E-Coat Cleaning Guideline

Spiral Elements should be cleaned when the permeate rate has declined between 20%-30% from the steady state permeate rate that was recorded when either the element was installed initially or last cleaned. Steady state permeate rate is the rate that you record about 15-20 minutes after the element is initially put on the paint, or after the element has been thoroughly cleaned.

Note: The permeate rate should never drop more than 30% before an element is cleaned.

1. When initially cleaning an element, you should flush the paint from the element (preferably back to the paint tank) with UF permeate. If your system is large enough, and time permits, do this 2 more times. This helps with the cleaning process and helps recover as much paint as possible.

2. If you cannot use UF permeate, make up a solution of artificial permeate using DI or DO water and acetic acid. Adjust the pH of the solution to the pH of the paint. Heat this solution to the temperature of the paint as well. This is important when flushing the paint from the element.

3. If you flush the paint from the element with cold DI or RO water, you can "set" the paint on the element surface, making it more difficult to clean it.

4. After flushing the paint from the element, flush the element to drain. Start with a full heated cleaning tank of DI or RO water, pH adjusted to pH of the paint. Once you have started flushing the element to drain, open the DI/RO water fill valve to the cleaning tank to maintain the level in the cleaning tank. This will allow you to thoroughly flush the element to drain, while gradually lowering the temperature of the water.

5. When the flush water is reasonably clean from the element (provided you can see it), slowly close the cleaning pump discharge valve and stop the pump.

6. There are many cleaning formulas available for cleaning spiral elements. Many of them were developed in the early days of cathodic paints when the paints were formulated with lead, solvents, and higher solids. These formulas were very effective for those paints, but are not as effective with today's low solvent and no solvent, low lead and no lead paints.

Synder Filtration has formulated a concentrated cleaning product for use with our membranes and other spiral elements. The concentrate ratio is 1:99 and does not require the use of any solvents; uses muriatic acid (acetic and formic acid may be substituted for muriatic) and is usually effective in 60 minutes or less. The key to its success is cleaning at a pH of 2.0 to 2.2, maintaining a temperature between 100F and 100F, and cleaning before the permeate rate has decline too far. Contact us for more information on cleaning products and guidelines.