REV 0421

Acetaldehyde

Acetaldehyde is a substance that is found in the effluent of new Type 2 anion exchange resins. It can impart a slight fruity, alcohol-like odor to the treated water. The acetaldehyde is a product of the aging or degradation process. It is present in concentrations up to a few parts per million and imparts a formalin odor to the effluent water. Also called “aldehyde,” it is a colorless, flammable liquid used as a flavoring agent in ice cream, candy, baked goods, beverages, chewing gum, and gelatin desserts. Deemed generally recognized as safe (GRAS) by the FDA for use as a synthetic flavoring and adjuvant, should not be a problem in any ion exchange applications other than potable (for aesthetic reasons) or pharmaceutical (it may cause interference in the test for proteinaceous matter or TOC).

Recommendations for eliminating the odor problem:

The problem will lessen by itself once the system has been cycled several times, or run with warm water temperatures (for example summer time temperatures). If it is not feasible to elevate the temperature of the feed water to accelerate the aging process, the following recommendations apply:

1. Regenerate the anion resin with warm water, even up to 120 degrees F, preferably pre-heating the bed and then introducing the hot caustic and leaving the caustic 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 acetaldehyde 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.

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INNOVATIONS IN ION EXCHANGE

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