



MIST-X[®] Resin Performance Modeling

MIST-X[®] GENERATES
THE SAME PERFORMANCE
DATA AS A PILOT STUDY IN A
FRACTION OF THE TIME AND
IN FAR GREATER DETAIL.

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MIST-X[®] arms engineers with the data necessary to **identify the process solution(s) best suited for the forecast the application, useable life of various medias, and project the operating costs** needed to maintain the solution going forward.



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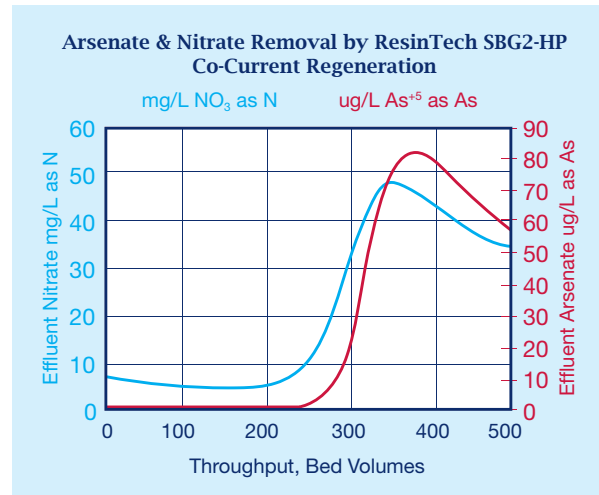
Numerous ion exchange resins exist to remove specific contaminants from liquids at each stage of operation. The effectiveness of each potential resin varies depending on the specific & changing operational conditions.

Selecting the best resin (or combination of resins) and the optimal sequence for a particular challenge is an exhaustive, time-consuming exercise with traditional column tests in a pilot plant study. Such studies may take a year or more to complete, especially when targeting trace substances with selective ion exchangers. MIST-X® generates the same data as pilot studies in a tiny fraction of the time and in far greater detail.

Multiple Ion Simulation Technology (MIST-X®),

exclusively from ResinTech®, allows engineers the convenience of modeling different scenarios in a virtual setting. A comprehensive mathematical model of an ion exchange resin bed based on equilibrium and kinetic relationships, MIST-X® calculates the equilibrium between the resin and each ion in solution as the liquid passes through the resin. Typically, there are several million such calculations for a single exhaustion cycle.

MIST-X® can forecast how many operating cycles it will take to react to changes in operation before returning to stable operation. It allows direct comparison of performance for changes in regenerant dose levels, bed height, flow rates, countercurrent versus co-current regeneration, endpoint termination criteria, etc. Variations in operating conditions can be studied quickly and efficiently. The results are generally displayed graphically but can also be presented in tabular format. There is virtually no limit to the number of ions, valences or number of exhaustion and regeneration cycles that can be studied.



THE REPORT

A ResinTech ion exchange technologist will perform the MIST-X® simulation and create a summary report from the information and data you supplied. The report includes the most promising ion exchange design, effluent profile, and basic information regarding the service exchange and regeneration cycles (as applicable). We provide projections based on your preferred solution along with any alternate approaches our technical staff sees as a viable alternative.



MIST-X® can be used to study new projects or variations in operating conditions, such as geometry, flow rate, water composition, regeneration schemes and alternate resins.

MIST-X® is especially well-suited for studying non-traditional applications and treating liquids with non-traditional impurities.

MIST-X® IS CAPABLE OF SIMULATING PROCESSES LIKE:

- Multiple ion removal multi-cycle use following regeneration
- Co-current regeneration
- Countercurrent Regeneration
- Uni-mixed bed following regeneration
- Virtually any regenerant chemical, provided it is ionized
- Regenerant profiles for any of the above
- Batch mixing or stirred equilibriums
- Chemical separations using ion exchange resins
- Multiple ion removal single-cycle use
- Chromatographic separations
- Cooling tower side stream treatment
- Ground water remediation
- Wastewater treatment
- Chemical purification
- Radioactive waste treatment
- All types of strong acid cation and strong base anion resins
- Weak acid and weak base resins (when operated in the salt form)

MIST-X® CAN PROVIDE INSIGHTS THAT ELUDE OTHER RESIN RATING APPLICATIONS:

- Operational impact of contaminated regenerants on ion exchange plant operation
- Pilot plant operation over multiple cycles
- Evaluation of various regeneration strategies
- Batch treatment or side stream treatment strategies
- Potassium form softening
- Ammonia removal by sodium or potassium form cation resins
- Bicarbonate form anion resin
- Chromate removal by strong base anion resins

MIST-X® arms engineers with the data necessary to make informed decisions about the resin(s) best suited for their applications, accurately forecast the useable life of each media, and project the operating costs needed to maintain the solution going forward.

By using MIST-X® in concert with resources such as our state-of-the-art lab and the largest digital library on ion exchange technology available today, ResinTech's technical support team is uniquely qualified to solve problems that elude other solution providers.

GETTING STARTED

MIST-X® simulations require the following inputs:

- Defined Objective. Tell us the problem you are having and define your treatment goals.
- Water Analysis. Provide a complete water analysis (If no detailed water analysis exists, provide a raw water sample and our world-class laboratory will generate one for you).
- Identify Limitations. Describe any restrictions or other limiting parameters
- Detail your prior attempts to solve. Tell us about any other things that may have been tried to solve the problem (even if they did not work)

CONTACT

To inquire about a MIST-X® simulation for your organization, contact us at info@resintech.com.