

# Innovations in Ion Exchange



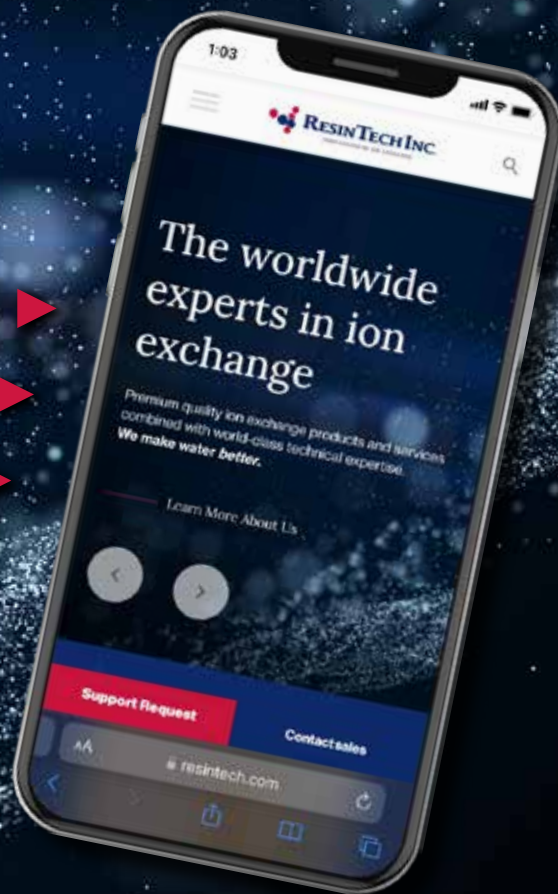
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LEARN MORE

# Innovations in Ion Exchange

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# About Us...

## ABOUT US

ResinTech® manufactures a broad range of products and services for water and wastewater treatment. The company was founded in 1986 by Michael Gottlieb, a chemical engineer and legendary figure in ion exchange technology.

A family business now in its fourth decade, ResinTech's premium quality media, legendary technical support, and patented technologies have helped dealers and operators worldwide ensure optimal water quality for a wide array of applications.

With business units dedicated to ion exchange media formulation, laboratory services, point-of-use products, and resource recovery, ResinTech provides products and services supporting all phases of the IX resin life cycle in residential, commercial/industrial, utility, municipal and laboratory environments.

Our recently completed global headquarters and manufacturing facility is in Camden, New Jersey, U.S.A. ResinTech maintains additional production and warehousing facilities in Baltimore, Maryland; Sarasota, Florida; Chicago, Illinois; Houston, Texas; Los Angeles, California; Toronto, Canada, and Litchfield, England.

Together, our facilities process over a million cubic feet of ion exchange resin, activated carbon, and selective exchange media for distribution partners in over one hundred countries.



**PROUD TO BE ISO 9001:2015 CERTIFIED BY PERRY JOHNSON REGISTRARS, INC.**







**Greetings from  
Camden...**

# We built the world's most advanced resin factory and brought manufacturing back to America.

## GREETINGS FROM CAMDEN

Dedicated in July of 2020, our global headquarters sits on a 27 acre site in Camden, NJ consisting of more than 360,000 square feet of production and warehouse space spread across two buildings. Here's a glimpse of what visitors see inside:

### The Plant

The highly efficient ISO certified factory is equipped with the latest manufacturing technology and automation. Over 400 team members work in three shifts to manufacture or processes every media product in our catalog.

The production line dedicated to softening resin manufactures over a half-million cubic feet of premium quality, non-solvent black cation resin each year — each batch formulated without the use of harmful solvents like Dichloroethane (DCE) — making it some of the cleanest industrial softening and demineralizing resin available in the IX market.

Additional production lines for IX media include: mixed bed resins for a full range of demineralizing applications; specialty media for the selective removal of contaminants like Arsenic, Nitrate, PFAS, and many others; and ResinTech's acid-washed activated carbon that arrives at your facility semi-moist, pH balanced, and virtually dustless.

### The Lab

Home to our Lab Services team, more than ten thousand resin and water samples are analyzed each year in our 6,000 square foot laboratory.

Our staff of ion exchange technologists perform quantitative analysis of resin or water samples providing actionable insights on everything from physical characteristics to trace metals, volatiles, or organics and wet chemistry testing for elements like Iron, Ammonia, Silica, Arsenic, Fluoride, Chromium, Phosphate, Nitrate, and Dissolved Oxygen. State-of-the-art instrumentation capable of the most minute detection levels, allows us to identify dozens of emerging contaminants and fluorocarbons like PFOA and PFOS.

Proprietary technology like our MIST-X® modeling software enables us to run different scenarios and identify the best media for a particular challenge without needing to implement costly bench scale tests.





Need to arm your customers with materials necessary to collect water samples? No problem. We'll send you a kit to meet your needs. We can even supply you with white-labeled water sampling kits and perform lab analysis on your behalf branded with your logo.

## Filter Factory

Our point-of-use products division, Filterworks, operates a full-scale cartridge filter factory adjacent to our resin factory. Our production floor includes equipment for tube extrusion, blow molding, injection molding, spin-welding, heat-sealing and more.

The combination of this equipment along with our unique ability to formulate resin and perform laboratory analysis ensures complete control over the manufacturing, assembly, and quality control process.

The Pro Series line of filters are available in four (4) standard sizes and are designed to fit standard-sized drop-in housings. The drinking water filter cartridges carry the Water Quality Association's Gold Seal certification to give consumers the peace of mind they need for potable use. And because each component is made in-house, our traceability is unparalleled.

The Filterworks team is also responsible for the production of our 'Hydra' and 'CLiR' lines of water systems for residential, commercial, and laboratory applications.

And since both the systems and their consumables are made in the same facility, end-users receive the greater dependability that comes with the strictest manufacturing standards while enjoying the low cost of ownership that comes from fewer markups and logistics.

## Warehouse

Our Camden factory features over 200,000 square feet of warehouse space and 29 loading docks. Advanced automation allows us to easily move products throughout the facility.

Our advanced contract packaging capabilities allow us to ship bulk media in bags, boxes, drums, and super sacks and facilitates private labeling of products when necessary.







**Media Formulation...**

ResinTech® provides **premium quality media and technical support** to ensure optimal water quality for virtually every water softening, demineralizing and conditioning application.

## MEDIA FORMULATION

### Ion Exchange Resin

ResinTech manufactures premium quality media in the United States to the most exacting standards. Operators worldwide trust ResinTech products to help them achieve optimal water quality in a wide array of applications including softening, demineralizing, municipal conditioning, condensate polishing, radwaste treatment, and more.

### Activated Carbon

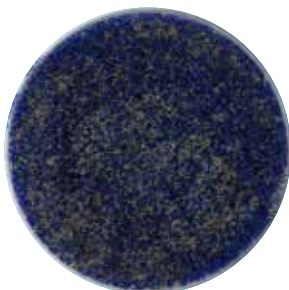
Activated carbons are an excellent solution for taste, odor and chlorine removal applications. Premium carbons are available in coal, coconut shell, and catalytic GAC and can be pH stabilized with an acid wash and high purity DI water rinse. ResinTech carbons are dried to a specified moisture content to provide a dust-free product.



NSF/ANSI WQA GOLD SEAL CERTIFIED RESINS



*Non-solvent  
Cation*



*Mixed Bed*



*Specialty Media*



*Activated  
Carbon*

## Specialty Media

Some applications, like nuclear power generation, call for the selective exchange of harmful ions from a specific aqueous solution or perhaps the need to recover precious metals. To meet this requirement, ResinTech offers a variety of specialty resins and selective exchangers for removing Arsenic, Nitrate, Perchlorate, Chromate, Uranium, Radium, Silica, and more. These products are available in several ionic forms, particle sizes, and cross-linkage for excellent thermal stability and immediate use without preconditioning.

Whatever your need or application, genuine ResinTech media keeps your water working for you.

## Powdered Resin

Powdered ion exchange resins are widely used in the power generation industry as pre-coat media for condensate polishing, as well as in the manufacture of membranes and other unique applications. These media are available as cation or anion components or mixed. Other formulations include blends of powdered resin with inert fibers to assist in particle filtration of metal oxides commonly found in power plant condensate. Powdered resins can be ground to very precise particle size requirements. Custom ground products and small batch processing for research and prototype work is also available.

## Custom Media Engineering

Occasionally, operators have a unique challenge to address. Using our state-of-the-art lab, our proprietary MIST-X® software, and the largest digital library on ion exchange technology available today, we can devise solutions to the most challenging applications. Our custom solutions often result in making possible what was previously thought to be impossible.

## Portable Exchange Tanks

ResinTech has portable exchange deionization (PEDI) vessels and accessories in stock in a range of common sizes. All fiberglass reinforced plastic (FRP) tanks are designed to withstand the rigors of portable exchange service. All tanks feature an inert polymer liner that provides superior durability and chemical resistance. High-temperature tanks are also available.

Fully-assembled tanks filled with your choice of resin, carbon, or specialty media provide one-stop solutions and helps save shipping costs. Gravel, greensand, and other support bed media are also available. Strategically located distribution centers around the world ensure products are available upon demand with prompt delivery.

## ReSTore® Resin Cleaner

ReSTore liquid resin cleaner, when added to a softener brine tank, provides a solid defense against iron and manganese build-up and keeps your softening media and control valve parts from scaling, ensuring maximum life of the unit. Upon request, we can even private label ReSTore to reflect your own water treatment brand.







**Laboratory &  
Technical Services...**

The brightest scientists and most sensitive equipment in the world are **dedicated to making your water healthier to drink and safer to use.**

## LABORATORY & TECHNICAL SERVICES

### Water & Resin Testing

We're dedicated to making water healthier to drink and safer to use. So it just makes sense that we would have the brightest scientists and most sensitive laboratory equipment in the world necessary to measure water composition and recommend solutions to help water work better for you.

Each year, our Lab Services team analyzes thousands of resin and water samples in our 6,000 square foot worldrenowned laboratory. Our staff of ion exchange scientists uses state-of-the-art instrumentation capable of the most minute detection levels to provide a quantitative analysis of resin or water samples.

Periodic testing of resin samples from ion exchange units is useful to plant operators. It allows them to track the degradation of resin and observe fouling problems before they become serious. The resulting analysis offers valuable insights about feed and process water and the health of the media within their vessels. These insights help inform decisions for optimizing the ion exchange systems, whether it means to replace the resin, clean the resin, or make a change in the regeneration process.

Water testing provides a complete understanding of your waste, process, or raw water and the specific contaminants present within each. Our technical support staff can even help you identify the best adsorbent for a particular challenge. We provide actionable insights on everything from physical characteristics to trace metals, from volatiles or organics wet chemistry testing for elements like Iron, Ammonia, Silica, Arsenic, Fluoride, Chromium, Phosphate, Nitrate, and Dissolved Oxygen. We can even identify dozens of emerging contaminants and fluorocarbons like PFOA and PFOS. We can even supply you with white-labeled water testing kits and perform lab analysis on your behalf.





### Field Services & Technical Support

With some of the leading scientists in the field of ion exchange on our team, we can assist our customers with product or process recommendations to ensure optimal water treatment operations for a wide range of uses. Technical specialists are available for site visits to perform plant elution studies, conduct in-house operator training, or review the start-up or regeneration procedures. We can even help design or troubleshoot your system to improve efficiency.

### MIST-X® Resin Performance Modeling

Our proprietary MIST-X® (Multiple Ion Simulation Technology) software provides accurate information about how ion exchange resins will perform under specific conditions. By simulating various performance scenarios in a virtual environment, our experts can help you determine the most efficient and cost-effective solution for each water challenge.

MIST-X algorithms combine mass action and selectivity relationships with the chemical profile of water (or liquid) for almost any ion exchange application. The result is a detailed simulation of the exhaustion and regeneration cycles for the candidate resins. Operating variables can be studied quickly and efficiently. MIST-X provides a (calculated) effluent history for every ionic substance passing through the resin bed.

The analysis arms engineers with the requisite data to make informed decisions about the best resin for their situation, predict service life and forecast the costs needed to maintain them.





**Point-of-use  
Products...**

# Industry-leading point-of-use products and solutions that ensure people and businesses make better use of the resources they rely on every day.

## POINT-OF-USE PRODUCTS

### Filter Cartridges

ResinTech manufactures specialty cartridges for laboratory, commercial and residential filtration applications. Our entire Pro Series line of replacement filter cartridges is ISO certified and available in both in-line and drop-in configurations. Pro Series cartridges are available in all standard sizes and connection types. They are designed to address a wide range of applications — whether you want to remove specific contaminants, address heavy metals, or simply to correct taste and odor.

All cartridges are made in our Camden, NJ factory and constructed using the strictest manufacturing standards. A variety of welding, filling, and molding machinery ensure complete control over the manufacturing process. All drinking water filter cartridges carry the Water Quality Association's Gold Seal certification to give consumers the peace of mind they need for potable use.

Each filter contains ResinTech premium media that has been manufactured under that same roof to ensure maximum shelf life. And of course, each cartridge is backed by our legendary technical support and individually lot numbered to provide a traceable history of every product shipped.



### OEM Filter Engineering

For some customers, the specific cartridge or filter they need simply doesn't exist. That's where we come in.

Product manufacturers look to our Filterworks division to devise solutions for the most critical components. Some past examples of custom cartridges include domestic, medical, and military applications. No matter the need or challenge, we have the capacity and expertise to design an answer and manufacture it at scale.

## WATER SYSTEMS

High purity water is essential to a wide range of applications. ResinTech water systems are designed to meet the high purity water needs of residential, commercial/light industrial, or laboratory environments.

Whatever your specific need, from potable water treatment, to generic deionization, to Type I (ultra-pure) systems for the most sophisticated genetic laboratory applications, you can rest easy knowing there is a ResinTech water system designed to fit every need and budget.

### Hydra

Hydra water systems are a complete line of water systems using one, two, and three bowl drop-in style housings.

For residential applications, Hydra systems are available in a wide array of configurations designed to address a range of potable water contaminants and improve water aesthetics.

For commercial applications, we offer our Hydra DI systems for deionization that achieves Type II water quality in high-capacity, high-purity, and Low TOC configurations.

### CLiR

Specifically designed for laboratory environments, our CLiR line of ultra pure lab water systems are designed to produce 18.2MΩ Type I water on demand for life science applications requiring the highest possible resistivity.

As the only vertically integrated lab water system manufacturer in the world, we set out to make the most dependable, most self-serviceable, most affordable Type I water systems available for the lab. CLiR lab water systems surpass even the strictest reagent grade deionized water specifications and come with a wide range of optional accessories and configurations.

You'll find CLiR lab water systems at dozens of major universities, at the biggest names in Pharma, and at legendary research institutions like, The National Institute of Health, US Food & Drug Administration, and Oak Ridge National Laboratory. CLiR systems have been in space and have helped develop vaccines.

## Simple. Affordable. Dependable.



*Find out why the world's most respected scientific institutions insist on CLiR water.*





**Resource Recovery  
Solutions...**

# Combine system engineering with technical expertise to **extend the life of your water and water treatment resources.**

## RESOURCE RECOVERY SOLUTIONS\*

### Off-site Resin Regeneration

ResinTech specializes in restoring exhausted resin to its proper ionic form for service. Regeneration provides the customer with savings across the board by allowing the resin to be used for hundreds of cycles and the peace of mind that the regeneration waste is properly handled.

We are licensed to handle and regenerate both hazardous (F006) and non-hazardous resin. We can guide you on the proper transportation means for each scenario and can test your resin against local and federal limits for characteristically hazardous contaminants.

Clean, non-hazardous, regenerated resins are returned to customers for service while any hazardous waste material collected during regeneration is certified and disposed of according to EPA standards.

All regeneration processes are tightly controlled with separate regeneration lines for non-metal bearing resins as well. Each regenerated lot is quality tested to ensure the customer achieves the highest quality water and capacity. ResinTech operates regeneration plants on both the east and west coast.

**MIXED BED & SEPARATE BED DI RESIN**

**EDM & HEAVY METAL RESINS**

**CONDENSATE POLISHING RESINS**

**GROUNDWATER TREATMENT RESINS**

**CLEANING FOULED ION EXCHANGE RESINS**

**OTHER SPECIALTY MEDIAS**

### EDM / Mixed Bed

Electro-Discharge Machining (EDM) is a commonly used method to machine exotic metals and graphite. Mixed bed ion exchange is an intricate part of the process, serving to purify the dielectric fluid. The exhausted resin is non-hazardous, yet contains a variety of metals and metal oxides that traditional service DI facilities are unable to receive and process.

Our unique regeneration facilities are specially designed to separate the mixed resin, remove the ionic metals and suspended metal oxides, regenerate both cation and anion resins, and properly handle the waste. The regenerated resins are re-mixed, quality-controlled, and returned to the end-user for service.

\* Currently available to U.S. customers only.

## Closed-loop Systems

### *(Water Recycling & Wastewater Purification)*

Many industries face strict wastewater discharge limits at the local, state, and federal levels. These regulations pose unique challenges to each facility. Often companies are unaware that the water they are discharging is noncompliant or of the monetary fines associated with compliance violations.

ResinTech designs water treatment systems best suited for your environment and application. Our solutions combine system engineering with technical expertise to target and recover specific heavy metal ions from wastewater streams by using genuine ResinTech ion exchange media.

The result is reduced costs associated with labor, chemicals, and sludge and slurry waste disposal. We keep your business running while keeping your workplace safe and environmentally responsible.

## AquaCycler™

ResinTech's AquaCycler™ is an ideal solution for production environments with limited floor space.

The skid-mounted, mobile design allows customers who want the flexibility to quickly move their IX solution from one finishing line to another.

Compact and portable, the AquaCycler is an energy efficient system ideal for helping small and midsize shops achieve compliant discharge levels.

## RO Membrane Cleaning

Similar to resin exhaustion, reverse osmosis (RO) membranes can become contaminated with pollutants such as solids, scale, and biological matter. These contaminants can plug the membrane surface and the pipes of the membrane system. Consequentially, the performance of the system will decrease. The under-performance of these "exhausted" membranes results in higher operating pressures, reduced output, poorer quality, and increased operating expenses.

Periodic professional membrane cleaning increases efficiency and extends the useable life of membranes for years. Since the cost implications are a fraction of what it costs to continually purchase new membranes, many operators have come to recognize the economic advantage of cleaning over replacement.

Our specially engineered cleaning stations combine the right combination of flows, temperatures, and pressures with a broad spectrum of solutions capable of cleaning even the most stubborn foulants.







**Practices in  
Sustainability...**

LEED certified and **fueled by renewable energy** with minimal waste.



## PRACTICES IN SUSTAINABILITY

### LEED® Certified

The new buildings are LEED® Silver certified, utilizing numerous technologies and design advantages to conserve energy. These include adding large windows throughout the facility to maximize natural lighting, charging stations for electric vehicles, water-efficient landscaping, environmentally friendly construction practices (recycled & low emission materials), efficient HVAC and water & heat reclamation systems.

### Solar Power

ResinTech has a long history of environmental stewardship through solar power generation since installing a multi-acre solar field at the company's previous headquarters in West Berlin, NJ (1.4 MW).

The commitment to solar power has continued to the new Camden, NJ campus where rooftop solar panels generate 1.7 MW of power and solar powered canopies above the parking lots provide an additional 1.9 MW energy output.

These systems combine to generate 5.02 MW of solar power. This will collectively avoid annual emission of 10,820 pounds sulfur dioxide, 7,120 pounds of nitrogen oxides and carbon dioxide, and 1,220 pounds of particulate matter.

## Waste Mitigation

The facility utilizes trash compactors and a cardboard compactor/baler to minimize waste. A state-of-the-art wastewater treatment system combines acid and caustic waste to produce pH balanced wastewater, thereby minimizing the need for extra chemicals. In addition, a “hot well” system uses the heat rejected in one process to supply the heat required by another process, thereby reducing the cooling needs.

## Reduce, Reuse, Recycle

The building also facilitates vertical integration of manufacturing across the company’s product portfolio with media, cartridges and systems being produced in a single building. Plastic caps and tubes needed for filter manufacturing are molded and extruded on-site and waste material or off-spec plastic is ground and remelted. All this, and the building’s proximity to rail, air, and ship, has reduced diesel truck transport by 50%. The company also receives & recycles exhausted customer resin for use in less critical applications.



## Discharge Prevention

The ResinTech facility is subject to the NJDEP’s Discharge Prevention, Containment, and Countermeasures (DPCC) program and the EPA’s Process Safety Management Program. Each of these programs places the facility under intense scrutiny to operate and maintain facility equipment using good engineering practices, and to prepare detailed prevention and contingency plans to protect the surrounding area.

The cost to establish and maintain these programs was a leadership decision that other companies have chosen to avoid by outsourcing to countries with less restrictive environmental standards.

## Solvent Free Manufacturing

Historically, ion exchange resin was manufactured using the solvent, dichloroethylene (DCE), a probable human carcinogen. One major reason for overseas manufacture is less stringent environmental controls. ResinTech manufactures resin using the best available environmentally green technology. The non-solvent sulfonation cation method does not use DCE and does not generate solvent waste.

Nearly a million cubic feet of such resin is sold yearly in the US for drinking water purposes, making billions of gallons of softened water, and ResinTech’s solvent-free manufacturing approach assures that water made from our resins will be free of any unrinsed DCE solvent.

Sulfuric acid used in the process is reclaimed. This means the process will not lead to increased hazardous waste, and does place any additional burden on the Camden County Municipal Utilities Authority (CCMUA) or nearby landfills.





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