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Abstract

Applications of Ion Exchange and Selective Media in Water and Wastewater Treatment
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Ion exchange resins and selective filter media are useful when treating water for reuse or regulatory compliance. Target goals include the use of resin to comply with drinking water regulations or discharge limitations. The media can accommodate an extensive range of flow rates, from less than one gallon per minute (gpm) when used in a point-of-use (POU) devices to thousands of gpm when installed in large municipal systems.

Examples and illustrations will be shown for selection of the proper media, general sizing guidelines, and disposal or regeneration options. Unlike physical filtration media, where system design can be based mainly upon superficial flow rates, ion exchange resins and similar materials must also take into account the kinetic flow rate, expressed as bed volumes per minute (BV/min) or gpm per cubic foot.

Contaminants to be discussed include calcium and magnesium hardness, heavy metals, arsenic, radium, perchlorate, and others.