

RESINTECH

SIR-100-HP

ANION EXCHANGE NITRATE SELECTIVE

RESINTECH SIR-100-HP is a strong base anion exchange resin supplied in the chloride form as moist, tough, uniform spherical beads. It is especially useful in nitrate removal applications due to its ability to remove nitrates preferentially in the presence of sulfates and other divalent ions. The use of **RESINTECH SIR-100-HP** eliminates nitrate dumping and retains a greater degree of its operating capacity in the presence of high levels of sulfates.

RESINTECH SIR-100-HP is also intended for use in applications involving monovalent and divalent ions where the monovalent ion must be removed preferentially, such as in removing perchlorates from ground waters.



**NSF/ANSI-61 CERTIFIED FOR
MATERIAL SAFETY**

FEATURES & BENEFITS

- **HIGHEST OPERATING CAPACITY OF ANY NITRATE SELECTIVE RESIN**

The unique amine functional group has been optimized to retain the highest operating capacity for a selective resin.

- **CONTROLLED PARTICLE SIZE**

16 to plus 50 mesh range; gives a lower pressure drop while maintaining superior kinetics.

- **SUPERIOR PHYSICAL STABILITY**

93% plus sphericity and high crush strengths together with a very carefully controlled particle distribution provide greater resistance to bead breakage.

- **EXTREMELY LOW COLOR THROW**

PHYSICAL PROPERTIES

Polymer Structure	Styrene with DVB
Functional Group	R-N-R ₃ +Cl ⁻
Ionic Form, as shipped	Chloride
Physical Form	Tough, Spherical Beads
Screen Size Distribution	16 -50 Nominal (U.S. Std.)
+16 mesh	Less than 5 percent
- 40 mesh	Less than 2 percent
- 50 mesh	Less than 1 percent
pH Range	0 to 14
Water Retention	52 to 60 percent
Solubility	Insoluble
Shipping Weight	Approx. 42 lbs./cu. ft.
Total Capacity	0.85 meq / mL

SUGGESTED OPERATING CONDITIONS

Maximum Temperature	170°F
Minimum Bed Depth	24 inches
Backwash Rate	50 to 75% Bed Expansion
Regenerant	
Concentration	4 percent
Flow Rate	0.25 to 1.0 gpm / cu. ft.
Contact Time	At least 30 Minutes
Level	2 to 15 pounds / cu. ft.
Displacement Rinse Rate	Same as Regen Flow Rate
Volume	10 to 15 gallons/cu.ft.
Fast Rinse Rate	Same as Service Flow Rate
Volume	35 to 60 gal. / cu. ft.
Service Flow Rate	2 to 4 gpm / cu. ft.

Consult ResinTech technical support for operation outside the suggested conditions.

AVAILABLE PACKAGING

- 1 cu.ft. Polyethylene Bags
- 5 cu.ft. Fiber Drums
- 7 cu.ft. Fiber Drums
- 42 cu.ft. Super Sacks

Additional charges may apply for specific packing types.

STOCKING WAREHOUSES

West Berlin, New Jersey	Los Angeles, California
Chicago, Illinois	Tampa, Florida
Houston, Texas	Plantation, Florida
San Antonio, Texas	Baltimore, Maryland

Subject to availability.

RESINTECH® SIR-100-HP

OPERATING CAPACITY

The operating capacity of *RESINTECH SIR-100-HP* for nitrate removal at various regeneration levels when treating an influent with a concentration of 500 ppm, as CaCO_3 , is shown in the following table:

Pounds of NaCl per cu.ft.	Capacity, Kgrs./cu.ft. as CaCO_3			
	Water Analyses: $\text{Cl}^-/\text{HCO}_3^- = 1:1$ $\text{NO}_3^- = 100\text{ppm as } \text{CaCO}_3$			
	Percent Sulfate			
	0	25	50	75
5	9.2	8.4	7.7	7.1
10	11.2	10.2	9.4	8.7
15	12.1	11.0	10.1	9.4
20	12.6	11.5	10.5	9.8

APPLICATIONS

The unique functional group gives *RESINTECH SIR-100-HP* over 25 times greater affinity for absorbing monovalent ions against multivalent ions than standard Type 1 or Type 2 strong base anion resins at 500 ppm TDS.

NITRATE REMOVAL FROM POTABLE WATERS -

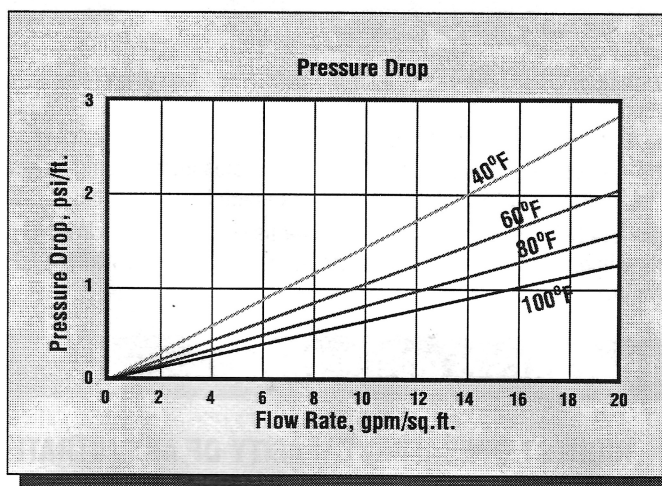
RESINTECH SIR-100-HP removes nitrates efficiently with low leakage. Its unique amine functional group eliminates the possibility of nitrate dumping, which can occur with other standard types of resins. Also, *RESINTECH SIR-100-HP* meets potable water requirements for all major European agencies.

Perchlorate in ground waters has been identified as a nuisance and potential health hazard. The perchlorate ion is so strongly attracted to anion exchange resins that in some cases it makes regeneration impractical. However, perchlorate concentration is usually so low that multivalent ions such as sulfate can dramatically reduce the loading for perchlorate by normal resins. *RESINTECH SIR-100-HP* can be used in these applications to maintain high loading and favorable economics. When used in conjunction with other exchangers it can become part of a superior process offering a high kinetic rate to make otherwise slow processes operate at a faster rate.

CHEMICAL PROCESSING AND RESOURCE RECOVERY -

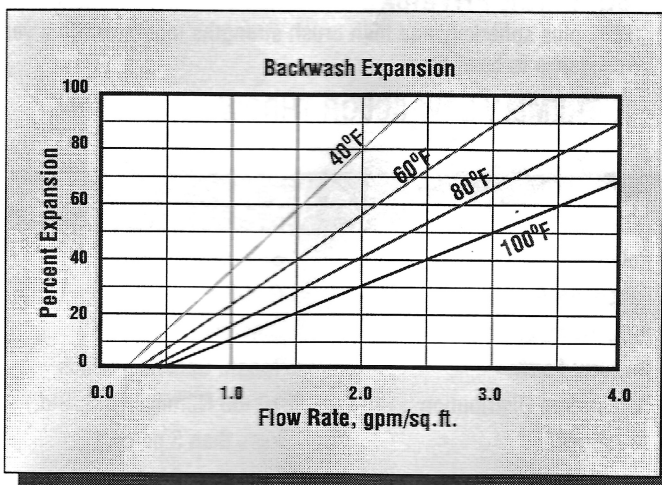
RESINTECH SIR-100-HP can be used to remove certain monovalent ions like nitrates, bromides, iodides, etc. from streams containing multivalent ions. Consult your ResinTech technical representative for recommendations for specific applications.

HYDRAULIC PROPERTIES



PRESSURE DROP -

The graph above shows the expected pressure loss per foot of bed depth as a function of flow rate, at various temperatures.



BACKWASH -

After each cycle the resin bed should be backwashed at a rate that expands the bed 50 to 75 percent. This will remove any foreign matter and reclassify the bed. The graph above shows the expansion characteristics of *ResinTech SIR-100-HP* in the sodium form.

***CAUTION: DO NOT MIX ION EXCHANGE RESIN WITH STRONG OXIDIZING AGENTS.** Nitric acid and other strong oxidizing agents can cause explosive reactions when mixed with organic materials, such as ion exchange resins.

Material Safety Data Sheets (MSDS) are available for all ResinTech Inc. products. To obtain a copy, contact your local ResinTech sales representative or our corporate headquarters. They contain important health and safety information. That information may be needed to protect your employees and customers from any known health and safety hazards associated with our products. We recommend that you secure and study the pertinent MSDS for our products and any other products being used. These suggestions and data are based on information we believe to be reliable. They are offered in good faith. However we do not make any guarantee or warranty. We caution against using these products in an unsafe manner or in violation of any patents; further we assume no liability for the consequences of any such actions.

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