



SIR-110-HP

**ANION EXCHANGE RESIN
NITRATE AND PERCHLORATE SELECTIVE**

RESINTECH SIR-110-HP is a strong base anion resin supplied in the chloride form as moist, tough, uniform spherical beads. It exhibits an unusually high preference for perchlorate and a very low affinity for multivalent ions, It is the resin of choice for single-use perchlorate removal applications. It is also suggested for nitrate removal applications where brine recovery is practiced.

The use of *RESINTECH SIR-110-HP* essentially eliminates all monovalent “dumping” making it also highly useful in nitrate removal applications. Its nitrate and perchlorate operating capacity is virtually unaffected by the presence of sulfates.

FEATURES & BENEFITS

- **HIGHEST PERCHLORATE SELECTIVITY OF ANY ION EXCHANGE RESIN**

Extremely long exhaustion cycles, (over 1,000,000 gallons per cubic foot in most cases) eliminates the need for costly regeneration equipment.

- **NSF/ANSI-61 CERTIFIED**



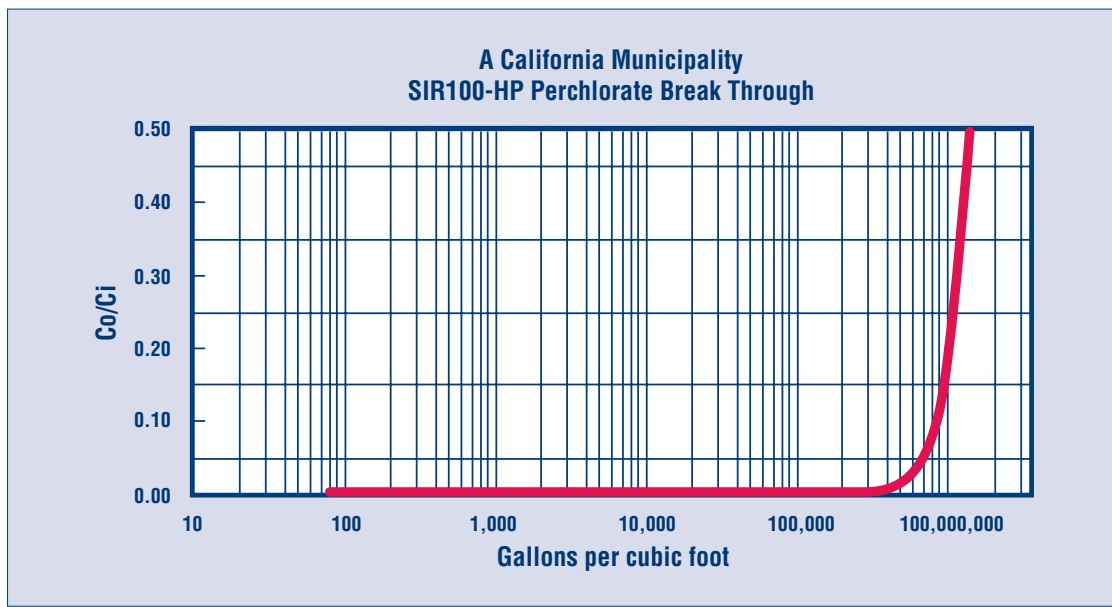
- **EXTREMELY LOW SULFATES SELECTIVITY**

The selectivity preference for monovalent ions, especially perchlorate and nitrates, is higher than any other anion resins, including ResinTech SIR-100.

- **SUPERIOR PHYSICAL STABILITY, NO SLOUGHING**

93 percent plus sphericity, high crush strengths, uniform particle size mean lower pressure drop, greater resistance to bead breakage.

EXHAUSTION CURVE



The graph above shows a simulated break through curve of *RESINTECH SIR-110-HP* for perchlorate on a California municipal water supply. It shows that *RESINTECH SIR-110-HP* continues to remove over 90% of influent perchlorate after treating over 1,000,000 (one million) gallons per cubic foot

RESINTECH® SIR-110-HP

PHYSICAL PROPERTIES

Polymer Structure	Styrene with DVB
Functional Group	R-N-(C ₄ H ₉) ₃ +Cl ⁻
Ionic Form, as shipped	Chloride
Physical Form	Tough, Spherical Beads
Screen Size Distribution	16 -50 Nominal
+16 mesh (U.S. Std)	Less than 5 Percent
- 40 mesh " "	Less than 2 Percent
- 50 mesh " "	Less than 1 Percent
pH Range	0 to 14
Water Retention	
Chloride Form	35 to 55 Percent
Solubility	Insoluble
Approximate Shipping Weight	
Chloride Form	40 lbs./ft ³
Swelling Cl ⁻ to OH ⁻ Form	Approx. 12 Percent
Total Capacity	Approx. 0.6 meq / mL
Sphericity	> 93 Percent

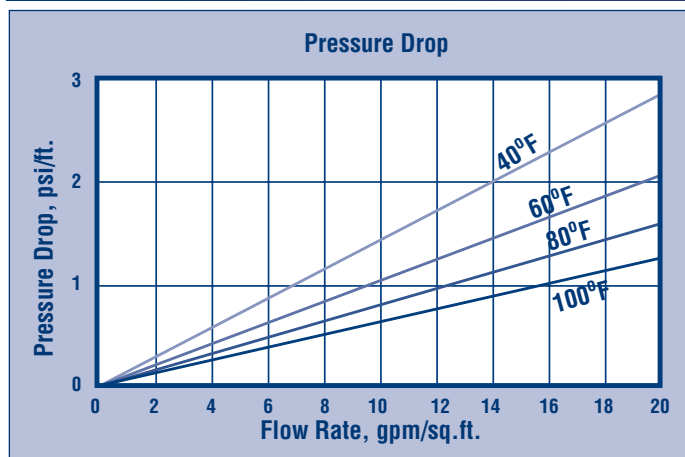
SUGGESTED OPERATING CONDITIONS

Temperature Range	
Salt form-	35 to 140 °F
Minimum Bed Depth	24 inches
Backwash Rate	50 to 75 % Bed Expansion



This product has been tested and certified by the Water Quality Association according to NSF/ANSI 61 for materials safety only.

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 water temperatures.

OPERATING CAPACITY

NaCl Dose Lbs/cu.ft.	Nitrate Removal Capacity, Kgrs./cu.ft. Water Analyses: Cl ⁻ /HCO ₃ = 1:1 NO ₃ =100ppm as CaCO ₃			
	Percent Sulfate in Raw Water			
	0	25	50	75
5	6.9	6.8	6.8	6.8
10	8.4	8.3	18.3	8.3
15	9.1	9.0	9.0	8.9
20	9.4	9.4	9.3	9.3

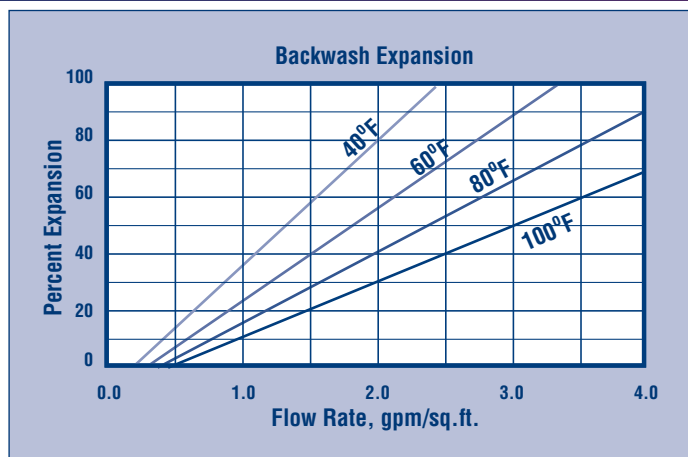
Perchlorate Removal Regeneration Information

ResinTech SIR-110 is not easily regenerated from the perchlorate form and for that reason is not normally recommended for regenerable service with traditional regeneration techniques. However, in combined nitrate and perchlorate removal applications, counter current regeneration based on nitrate breakthrough can often give excellent results. Also, regeneration using specific perchlorate removal techniques can be used. For more information, contact our technical support department. Operating capacities and breakthrough curves will be supplied on a case-by-case basis.

APPLICATIONS

RESINTECH SIR-110-HP is also intended for use in all applications involving monovalent and divalent ions where the monovalent ion must be removed. Chemical Processing and Resource Recovery - RESINTECH SIR-110-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.

Because of its extremely high selectivity for nitrate and perchlorate, RESINTECH SIR-110-HP can be used in brine regeneration systems to reclaim spent brines. In these applications, RESINTECH SIR-110-HP can often be discarded at a lower cost than the discharge of the contaminated regenerant.



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.

***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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