BetzDearborn* IEC5E

resin cleaner

Water Technologies & Solutions
fact sheet

- Product is free of Nonylphenol ethoxylates (NPEs)
- Cleans organic material and silt from ion exchange resins
- Increases regeneration efficiency
- Saves regenerant - increases resin throughput
- Extends resin life - reduces cost of resin replacement
- Improves feedwater quality
- Can be used on cation and anion resins
- Easy-to-apply liquid

description and use

BetzDearborn IEC5E is a specially formulated blend of non-ionic surfactants, designed to solubilize surface coatings of organics, as well as loosen silt and other insolubles trapped on the resin bead. The use of BetzDearborn IEC5E prior to regeneration allows better contact of regeneration efficiency. BetzDearborn IEC5E in an out-of-service cleaning, increases the efficiency of the cleaning and the amount of surface material removed from the resin.

typical applications

Ion exchange resins are subject to fouling by inorganic and organic compounds. Resin can become fouled with several contaminants that may be present in the water supply being treated. Organically bound iron passes through the cation unit in a demineralizer train and fouls the anion resin. Oil fouling coats the resin, effectively blocking ion exchange sites. The resin becomes clumped, causing increased pressure drop across the resin bed, loss of resin during backwash, channeling, and premature breakthrough.

Organic compounds and normally occurring inorganic material, such as nitrates contained in the water, serve as nutrients, which support microbiological growth. If the growth occurs in a cation unit preceding a strong-base anion exchanger, waste organics generated by the decay of microbes and organisms foul the anion resin, reducing capacity and efficiency.

Organic fouling is one of the most serious problems encountered in anionic ion exchange resins. Surface water supplies can contain large amounts of natural and man-made organics. Organic fouling of anion resin results in the degradation of the strong-base sites (reduction of salt-splitting capacity). The site functionality changes from strong base to weak base, and eventually to neutral. Loss of salt-splitting capacity is reflected in reduced ability to remove silica and carbonates.

BetzDearborn IEC5E can be added to the backwash water prior to regeneration on a regular basis for maintenance and control of the buildup of inorganics, silt, oil, and microbiological materials. This procedure aids in maintaining bed performance at peak efficiency. The frequency and method of cleaning is dependent on the severity of the contamination problem.

If the bed is severely fouled, indicated by drastically reduced capacity and run lengths, an out-of-service cleaning is required to regain good resin efficiency. Air lancing or air percolation through the bottom

distributor during product application provides more effective contact and also aids in breaking up any buildup of contaminants in the bed (see Figure 1).

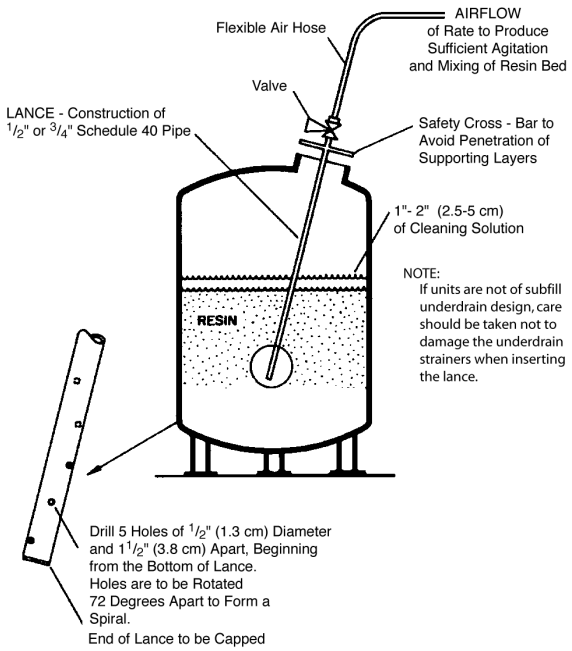

Figure 1: Air lance configuration for ion exchange resin cleaning.

treatment and feeding requirements

Feed Point - May be applied with backwash prior to regeneration or added directly to the vessel for out-of-service use.

Feed Rate - Usage depends on the length of time between out-of-service cleanings.

In Service - Add BetzDearborn IEC5E to obtain 300 mg/L to 800 mg/L (0.3 to 0.8 kg/m^3) in backwash water.

Out of Service - Add BetzDearborn IEC5E to the unit to obtain a concentration of 28mL/ft^3 (1 L/m^3) of resin when the bed is covered with 4-6 inches (10-15 cm) of water, (Use 120°F [49°C] water if fouling is severe, depending upon temperature limits for the resin being treated).

Dilution - May be fed neat (undiluted) or diluted with water to a convenient strength.

Equipment - Mild steel, stainless steel, and PVC, polyethylene, polypropylene, and Kynar plastics are satisfactory for pumps, piping, and tanks for use with BetzDearborn IEC5E An air lance should be used to agitate the bed during BetzDearborn IEC5E servicing off-line if bed percolation is not possible.

general properties

Physical properties of BetzDearborn IEC5E are shown on the Material Safety Data Sheet (MSDS), a copy of which is available on request.

safety precautions

An MSDS containing detailed information about this product is available upon request.

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