

Resin Sterilization with Bleach

1. Backwash the column of resin in a normal manner. If the resin is cation type used in the hydrogen form, brine treat the bed with 10% NaCl at 10 lbs/cu.ft. to remove any reactive substances from the bed, and verify pH is above 6.5 before proceeding. For salt regenerated exchangers, it is not necessary but may be helpful to regenerate first, to purge any build up of suspended solids.

WARNING: Check the effluent pH prior to adding any bleach. The pH must be greater than 6.5 to prevent possible chlorine fumes from forming.

2. Next, add sufficient sodium hypochlorite (common bleach available at 5% concentration) to the brine solution to yield a 50 to 100 ppm free chlorine level in the entire solution. In cases of extreme contamination, bleach concentrations up to 500 ppm may be used without significant risk of damage to the resin.

3. For a typical regeneration using 10 lbs./cu. ft. salt dose, ½ cup (4 ounces) of household bleach is sufficient (or 2 oz if industrial strength (10-15%) bleach is used). Bleach may be added directly to the brine tank and drawn or pumped through the exchanger as part of the normal brine injection step of regeneration.

4. An alternative method is to interrupt the regeneration toward the end of the brine injection step, open the manway, add the bleach directly to the water/brine in the vessel, stir the solution and the resin (air mix or paddle) to get a uniform mixture, then slowly draw the solution through the bed, stopping just a few inches from the top of the bed.

5. For complete sterilization, the bleach should remain

in contact with the resin for at least 1 hour. Contact times up to 8 hours may sometimes be beneficial. Longer contact times probably do not improve sterilization results. Warming and recirculating the solution during this time will improve results. Periodic agitation of the bed by air or paddle will also help.

6. Finally, the resin should be rinsed free of the solution using a minimum of 75 gallons of water per cubic foot of resin, to remove any disinfection by products that may have formed prior to return to service. If the unit is not placed in service immediately following sterilization, it should be pre-rinsed with a minimum of 15 gallons per cubic foot of final rinse water just before it is placed back into service.

