SIR-500

Grade: Standard

Chelating resin, styrenic/DVB macroporous, sodium form

ResinTech SIR-500 is a sodium form macroporous chelating weak acid cation resin. Its unique chelating functionality is particularly selective for alkaline earth metals such as calcium and divalent transition metals such as copper and nickel. pH adjustment is usually required before first use. SIR-500 is intended for the removal of hardness from saturated brine and the removal of various metals from wastewater and process streams.

FEATURES & BENEFITS

- Removes Calcium And Magnesium From Brine Solutions
- Removes Heavy Metal Cations From Process Solutions
- Superior Physical Stability
- Controlled Particle Size

APPLICATIONS

- Brine Softening
- Cartridge Applications
- High TDS Brine

PHYSICAL PROPERTIES

Polymer Matrix	Styrene/DVB
Polymer Type	Macroporous
Ionic Form (as shipped)	Sodium (Na^+)
Functional Group	Aminophosphonic
Physical Form	Spherical Beads
Uniformity Coefficient	1.60
Particle Size	16-50 US mesh (297-1190µm)
< 50 mesh (300 µm) %	< 1%
Minimum Sphericity (%)	95
Reversible Swelling	35 to 45% (Na → H)
Capacity (meq/mL)	1.40
Moisture Retention (%)	50 to 70
Shipping Weight	41 - 43 lbs/cu.ft. (657 - 689 g/L)
Color	White to Tan

SUGGESTED OPERATING CONDITIONS

Maximum Temperature	212°F (100°C)
Minimum Bed Depth	36 in. (91.4 cm)
Maximum Pressure Loss	25 psi (172 kPa)
Backwash Expansion (%)	25 to 50
Operating pH Range	2.0 to 10.0
Flow Rate	
Working Service	1-2 gpm/cu.ft. (8-16 BV/h)

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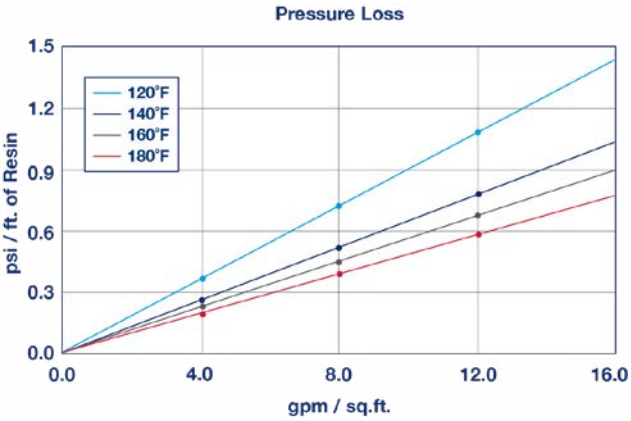
REGENERATION DETAILS

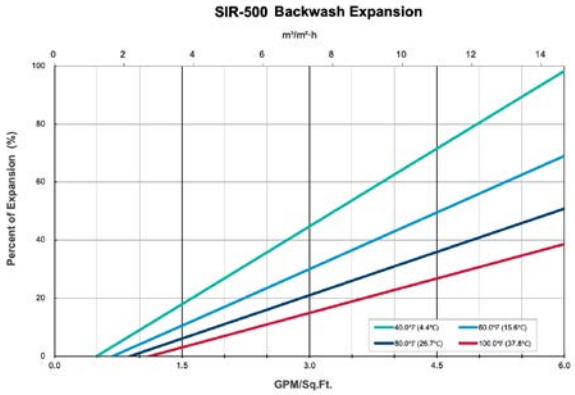
Acid Strip (HCl)	0.5 to 6%	Displacement Flow Rate	Same as dilution water
Caustic Neutralization (NaOH)	0.5 to 6%	Displacement Volume	10-20 gals/cu.ft. (1-3 BV)
Regenerant Level	2-10 lbs/cu.ft. (32.0-160.2 g/L)	Rinse Flow Rate	Same as service flow
Regenerant Flow Rate	0.25-1.0 gpm/cu.ft. (2-8 BV/h)	Rinse Volume	35-60 gals/cu.ft. (5-8 BV)
Regenerant Contact Time	> 30 minutes		

PRESSURE LOSS



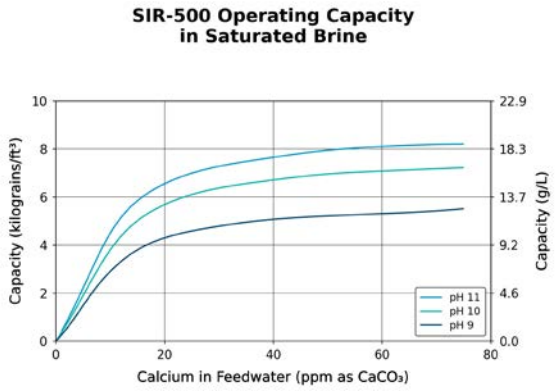
The graph above shows the expected pressure loss of ResinTech SIR-500 per foot of bed depth as a function of flow rate at various temperatures.

BACKWASH EXPANSION



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

CAPACITY



Capacity and leakage data are based on the following: 2:1 Ca:Mg ratio, 500 ppm TDS as CaCO3, 0.2% hardness in the salt and 10% brine concentration applied co-currently through the resin over 30 minutes. No engineering downgrade has been applied.

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.

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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

PACKAGING

Standard

1 cu.ft. Bag | 7 cu.ft. Drum
25L Bag | 200 L Drum

Metric

5 cu.ft. Drum | 42 cu.ft. Supersack
140L Drum | 1000 L Supersack

Shipping Weight

41 - 43 lbs/cu.ft. (657 - 689 g/L)

MATERIAL SAFETY DATA SHEETS (MSDS)

Material Safety Data Sheets (MSDS) are available for all products on the ResinTech website. They contain important health and safety information that 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.

Safety Data Sheets (SDS) are available at resintech.com

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