



Solutions requiring continuous or periodic filtration are hot water or nickel acetate seals, bright dip, hard coat, the anodizing solution itself and possibly some rinse and dye tanks.

USE THE PROPER FILTER CARTRIDGE

Filtration with 15 micron polypropylene or cotton filter cartridges at flow rates providing at least twice per hour tank turnover should be used. Cleanable sleeves used with precoat and then backwashed, if desired, may be used in place of filter cartridges.

NICKEL ACETATE SEAL APPLICATION DATA (AUTOMOTIVE AND AIRCRAFT)

Field data for this severely corrosive and high temperature (208 - 210°F) service indicates the average dirt load of dry solids to be removed to be on the order of .01% (100 ppm TSS) of the weight of the solution after 3 days of heavy operation (1 lb. / 1200 gallons). We recommend an appropriately sized filter system with slurry tank, backwash piping and valves for several significant reasons:

1. The tank can be used to introduce sodium acetate to buffer the water in the seal tank to about pH 5.5. Following this a nickel acetate solution of pH 3 can be prepared and added to the tank to prevent precipitation of the nickel at the time of introduction. The filter will remove any solids prior to their entering the seal tank.
2. The filtration system should include a pressure gauge to indicate the end of the filtration cycle due to solids loading of the depth cartridges. The precoat tank can be charged with 5 - 10% nitric acid to dissolve these solids, which consist of aluminum hydroxide, nickel hydroxide, carbonate or phosphate. This feature provides in-place cleaning in less than ½ hour and allows reuse of the filter cartridges after water flushing.
3. The precoat tank will allow for precoating and carbon addition for dye purification or the removal of organic contaminants. This will extend tank life.
4. Filters with flow rates that provide sufficient tank turnovers per hour can pick up any floating scum rapidly, before it is deposited on the work being processed.
5. The tank can be used to prime the pump.

Filtration systems with in-tank pumps can also be recommended, but they do not incorporate the precoating and backwashing features of an external system. They do, however, provide strong rinse tank agitation, if this is important.

WHEN TO USE CARBON

Carbon with filter aid may be used and also backwashed, but if severe discoloration of the nickel acetate or hot water seal takes place from the various dyes, it cannot be removed economically and the seal solution cannot be used indefinitely. A quick check of treatment feasibility may be made by adding one-half ounce (14g) of activated carbon to a one gallon sample after any given period of use. Filter the carbon from the solution

in the laboratory and observe the color. If the seal is greenish black in color, it will very likely require over five pounds of carbon per hundred gallons to treat the solution. This will cost more than the replacement of the seal solution.

If no dyes are used, it is likely that the seal tank can be run with periodic make-up for a year or more. Usually, the agitation required can be provided by the pump used with the filter. Certain chemical additives, when added to a new seal tank, may load the filter, requiring more frequent backwashing or cartridge change. This condition disappears after the solution is stabilized and balanced with use.

Generally, a separate filter should be used on each seal tank with at least one unit being portable. CPVC filter chambers, with either a magnetic seal-less or CPVC horizontal pump, can be selected according to the size of the tank. The latter should have a water lubricated seal to prolong seal life. A portable unit will also serve in a dual capacity as a transfer pump and, when needed, as a filter for the anodizing and bright dip solutions, and possibly for the dye tanks.

ANODIZING SOLUTION AND BRIGHT DIP

These solutions are generally not filtered on a constant basis although some filtration at fairly regular intervals would be helpful to both. Filtration can be accomplished at the time the solution is transferred during tank inspection.

DICHROMATE APPLICATION DATA

With regard to the potassium dichromate filtration, the solids to be removed will be aluminum or nickel hydroxides and silica, depending on the pH of the solution. The dirt load will usually be slight.

DYE SOLUTIONS

Some dyes generate an insoluble breakdown product which can be removed by filtration. Continuous or intermittent filtration of these solutions will remove solids which may spot the parts being finished and require additional cleaning.

HARD COAT SOLUTIONS

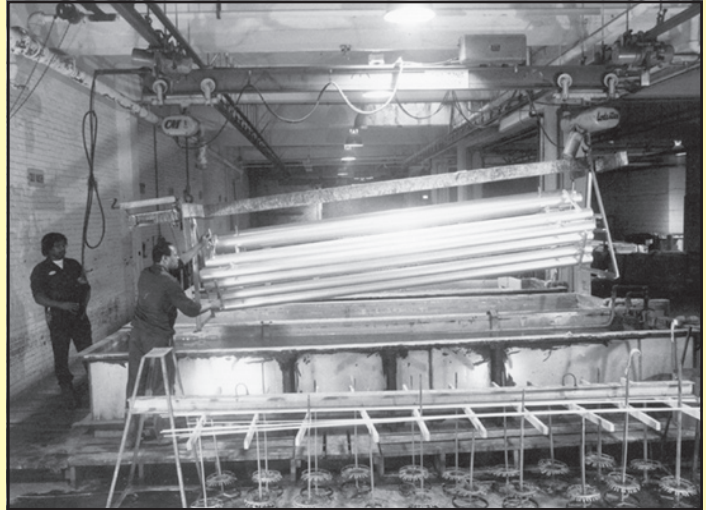
Because of the critical nature of the finish required, it is best to both agitate and filter the solution. The use of a Ser-Ductor agitation system, along with either an in-tank or out of tank pump and filter system will do both efficiently.

DEIONIZED WATER

The incoming water for solution make-up or rinsing should be prefiltered to remove any solids before ion exchange treatment. Cities having average filtration plants will provide a water which should be filtered ahead of the deionizer with 5 to 10 micron range media. Other sources of water which contain larger amounts of solids should have a second filter, as a pre-filter to the one above, using 20, 30 or 50 micron media or an in-line precoat backwash system may be employed. The ion exchange column may be added in series, since pre-filtration will help to maintain the effectiveness of the resin by eliminating the sludge which would otherwise coat the surface of the resin.

The RIGHT SEAL and ANODIZING FILTRATION SYSTEM can bring you LESS HAND WIPING and BIGGER PROFITS!

A proper seal filtration system will eliminate the need to replace your nickel acetate solutions so frequently, thus reducing downtime and energy usage. It will bring you an end result of a better quality product
and ZERO rejects.



Anodizing line at Universal Metal Finishing, Chicago, IL



The Guardian filtration system removes precipitated solids, eliminating costly "hand wiping".

The **SERFILCO Guardian filtration system** is designed to keep your tanks clean, eliminating costly rejects. Merely changing a filter at the correct time gives long life to your chemicals, reducing your chemical costs and downtime.

SERFILCO's application engineers can recommend the Guardian filter and pump system that you need to make those bigger profits.

To further reduce your energy costs, we offer polypropylene balls that float on top of your tank to keep the heat in the tank. Energy is expensive — the balls are an inexpensive way to keep a lid on rising energy costs.

Call one of our application engineers today for complete information!



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