delivering the best performance in terms of cleaning ability, these products may actually provide more cleaning capacity than is necessary for the job and compromise the cost effectiveness of the cleaning process. Mirachem recommends that users evaluate the severity of the soil involved in a given application and make their product selection accordingly to minimize expense.

Mirachem recommends two products for use in Alpolic cleaning:

For routine general maintenance cleaning or light exhaust residue and/or hydrocarbon buildup:
MiraClean Professional APC (All Purpose Cleaner)

For heavy exhaust residue and/or hydrocarbon buildup, plant matter stains:
Mirachem 500 Cleaner / Degreaser Concentrate

For additional information on these products, visit www.Mirachem.com.

Dilution Recommendations:

Product dilution will vary according to the level of cleaning performance desired and the method of application. Dilutions are indicated as a ratio of parts water to parts product. For example, an indicated dilution of 5:1 would mean use 5 parts water to each part cleaner.

General dilution guidelines are as follows:

MiraClean Professional All Purpose Cleaner:

Hand wipe:	Full Strength to 1:1
Stick Goods Cleaning (Squeegees, et.):	2:1 to 5:1
Pressure Washing or Assisted Cleaning:	10:1 to 20:1

Mirachem 500 Cleaner / Degreaser Concentrate

Hand wipe:	Full Strength to 3:1
Stick Goods Cleaning (Squeegees, et.):	2:1 to 5:1
Pressure Washing or Assisted Cleaning:	10:1 to 20:1

Cleaning Method:

The Alpolic manufacturer recommends a 4-step cleaning method:

1. Flush with water from a hose.

2. Wipe lightly with a soft cloth.
3. Use pressure washer.
4. Use detergent in a power wash or with a soft cloth for hand wiping and flush with water.

Mirachem additionally recommends the following:

1. Review the product information and general details about aqueous cleaning on Mirachem's website at www.Mirachem.com.
2. Work on relatively small areas at a time. Attempts to clean large areas may contribute to streaking or clouding as discussed in the Cautions & Considerations section.
3. Pre-treat heavily soiled areas with concentrated product and where necessary, agitate. Users may find it helpful to use a sponge-like or "schmop" cleaning aid for this purpose, or the types of tools used by window washers.
4. Use of a foaming attachment on pressure washers. This inexpensive device injects additional air into the fluid flow and generates a thick, clinging foam that helps the product adhere to vertical surfaces and maximize dwell time.

Cautions & Considerations:

1. Surface Finish

As indicated above, the most significant challenge in cleaning an Alpolic surface is maintenance of the high-gloss finish.

This finish can be streaked when water is applied to the surface and allowed to evaporate, leaving behind solid mineral deposits. This situation can be exacerbated with the use of cleaning products which contain additional solids that can be left behind. Clouding of the finish can occur when it becomes discolored or damaged by caustic chemicals or high pH materials.

2. Avoiding Streaking

The effects of streaking can be minimized by ensuring that cleaned surfaces are completely rinsed and dried. This can be difficult when surfaces are very large and/or very high. Use of reverse-osmosis, distilled, or purified water will be helpful if it is available.

3. Use Low Concentrations

Not only is it more cost effective, but it will also assist in finish maintenance to use the lowest possible concentration of cleaning product. In general, the less product you use, the lower the cost of the task and the likelihood of streaking. However, lower concentrations also generally reduce product effectiveness and may increase the time, and therefore cost, necessary to complete the job.

4. Choose Cleaning Times Wisely

Environmental conditions can have a significant impact on the overall cleaning process. Try to perform the cleaning when the temperature is moderate, and out of direct sunlight. Avoid cleaning the Alpolic surfaces when they are very hot or very cold. These temperature extremes may contribute to finish streaking or product performance issues. In hot, dry climates, it may be advisable to cool surfaces with plain water prior to beginning the cleaning process.