REV 0421

Anion Resin Odor

Trimethylamine is a substance that is found in the effluent of new Type 1 anion resins. Acetaldehyde is a substance that is found in the effluent of new Type 2 anion exchange resins. These organic chemicals are products of the aging or degradation process. They may be present in concentrations up to a few parts per million and may impart a pungent odor (Type 2) or a strong fishy ammonia odor (Type 1) to the effluent water. These substances are not a problem for most ion exchange applications other than potable (for aesthetic reasons) or pharmaceutical (acetaldehyde may cause interference in the test for proteinaceous matter). Acetaldehyde is an FDA approved substance. Neither chemical is hazardous at the concentrations normally found in anion exchange resins.

Recommendations for eliminating the odor problem:

The problem will normally go away by itself once the system has been run and the resin has been cycled with warm water temperatures (for example summer time temperatures). If it is not feasible to elevate the temperature of the feed water for a short period of time, the following recommendations apply:

1. Regenerate the anion resin with warm water, even up to 120°F for Type 2, 140°F for Type 1, preferably pre-heating the bed and then introducing the hot caustic sit in the vessel overnight. What this in effect is doing is accelerating the aging process. Four or five cycles of this should eliminate the problem.
2. When portable exchange tanks are used for applications where the presence of these odors may be objectionable, virgin resin should not be used. Instead, resin that has been through at least four or five separate bed service cycles should be provided.
3. Increase the service flow rate, in effect “diluting” the contaminant.
4. Decrease the service water temperature.

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INNOVATIONS IN ION EXCHANGE

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