RegenIX™

IX RESIN REGENERATION TECHNOLOGY

SCIDEV

79% Reduction in OPEX

82% Reduction in resin replacement costs

93% Reduction in waste generation

67% Reduction in system footprint

What is RegenIX™?

Regenerable ion exchange (IX) resins can have a significantly positive impact on reducing treatment system operational costs and the associated waste generation by minimising the IX resin replacement frequency.

RegenIX™ is SciDev's IX resin regeneration technology, which is integrated into all SciDev's treatment system designs without significant additional CAPEX costs. In addition, RegenIX™ reduces your ongoing OPEX by up to 79% and delivers treated water with per- and poly-fluoroalkyl substances (PFAS) levels below the lowest limits of reporting.

Our proprietary regenerant solution is non-flammable and produces a liquid waste stream ideally suited for PFAS destruction technologies.

At SciDev, we embrace a technology-agnostic approach with customised PFAS treatment designs, creating highly efficient and effective co-contaminant pre-treatment removal. This approach allows our FluorofIX™ high holding capacity resins to deliver extraordinary PFAS removal performance while optimising RegenIX's™ ability to restore the resin's holding capacity and minimising costly IX resin replacement.

Highlights

- Treats short/long chain and precursor compounds to below limits of reporting
- Built-in regeneration capabilities
- No additional CAPEX
- Destruction-compatible waste stream
- Solvent-free process
- 67% reduction in system footprint over carbon alone

What is Regenerable Ion Exchange Resin?

Resin "selection" is a critical step in the design process in determining the overall performance of a PFAS treatment system. Historically, IX resins have been deployed in water treatment applications to remove a variety of contaminants, including nitrate, perchlorate, and arsenic. More recently, as the demand for alternative PFAS removal technologies has increased, some IX resins have been found to be highly effective at removing PFAS compounds, including short and ultra-short-chain compounds. There are a wide variety of commercially available resins with various performance characteristics and limitations, including their regeneration compatibility to restore the resin's contaminant holding capacity.

Typically, single-use resins are kept in service until a breakthrough of the targeted PFAS compounds is observed. The vessel is taken offline, where the spent resin is removed and disposed of. The vessel is then refilled with virgin resin and returned to service.

Regenerable resin follows a similar process; however, when a breakthrough of the targeted PFAS compounds is observed, the vessel is taken offline, and a regenerant solution is applied to the resin to remove the PFAS and restore the resin's contaminant holding capacity before it is returned to service. The spent regenerant solution can be stored, disposed of, or destroyed. This results in added benefit of not incurring costly resin replacement and disposal costs.