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CIP GUIDELINES FOR FILTER MEMBRANE SYSTEM CLEANING WITH MICRO-90® CONCENTRATED CLEANING SOLUTION and MICRO® A07 CONCENTRATED CITRIC ACID CLEANER

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1. When one of the following conditions occur, a cleaning should be done:

- a. Flux rate decreases by 10%
- b. Trans-membrane pressure (TMP) increases by 10%
- c. Permeate water quality decreases by 10%

Based on the membrane foulants, MICRO-90, MICRO A07, or both may be required to clean and return the conditions to their original values. See the list of foulants below to determine which cleaner(s) is needed. If one cleaner is all that is necessary to correct the condition, then that is satisfactory. Sometimes, a pre-soak is useful. In other systems, both an alkaline and acidic cleaner are used for full cleaning.

2. Review the manufacturer's membrane specifications for operating conditions.
3. Alkaline Cleaning: Prepare a 1% MICRO-90 solution in permeate-quality water. The volume of cleaning solution should be sufficient to fill all pipes, hoses, and pumps, as well as fill the membrane elements up to 50% of their total volume. This will provide low pressure and high flux for optimal cleaning. An additional 10% volume of cleaning solution should be prepared that will immediately be discarded after the first pass through the system. This initial 10% cleaning will remove the gross contaminants and allow the subsequent steps to clean more effectively.
4. For extremely fouled membranes, an initial soak may be required. This soak time could vary anywhere between one to eight hours. (Both MICRO-90 and MICRO A07 are effective yet mild cleaners – excessive exposure time should not be a factor.)
5. To clean the system, allow a slow flow rate (20% to 30% of the membrane manufacturer's maximum design rating) across the membranes. A slow rate impedes the suspended foulants from refouling the membrane. After several minutes, increase the flow rate incrementally until the maximum rate is achieved.
6. Continue recirculating. One hour of recirculation is normally sufficient to effectively clean the membranes. Heating the cleaning solution will significantly improve its detergency. Check the membrane specifications to determine the maximum operating temperature.
7. Rinse membranes with permeate-quality water until no cleaner is detected. (MICRO-90 and MICRO A07 will foam when shaken. Transfer a small volume of rinse water to a jar. Cap and shake. If no foam sits on the surface after 30 seconds, rinsing is complete.)
8. Throughout the cleaning process, continue monitoring all process variables for any abnormalities (pressure change, temperature change, pH drift, etc.).



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9. Acidic Cleaning: Prepare a 1% MICRO A07 solution in permeate-quality water. Follow steps 2 through 8 above.

Pre-Soak and CLEANER CHOICE Depend on Foulant Type

FOULANT	MICRO-90	MICRO A07
Oil	✓	
Grease	✓	
Natural Organic Matter	✓	
Hard Water Soaps	✓	
Scale		✓
Mineral Deposits		✓
Metal Oxides		✓

10. Dual Cleaning with Alkaline and Acidic cleaners: If both cleaners are necessary, MICRO-90 should be use first. MICRO-90's mild alkalinity swells the membrane fibers, which allows MICRO A07 to penetrate deep within the membrane to remove the remaining foulants. Complete steps 2 – 8 using a Micro-90 solution first. Rinse completely, and follow steps 2-9 with Micro A07.

The goal of filter membrane cleaning is to return the flux rate as close to 100% of the original as possible, as well as correct the other pressure and water conditions.

For more information or free samples for testing, please contact us at 609-386-8770, send an email to mkt@ipcol.com or visit us online at www.ipcol.com.

For more information and free product samples contact International Products Corporation:

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International Products Corporation manufactures the following products in the Burlington NJ Facility:

Cleaning Concentrates

Micro-90[®]

Micro[®] A07

Micro[®] Green Clean

LF2100[®]

Surface-Cleanse/930[®]

Zymit[®] Low-foam

Zymit[®] Pro

P-80[®] Rubber Lubricants

P-80[®] Emulsion

P-80[®] Emulsion IFC

P-80[®] Grip-it

P-80[®] RediLube

P-80[®] THIX

P-80[®] THIX IFC

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