RESINTECH® INC.
INNOVATIONS IN ION EXCHANGE

SIR-500

CATION EXCHANGE RESIN
BRINE SOFTENING
Na FORM

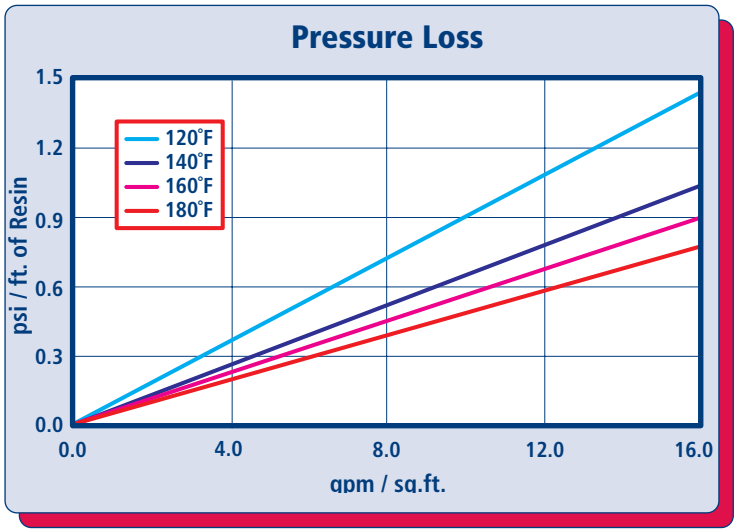
RESINTECH SIR-500 is a sodium form macroporous chelating weak acid cation resin. *SIR-500* has unique aminophosphonic chelating functionality and is particularly selective for alkaline earth metals such as calcium. *RESINTECH SIR-500* is intended for removal of hardness from saturated brine and for removal of divalent metals such as copper and nickel from wastewater and various process streams. *RESINTECH SIR-500* is supplied in the sodium form, can be special ordered in the hydrogen form (as *SIR-500-H*), or in the buffered form (as *SIR-500* pH ADJ).

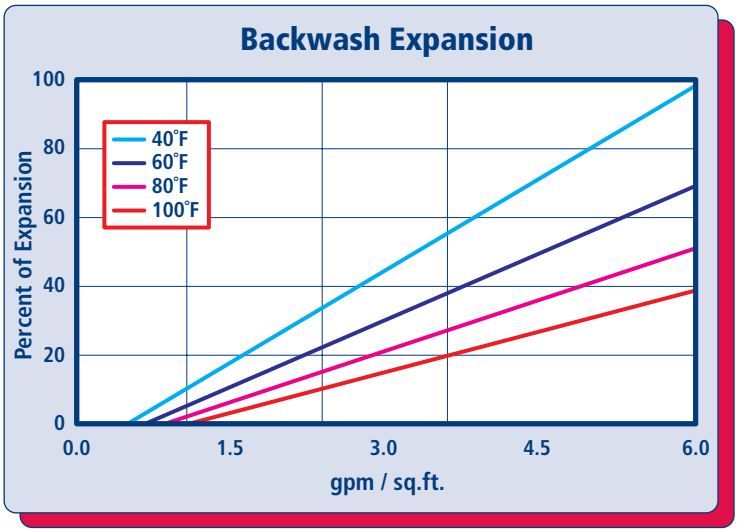
FEATURES & BENEFITS

- **REMOVES CALCIUM AND MAGNESIUM FROM BRINE SOLUTIONS**
  Ideal for removing hardness from brine solutions under neutral to alkaline conditions
- **REMOVES HEAVY METAL CATIONS FROM PROCESS SOLUTIONS**
  High capacity for removing traces of heavy metals from process waters even in the presence of hardness ions
- **SUPERIOR PHYSICAL STABILITY**
  95% plus sphericity and high crush strengths together with carefully controlled particle distribution provides long life and low pressure drop
- **CONTROLLED PARTICLE SIZE**
  16 to 50 mesh size provides a low pressure drop and superior kinetics

Prior to first use, resin should be backwashed for a minimum of 20 minutes, followed by 10 bed volumes of downflow rinse.

HYDRAULIC PROPERTIES





PRESSURE LOSS

The graph above shows the expected pressure loss of *ResinTech SIR-500* per foot of bed depth as a function of flow rate at various temperatures.

BACKWASH

The graph above shows the expansion characteristics of *ResinTech SIR-500* as a function of flow rate at various temperatures.

1801 Federal Street • Camden, NJ 08105 USA • p: 856.768.9600 • f: 856.768.9601• e: info@resintech.com • w: resintech.com

RESINTECH® SIR-500

PHYSICAL PROPERTIES

Polymer Structure	Styrene/DVB
Polymer Type	Macroporous
Functional Group	Aminophosphonic
Physical Form	Spherical beads
Ionic Form as shipped	Sodium
Total Capacity	
Sodium form	>1.4 meq/mL
Water Retention	
Sodium form	50 to 70 percent
Approximate Shipping Weight	
Sodium form	42 lbs./cu.ft.
Screen Size Distribution (U.S. mesh)	16 to 50
Maximum Fines Content (<50 mesh)	1 percent
Minimum Sphericity	95 percent
Uniformity Coefficient	1.6 approx.
Resin Color	White to tan

Note: Physical properties can be certified on a per lot basis, available upon request

SUGGESTED OPERATING CONDITIONS

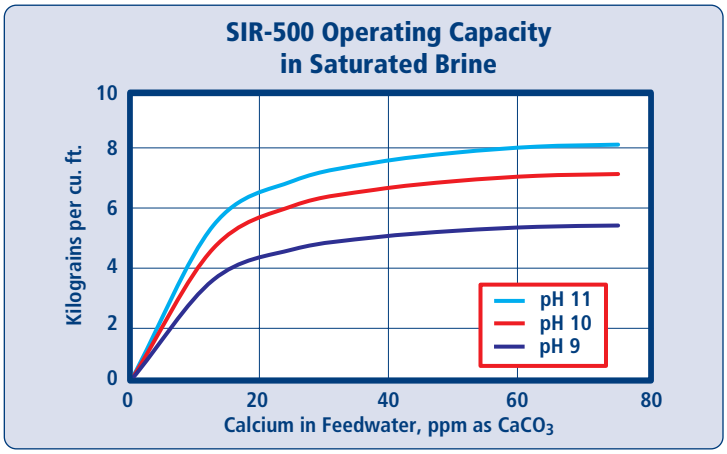
Maximum continuous temperature	
Sodium form	185˚F
Minimum bed depth	36 inches
Backwash expansion	25 to 50 percent
Maximum pressure loss	25 psi
Operating pH range	2 to 10 SU
Regenerant Concentration	
Acid Strip	0.5 to 6 percent HCl
Caustic Neutralization	0.5 to 6 percent NaOH
Regenerant level	2 to 10 lbs./cu.ft.
Regenerant flow rate	0.25 to 1.0 gpm/cu.ft.
Regenerant contact time	>30 minutes
Displacement flow rate	Same as dilution water
Displacement volume	10 to 20 gallons/cu.ft.
Rinse flow rate	Same as service flow
Rinse volume	35 to 60 gallons/cu.ft.
Service flow rate	0.5 to 2 gpm/cu.ft.

Note: These guidelines describe average low risk operating conditions. They are not intended to be absolute minimums or maximums.
For operation outside these guidelines, contact ResinTech Technical Support

APPLICATIONS

BRINE SOFTENING

ResinTech SIR-500 is ideally suited to remove traces of hardness from saturated brines, as pretreatment to electrolysis cells as well as other applications for brines that require low levels of divalent metals. SIR-500 works best at relatively alkaline pH following chemical precipitation processes. All chelating resins are kinetically limited and require a low flow rate. Elevated temperatures improve kinetics provided the resin is not operated beyond its stated thermal limits. To avoid excessive bead breakage, care must be taken to "sweeten on" and "sweeten off" to avoid thermal and osmotic shock from occurring.



Capacity chart is based on saturated sodium chloride brine, and is for calcium hardness alone. No engineering downgrade has been applied.

TRACE METALS REMOVAL

ResinTech SIR-500 can be used to remove heavy metal multivalent ions from a variety of industrial effluents like oil refineries, plating shops, mine drainage, battery manufacturers, cooling towers etc.

ORDER OF SELECTIVITY

pH Below 7
H>Pb> Cu> Zn>Mg> Ca> Cd> Ni>> Na

pH Above 7
Cd> Mg> Ca> Sr> Al> Ba>> Na