



DOWEX Ion Exchange Resins

Treating Oil Contaminated Ion Exchange Resins With An Industrial Surfactant

Background

This is a procedure for removing organic contamination, especially oil, from an ion exchange resin. Anion resins are generally affected more due to their affinity for organics. For mixed bed anions, cleaning of the anion alone generally gives better results than cleaning the whole mixed bed, so if possible, the cleaning procedure should be applied to the anion only. To check on foaming and cleaning efficiency, we recommend carrying out a lab test using 500ml of resin prior to plant scale.

Recommended procedure

1. Prepare a solution of non-ionic surfactant needed to clean the amount of resin in the vessel. The solution should be 0.1% TRITON DF-16 or TERGITOL* 15-S-12, applied in an amount of 1 bed volume of 0.1% solution to treat 1 bed volume of resin.
2. Thoroughly backwash the fouled resin. To minimize foaming, anion resins should be treated in the exhausted form. Cation resins can be in the regenerated or exhausted form.
3. Drain the vessel to approximately 8 cm (3 inches) above the surface of the resin bed surface.
4. Pass 1 bed volume of the 0.1% surfactant solution through the resin bed (recommended temperature: ambient up to 35°C/95°F).
5. Soak the resin in the surfactant solution for approximately 1.5 hours. Periodically air-mix the resin during this soak.
6. Immediately after the air-mix, backwash at a rate of ~10 m/hr (4 gpm/ft²). During the backwash, observe the resin level through the upper sight glass, to ensure that resin is not being backwashed out of the vessel.
7. Rinse thoroughly until any suds disappear (water temperature: ambient up to 35°C/95°F)
8. Regenerate and return unit to service.

For mixed bed anions, carry out this additional step after the above treatment:

9. Mix cation with anion and rinse the mixed bed to remove any residual detergent. In order to check the residual level of detergent during the rinse phase, prepare a set of standard detergent concentrations between 100 mg/l and 0.1 mg/l using the same water used for the mixed bed rinse. Then compare the mixed bed rinse water to the standard concentrations in glass tubes. 0.1 mg/l is an acceptable end-point.

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Warning: Oxidizing agents such as nitric acid attack organic ion exchange resins under certain conditions. This could lead to anything from slight resin degradation to a violent exothermic reaction (explosion). Before using strong oxidizing agents, consult sources knowledgeable in handling such materials.

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