Document Type / Category	Instructions For Use (IFU)
Document Number, Issue, Title	IFU 005 Rev02 Cleaning / Preparation of Outdoor Heat Exchange Coils & Surfaces

1. PURPOSE

This Cleaning and Preparation Procedure outlines the process to effectively clean and prepare Outdoor Surfaces and Heat Exchange Coils. This provides 2 outcomes;

- A clean and efficient heat exchange coil performing as designed.
- A coil or surface area prepared and ready for the application of AerisGuard Corrosion Protection PLUS treatment, which provides 12-month protection against any further corrosion of the coated surface. This ensures long-term efficiency, optimal system performance and operation as well as maximized operational efficiency.

This IFU covers the steps and actions that need to be taken in the use of AerisGuard Outdoor Coil and Surface Cleaner (Preparation) products.

All Aeris Environmental personnel, sub-contractors and certified applicators are expected to take an active role in establishing, implementing and maintaining this Procedure in line with this IFU according to their role and responsibility.

The purpose of acting in accordance with this IFU is to have an uninterrupted, smooth process that ensures that correct process and use of the products are followed. This IFU shall also be part of Aeris' continuous improvement initiative.

2. PROCEDURE DESCRIPTION AND PROCESS FLOW

The Clean & Preparation procedure is conducted by a Certified AerisGuard Applicator in accordance with Aeris Environmental Recommendations and your work order and/or job specification. This Process is followed by the application of AerisGuard Corrosion Protection PLUS treatment as outlined in ***IFU 006 Application of AerisGuard Corrosion Protection Treatment.***

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The steps in this procedure are as follows:

1. Preparation
    a. Product Handling & Packaging
    b. Apparatus & Equipment Required
    c. Product Dilution and Application Rates
    d. PPE and OH&S Requirements
2. Setup
3. Application Process
4. Cleanup Process

3. PROCEDURE

1. Preparation

a. Product Handling & Packaging

Applicators should consult the product Safety Data Sheet (SDS) prior to use and handling.
AerisGuard Outdoor Coil and Surface Cleaner is **ready to use.** This product is available in 1L (0.26 US Gal) units.
The product has a shelf life of 3 years from the date of manufacture.
Always store the product out of direct sunlight and not exposed to hot environments for extended periods of time.

b. Apparatus & Equipment Required

Wet & Dry Vacuum

Ladder

G-Clamps

Water pressure washer

Power Leads

RCD (residual current device)

Aeris Product applicator (4L (1.06 US Gal) pump spray with adjustable nozzle / use of larger applicator for large coils)

Tarpaulin

Plastic Sheeting

Occy-straps

Thin rope

Residual Current Device (RCD)

Extra hose & fittings

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c. Product Dilution and Application Rates

The AerisGuard Outdoor Coil and Surface Cleaner is supplied READY TO USE and DOES NOT require dilution prior to application.

The application rate of the Cleaning / Preparation product is -

COIL - 350ml per/m² (1.1 fl oz/sq ft) of Coil face (based on 12 fins/inch and 100mm (4 inches) depth)

FLAT METALLIC SURFACE - 200ml per/m² (0.63 fl oz/ sq ft)

d. PPE and OH&S Requirements

- Gloves *(hi density rubber are recommended)*
- full or half face masks with filters rated for pesticides and solvents,
- safety goggles *(Wraparound Clear are recommended)*
- full body waterproof suit with hood is recommended *(Disposable suit is recommended)*
- type 1 heavy duty safety boots should always be worn.

Note* - Other safety equipment may be required. OH&S requirements can vary or by project nature.

2. Setup

a. Ensure that the unit is “off line / isolated from operation” prior to and during the entire cleaning (coil preparation) process. This must be done by an appropriately certified person and may require arrangement with the engineering staff at the site if necessary.
b. Ensure that equipment being used is protected by a (RCD) Residual Current Device to protect the user from electrical shock.
c. Ensure equipment being used is in good working order.
d. Remove filtration media to protect the air filters from any deposits of debris, cleaning solution, treatment solution or water. A tarpaulin or plastic sheeting may be used to cover these if required.
Note: Air filters are best disposed of and replaced when cleaning the air handling system to avoid dirtying the components cleaned downstream of the filters.
e. Other parts of the system may need to be covered as well, e.g. fan motor and sensors located near the area to be cleaned.

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f. Ensure that the hoses for the pressure cleaner are all attached securely to avoid any excess water.
g. A Wet Vac should always be set up and ready to be used on all applications.

3. Coil clean / prepare process

a. Remove visible contamination

- The entire area around the coils and surface area of the HVAC systems must be physically brushed/vacuumed to remove any debris or existing coats which have been dislodged.
    - this process is very important to maximize cleaning / preparation results.
    - Ensures correct surface prep application of corrosion protection products.
    - save overall clean up time at the end of the job.
    - shows a higher level of professionalism.
    - a dust mask must be used on starting the pre-clean.

b. Application of AerisGuard Outdoor Coil and Surface Cleaner

1. ensure drain lines are not blocked.
    - This can be achieved by flushing the drain lines first.

All personal safety equipment must be worn for the remainder of the procedure.

2. Apply Outdoor Coil Cleaner / Preparation solution

- To apply the cleaning solution:
    - 1L (0.26 US Gal) & 5L (1.32 US Gal) Bulk – decant into 4L (1.05 US Gal) Pump spray applicator and spray directly on to the coil / surface to be prepared
- On A Coil
    - It is important to use a jet setting on the tip to maximize penetration and minimize aerosols of the solution.
    - Apply Outdoor Coil Cleaner starting from the top of the coil, covering the entire surface of the coil paying special attention to any dirty areas.
    - Wherever possible access and apply Cleaner TO BOTH SIDES of the coil as recommended to ensure best results.

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- On a flat surface
    - It is important to use an even mist application to ensure that you do not use too much product.

- Leave AerisGuard Outdoor Coil and Surface Cleaner in contact for at least 15 – 20 minutes depending on the level of soiling.

c. Rinsing / Pressure Clean

- After AerisGuard Outdoor Coil and Surface Cleaner has penetrated the coil soil (been allowed to activate for up to 20 mins), the pressure cleaner is used to remove all the dissolved soil.
- It is important to understand that pressure cleaning coils may increase airborne Macromolecular Organic Dust (MOD) concentrations. Extreme care must be taken to ensure containment to the area being cleaned and treated.
    - Blanking duct entries etc. with sealed plastic sheeting will provide an effective barrier. This also ensures no moisture carry over into supply or return air duct insulation/attenuator.
- Pay particular attention to coil fins to avoid any damage such as folding.
- The following should be performed on both sides of the coil.
    - The pressure cleaner (if applicable) should be set at higher 45 °C (113 °F) for direct expansion refrigerant coils or no higher than 100°C (212 °F) for chilled and hot water coils,
    - Hold the rinsing apparatus at angle of 45° diagonally down the coil and should be kept at this angle while cleaning the face of the coils
        a. This allows soil to be pushed down the coil and into the drain rather than be pushed into the middle of the coil.
    - Each coil should be cleaned from right to left and left to right so as the inner edge of the fin surface is cleaned.
    - This should continue until all foaming has stopped.

- For Flat surface Preparation the use of a pressure washer may not be required; ensure that the product has had up to 20 mins activation time, then rinse with water ensuring that all traces of product have been flushed from the surface.

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2. **Clean up**

- Ensure that all equipment is cleaned, packed up and removed from the area.
- Mop up all excess water and ensure work area is clean and tidy with no sign of being there / Take care to remove plastic sheeting sealing ductwork.
    - Leave the worksite as you found it.
- Remove and dispose of all empty product containers.
- Remove all rubbish you have taken on site.

Recommended additional process

It is highly recommended & necessary for warranty that the cleaned and prepared coil or surface be treated with AerisGuard Corrosion Protection PLUS treatment. As described in ***IFU 006 Application of Corrosion Protection Treatment,*** this product provides long term benefits:

- Prevention from surface corrosion
- Sustained and long-term coil efficiency
- Improved machine operational performance
- 12 month protection from corrosion
- Extended asset life

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