Process Filtration News

How advanced is the condensate polishing or resin handling filtration system in your power generation facility? If you're not achieving the highest possible efficiency, you could be wasting money with every cycle. Fortunately, upgrading to a state-of-the-art system can be relatively simple – with Mott porous metal media. Mott has decades of experience in helping utility customers swap out old, inefficient and obsolete filter elements for the higher productivity that's uniquely possible with Mott porous metal.

Power Generation Update

Easy, Effective Upgrade Opportunities with Mott Porous Metal

Reducing leakage in resin handling filtration systems

The problem: Ion exchange resin is made up of acidic material that decomposes and becomes corrosive, which can cause premature failure in downstream equipment.

The solution: Mott porous metal filters provide a key advantage in preventing ion exchange resin from passing downstream to the water system. High-efficiency porous metal media is able to retain 100% of resin and has been tested to a downstream leakage of less than 0.1 ppb in water.

Mott can easily replace screen elements that leak resin.

In the water purification process, using Mott porous metal elements also allows a uniform deposition of the resin over the elements, preventing short circuiting of the water. Better still, Mott elements are backwashable and cleanable for a long life, as well as extremely durable...providing “failsafe” protection for your system.

Mott Porous Metal Media Benefits

- Provides minimal resin leakage and high particulate retention.
Uniform permeability and smooth surface on both sides of the Mott media provide excellent backwashing (For comparison, as many as 6 blowdown steps can be required to backwash conventional elements)

- Excellent backwashing results in a high margin of safety against fouling, low recovery pressure and low precoated delta-P
- Exceptional flow and permeability characteristics
- Longer operating cycles and long service life
- Excellent stability characteristics
- Standard material of construction is 316L stainless steel

Mott can also provide turnkey, fully enclosed and automated systems, such as the HyPulse® LSP Filter System shown here.

Condensate polishing in nuclear power systems

The problem: Condensate purity is of greatest concern in high-pressure nuclear power systems, because it embodies the bulk of boiler water treatment. Thus, it is the major potential source of contamination.

Where the problems lie
In the nuclear industry, ion exchange resins are used for purification of aqueous streams. The major contaminants in the resins are usually the ionic and metallic materials that are removed from these streams. The use of ion exchange resins creates a waste stream that can be very high in both ionic and metallic constituents.

In nuclear power facilities, steam from the boiler passes through a series of turbines where it uses up most of its energy. The low-pressure steam is then condensed in a heat exchanger system where it is recovered in hot wells and sent to storage tanks. The condensed water or “condensate” is recycled back to the boiler and converted into steam again. Recovering and recycling the return condensate is a clear way to drastically reduce the cost of operation.
The solution: Using Mott porous metal, condensate polishing can achieve two primary objectives: 1) remove suspended solids by filtration, and 2) remove dissolved solids by ion exchange. A Mott-based system can also significantly improve the operating efficiency of heat transfer surfaces, reduce contaminate build-up in the steam turbine, reduce chemical corrosion inhibitor usage, and help maintain proper pH levels.

Mott can customize porous metal filter elements to fit existing systems and hardware to expedite and help limit the cost of upgrading. Mott’s control over media porosity as well as filter element design means you can replace conventional elements in:

- Condensate Polisher/Demineralizers
- Make-up Water Demineralizers
- Reactor Water Clean-Up Units
- Reactor Water Blowdown Filters
- Spent Fuel and Suppression Pool Filters
- Equipment/Floor – Drain Filters
- Laundry Filters
- Radwaste Filters
- Spent Resin Filters

Mott Laboratory Services
Mott maintains extensive laboratory facilities for pre-installation evaluation of system components, including resin qualification and quality assurance. To help ensure proper system performance, specific resin types and mixtures are incorporated into powdered resin filter/demineralizer analyses.

For more information
Click on the image below to download our 12-page process filtration overview. You may also contact us at Process Systems Sales, Mott Corporation, 84 Spring Lane, Farmington, CT 06032, 1-860-747-6333 or Toll-Free 1-800-BUY-MOTT. E-mail: quest@mottcorp.com.