Instructions for Cleaning an Aircraft with **eOx®** Aircraft Cleaning Products

Description: eOx® is an environmentally friendly line of products that provide superior aircraft cleaning performance. They are suitable for external and internal cleaning of virtually every aircraft surface. eOx completely removes difficult substances such as hydraulic fluid, Skydrol®, oil, grease, carbon, brake dust, and dirt easily in a safe and environmentally friendly manner. The products used for aircraft cleaning are eOx Aircraft Hydraulic Fluid Remover (AHFR) and eOx Aircraft Cleaner (AC). Here are some key points about the products.

- eOx products DO NOT contain phosphates. Phosphates are what makes cleaning products foam. FOAM HAS NO CORRELATION TO CLEANING ABILITY. The reason people add this is for perception only. Additionally, the phosphates are what the EPA does not like in wastewater. This is one of the reasons why aircraft must be dry washed as the phosphates are released into the environment since the airfield's oil/water separator does not stop them.
- You do not need to use a "foamer" with eOx. This is an unnecessary piece of equipment used by products that require "hang-time". eOx products do not require a "hang-time" as they are fast acting.
- eOx rinses electrostaticly neutral. What does this mean? Soaps leave a static charge on the surface when rinsed with water. Have you ever noticed the dust on your car the day after washing? eOx does not let water leave behind a charge so dust and pollen are not attracted to the clean surface like other cleaners.
- eOx does not require the use of respirators during application. Other products on the market require the use of respirators during use. Most customers do not even realize this.
- eOx's aircraft cleaning products do not contain d-limonene. Many companies use this "orange" oil. When you spray a product containing this oil, it is very annoying to breathe until the particles settle. This creates unnecessary chemical exposure for the worker. This is not an issue with eOx.

Before using eOx, consult the MSDS or your local EH&S representative for proper

personal protective equipment.

General eOx Application Notes

eOx is safe on all aircraft surfaces including fabric aircraft.

1. Spray Applicator

- When using a spray applicator, pour the eOx AC into the sprayer first, followed by the water.
- For the first two deep cleanings, use a dilution of 1-part eOx AC to 3-parts water (1e:3W).
- For future cleanings, reduce the concentration to with each cleaning to a minimum of 1e:8W, provided the result is still acceptable.
- Always use eOx AHFR in its concentrated (as-is) form with separate equipment.
- Only use eOx AHFR for spot removal of hydraulic oils, Skydrol, and heavy carbon stains.
- When the aircraft cleaning is complete, rinse all sprayers and equipment with water.

2. Brushes / Cleaning Pads

- Use separate brushes / cleaning pads for the application of the eOx AHFR and eOx AC.
- Mark the brushes with tape or use two different colored brushes to make the distinction.
- DO NOT lay brushes on the ground, as FOD will stick to the brush and further contaminate and/or potentially damage the aircraft surface.
- Prior to using a new brush, rinse it completely with eOx AC. This will render the brush anti-static and remove any manufacturing residues.
- At the end of each cleaning job, completely rinse all brushes with water.

3. Inspection of the Aircraft

- Before the general cleaning of the aircraft, check for heavy hydraulic fluid and carbon deposits. These locations require a pre-treatment with eOx AHFR. See below.
- Once identified, the cleaning procedure can start in compliance with all safety and security rules and regulations.

A. Exterior Cleaning

1. eOx Aircraft Hydraulic Fluid Remover (AHFR)

Testing Standards:

AMS-1526B: Cleaner for Aircraft Exterior Surfaces Water-Miscible, Pressure-Spraying Type

Specific Product Application Notes:

- eOx AHFR is a spot cleaner designed to remove heavy dried hydraulic fluid or oil and carbon deposits from the aircraft fuselage, wheel wells, landing gear, and engine area.
- eOx AHFR can be slippery on coated concrete surfaces. Use caution in the event of a spill. If cleaning outside, the rougher concrete should not pose an issue.

Cleaning Procedure:

- Spray eOx AHFR undiluted onto the contaminated surface. A fine mist facilitates the penetration of the eOx into the dirt. Please note, excessive use of product on the aircraft will NOT bring a better result.
- Keep the spray nozzle 12-14 inches away from the aircraft. In case of windy working conditions, the spray nozzle should be closer to the aircraft to avoid product blowing away.
- Use an approved brush and scrub the aircraft surface with the eOx. In most cases, the dirt will come right off. If not, allow the product to work for a maximum of 15 minutes. However, 1-2 minutes is typical. Scrub the area again.
- Depending on the level of staining, repeat these steps until the surface is clean.
- Rinse the surface with fresh water.
- For some long-term stains like oil under the engine cowling or APU exhaust, several applications may be necessary.

2. eOx Aircraft Cleaner (AC)

Testing Standards:

AMS-1526B: Cleaner for Aircraft Exterior Surfaces Water-Miscible, Pressure-Spraying Type.
Boeing D6-17487: Exterior and General Cleaners and Liquid Waxes.
Douglas CSD #1: General Purpose Cleaner.

Specific Product Application Notes:

- With repeated use of eOx, subsequent cleanings will be easier and faster. Since eOx is removing the dirt deep in the grain of the paint, new dirt will have a more difficult time "sticking" to the surface. The long-term use of eOx provides easier, and faster cleaning with less chemical.
- The continued use of eOx will even reduce or eliminate the need for waxing. Waxing is really a way to "deep clean" a surface. Since eOx is a deep cleaning product, its continued use will keep the aircraft looking "just waxed". This can save you a lot of time and expense.
- If cleaning the plane late in the day during the summer, cool the surface of the aircraft with water prior to spraying the diluted eOx AC on the surface.
- ALWAYS dilute eOx with water prior to use. Dilutions vary from 1e:3W (deep cleaning) to 1e:8W (after seven cleanings).
- After two (2) deep cleanings, the plane will be "eOx" clean. You can then increase the dilution by one factor of water with each successive cleaning until you reach 1e:8w.
- Use an approved brush to scrub the aircraft surface with the eOx.
- Always work always on limited areas to avoid the product drying prior to rinsing.
- There are many cleaners that "dry-wash" a plane by spraying a cleaner on the surface and wiping. Unless you only make one pass per wipe, you are scratching the surface of the plan with the dirt because the dirt is on the rag. By following the eOx cleaning method, the dirt will remain in water away from the painted surface. This results in a cleaner plane and longer lasting paint.

"Dry-Wash" Cleaning Procedures:

- Fill one bucket with fresh water and another with eOx AC solution. Be sure to have separate cleaning pads for each solution.
- First, remove the hydraulic oil and carbon spots with eOx AHFR. See Section 1 above.
- Start cleaning the aircraft from the bottom to the top. This method

will avoid the creation of stripes on the fuselage. Due to the antistatic properties of eOx, the contamination that will run down from the top to the bottom cannot adhere to the cleaned surface anymore.

- With a wet eOx cleaning pad, clean a reasonable section of the plane. You do no want to wash too much at once as to risk the solution drying on the surface. Return the pad to the eOx bucket.
- Go over the area with the fresh water pad. This will remove all traces of dirt and eOx.
- Repeat this process until the entire plane is clean.

"Wet-Wash" Cleaning Procedures:

- First, remove the hydraulic oil and carbon spots with eOx AHFR. See Section 1 above.
- Fill a bucket with eOx AC solution.
- With a wet eOx cleaning pad, start cleaning the aircraft from the bottom to the top. Only clean a reasonable section of the plane, you do no want to wash too much at once as to risk the solution drying on the surface.
- This method will avoid the creation of stripes on the fuselage. Due to the antistatic properties of eOx, the contamination that will run down from the top to the bottom cannot adhere to the cleaned surface anymore.
- Return the pad to the eOx bucket.
- Rinse the section with water.
- Continue to the next section of the airplane.

B. Interior Cleaning

eOx Aircraft Cleaner (AC):
eOx is also an excellent cleaner for aircraft interiors. This will eliminate the need for inventorying additional products.

Standards:

AMS-1550A: Cleaner for interior materials of aircraft, water base.
Douglas CSD #1: General Purpose Cleaner.

1. Cleaning Of Ceilings, Tables, Plastic Side Walls, and Toilets

- Dilute eOx, 1e:5W, and spray as fine as possible on the surface.
- Use a professional soft haired brush to work in the product.
- Rinse with water or damp sponge.
- If necessary, dry the surface with a clean towel.

2. Cleaning Of Carpets, Upholstery

- For manual cleaning, dilute eOx, 1e:10W, and spray as fine as possible on the surface.
- Scrub the surface with a brush.
- Remove the product and contamination with a clean sponge.
- Retreat the surface with a damp sponge.
- For machine cleaning, dilute the eOx, 1e:15W in a spray bottle. Fill the cleaning machine with clean fresh water.
- Spay the area to be cleaned.
- Use the machine over the area as normal (with the clean water). The spray of hot water will push the eOx into the carpet to loosen the dirt and the vacuum action will pull the dirt from the carpet.

3. Cleaning Of Leather Seats

- Dilute eOx, 1e:10W, and spray as fine as possible on the surface.
- Massage surface with a soft brush (avoid stiff brushes).
- Remove the product and contamination with a sponge.
- Retreat the surface with a damp sponge and dry.
- Follow manufacturer's instructions for treating the leather with an appropriate leather conditioner once clean.

4. Cleaning Of Ovens

- Dilute eOx, 1e:3W, with HOT water.
- Spray the product on the inside walls of the oven.
- Let it work for 5-10 minutes.
- In case of heavy contamination, repeat this action a second time.
- Remove the product and contamination with a sponge.
- Rinse the inside with water and dry.

C. eOx Package Sizes

eOx AHFR
1-quart spray poly bottles
12 x 1-quart spray poly bottle cases
1-gallon poly bottle
4 x 1-gallon poly bottle case
55-gallon poly drum

eOx AC

"Ready to Use"
1-quart spray poly bottles
12 x 1-quart spray poly bottle cases
1-gallon poly bottle
4 x 1-gallon poly bottle case
55-gallon poly drum

"Concentrate"
1-gallon poly bottle
4 x 1-gallon poly bottle case
55-gallon poly drum

D. Contact Information

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