

Low TOC Resins

New ion exchange resins typically contain residual solvents, polymers and other products of manufacture. Cation resins can contain low concentrations of sulfates from the sulfonation step of the copolymer. Anion resins can contain small levels of amines.

When placed into service in a mixed bed exchanger, the ionized residuals (typically the sulfates from the cation resin and amines from the anion resin) are exchanged by the anion or cation resin respectively, and do not leave the bed. The un-ionized components, however, leave the bed in the effluent as a mixture of organics. These are the materials that are measured and referred to as Total Organic Carbon (TOC).

Several of the ultrapure water industries such as semiconductor, pharmaceutical, and power generation, demand very low TOC levels, typically below 10 ppb.

Traditionally, the methods of purifying the resin to attain these low levels involved rinsing the bed with substantial quantities of low TOC water or putting the resin through 5 or 6 cycles of exhaustion/regeneration.

ResinTech resins are available in low TOC grades. These products have been pretreated with a series of proprietary post-production rinses and treatments to produce a low TOC effluent. Typical TOC levels from the effluent of this new product are well below 25 ppb in less than 25 bed volumes of rinsing. ResinTech MBD-15-LTOC is a low TOC mixed bed used in many ultrapure water applications. This resin offers a tremendous savings in time and water consumption, because it is ready to be put on line in a high purity water loop with a minimum of rinsing.

