



DOWEX Ion Exchange Resins

Food Processing and Contact

Scope

This pre-treatment applies to anion and cation exchange resins used for ion exchange applications. Chromatographic separation resins such as DOWEX* 99 require a different procedure, also available from The Dow Chemical Company as Tech Fact "Preparation of Chromatographic Separation Resins – Food Processing and Food Contact," Form No. 177-01849.

Good practice in the food processing field requires careful preparation of processing equipment prior to use. To assist the food processor in preparing DOWEX ion exchange resins for such use, the following conditioning procedures are outlined.

Experience has shown that these simple steps, done under normal processing conditions and supplementing the normal manufacturing operations, should assure that the level of organic extractives in the resin-in-use complies with the U.S. Food, Drug, and Cosmetic Act as amended under Food Additive Regulation 21 CFR #173.25.

General Conditioning Steps

To a bed of resin in the normal backwashed, settled, and drained condition:

1. Add four bed volumes of 4% caustic soda at a rate sufficient to allow 45 minutes contact time.
2. Rinse with seven bed volumes of potable water at the same flow rate.
3. Add four bed volumes of 10% sulfuric acid or 5% hydrochloric acid at a flow rate sufficient to allow 45 minutes contact time.
4. Rinse with seven bed volumes of potable water.
5. Convert the resin to the ionic form desired for use, using the normal regeneration techniques.

The above conditioning treatment is general for all DOWEX ion exchange resins (both anion and cation), with the following modifications. DOWEX cation exchange resins which are to be used in the H⁺ cycle should be conditioned as outlined. If they are to be used in the Na⁺ cycle, the above order of acid and base are reversed.

In the event that the equipment involved will not tolerate acid, the following substitutions can be made in the conditioning steps: In Step 3, substitute 24 bed volumes of 0.5% calcium chloride for the 10% sulfuric acid or 5% hydrochloric acid, or exhaust with tap water. In Step 1, substitute 10% sodium chloride for the 4% caustic soda.

DOWEX anion exchange resins which are to be used in the chloride or hydroxide cycle can be conditioned as outlined above. Again, if the equipment cannot tolerate acid, it is recommended that chloride conversion using 10% sodium chloride be used in place of acid in Step 3.

DOWEX Ion Exchange Resins
For more information about DOWEX
resins, call the Dow Liquid Separations
business:

North America: 1-800-447-4369
Latin America: (+55) 11-5188-9222
Europe: (+32) 3-450-2240
Pacific (ex. China): +800-7776-7776
China: +10-800-600-0015
<http://www.dowex.com>

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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