

Resin Installation - Mixed Bed Units

Before loading the product into the ion exchange vessel, it is good practice to inspect the vessel interior. In a mixed bed column, this means checking the condition and location of the internal distributors and collectors, and the bottom support plate or support media. If satisfactory, proceed with the steps detailed below. This procedure insures correct resin levels which is critical for in-place regenerated mixed beds.

1. Fill the tank with water to approximately 6" below the interface collector.
2. Install cation resin through the manway. Use the water to level the resin. Add cation resin until the resin barely covers the interface.
3. Backwash the cation resin at the highest flow possible, for at least 30 minutes. Check the backwash outlet by collecting a sample in a clear glass. If any whole beads are in the glass, reduce the flow rate. If any resin fragments or tiny beads are in the glass, continue backwashing.
4. If the cation resin was supplied in the sodium form, it must be converted to the hydrogen form by a downflow application of dilute acid. With the caustic pump turned off, inject acid and caustic dilution water into the mixed bed. For each cubic foot of cation resin, use at least 15 pounds of acid, diluted to 4%. This should take about 1 hour.
5. Displace acid in the normal manner (about 40 min.).
6. Drain the water down to just above the resin level. Siphon or vacuum off the top layer of resin until the top of the resin is just barely covering the interface.
7. Add water until the level is about 1 feet below the caustic distributor.
8. Install anion resin until the resin level is 12 - 15 inches below the caustic distributor. Use the water to level the resin.

9. Refill the tank from the top. **Do not backwash!**

10. Inject acid and caustic in the normal fashion but extend the chemical injection time to twice normal. Complete the regeneration in the normal manner.

Record the amounts of cation and anion resin used and save this data for the next time that resin is replaced. Cation resin swells about 5% and anion resin swells about 20% during the first regeneration. Anion resin should be at least 6 inches below the caustic distributor after regeneration.

PROCEDURE FOR LOADING PRE-MIXED MIXED BED RESIN

ResinTech mixed bed product is carefully formulated to provide easily separable cation and anion resin components. Complete separation is achieved at the end of the service run simply by a thorough backwash.

It is important when charging the column with this resin to be certain that the vessel is drained of water. Any level of water that the resin passes through would have a tendency to separate the cation and anion components. This means that if any water is present in the column during filling, the resin would segregate as it settles to the bottom with the cation resin forming a layer on the bottom and the anion resin forming the top layer. This should be avoided, so make certain that all water has been drained from the vessel before loading the resin.

