

RESINTECH SIR-300 is a sodium form macroporous chelating weak acid cation resin. SIR-300 has unique chelating functionality and is able to remove divalent transition metals preferentially to alkaline earth metals such as calcium. RESINTECH SIR-300 is intended for removal of low to moderate concentrations of heavy metals from waste streams. SIR-300 is supplied in the sodium form, can be special ordered in the hydrogen form (as SIR-300-H), or in the buffered form (as SIR-300 pH ADJ).

FEATURES & BENEFITS

- **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

- **REMOVES HEAVY METALS FROM RINSE WATERS**

Removes trace metals preferentially in slightly acidic waters prior to discharge or in front of other resins used in recycle recovery loops

- **SUPERIOR PHYSICAL STABILITY**

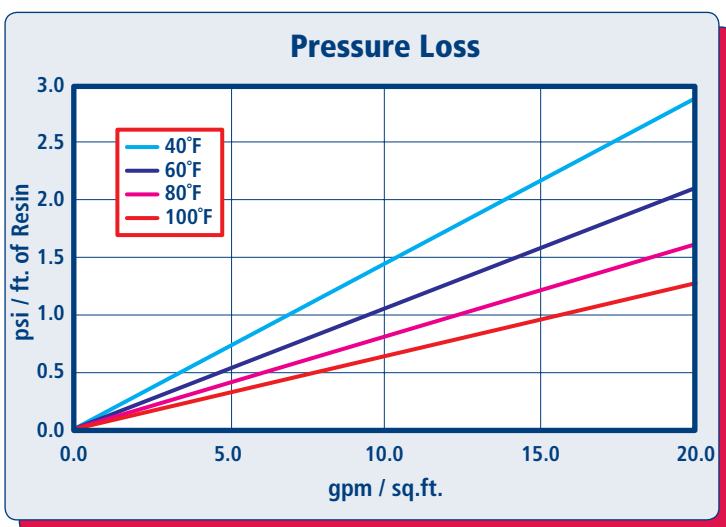
93% plus sphericity and high crush strengths together with carefully controlled particle distribution provides long life and low pressure drop

- **CONTROLLED PARTICLE SIZE**

16 to 50 mesh size provides a low pressure drop and superior kinetics

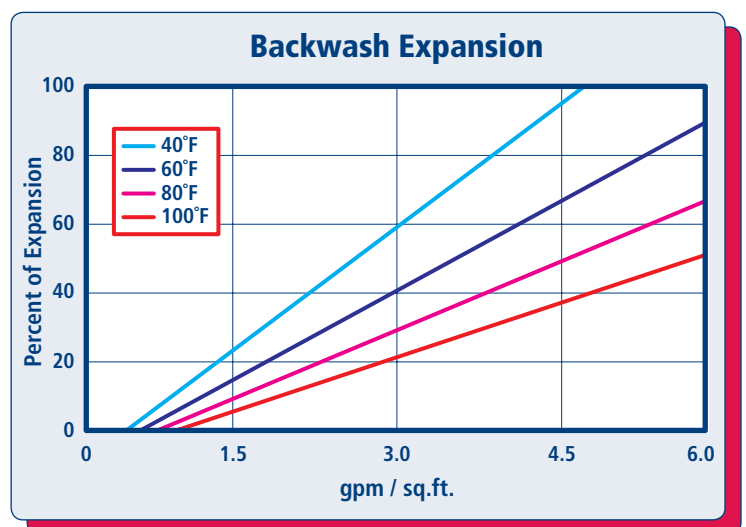
Prior to first use, resin should be backwashed for a minimum of 20 minutes, followed by 10 bed volumes of downflow rinse.

HYDRAULIC PROPERTIES



PRESSURE LOSS

The graph above shows the expected pressure loss of ResinTech SIR-300 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-300 as a function of flow rate at various temperatures.

RESINTECH® SIR-300

PHYSICAL PROPERTIES

Polymer Structure	Styrene/DVB
Polymer Type	Macroporous
Functional Group	Iminodiacetic
Physical Form	Spherical beads
Ionic Form as shipped	Sodium
Total Capacity Sodium form	>1.1 meq/mL
Water Retention Sodium form	50 to 60 percent
Approximate Shipping Weight Sodium form	44 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	170°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 flow
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.

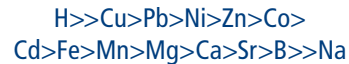
Note: These guidelines describe average low risk operating conditions. They are not intended to be absolute minimums or maximums.

For operation outside these guidelines, contact ResinTech Technical Support

APPLICATIONS

TRACE METALS REMOVAL

The relative affinity of *RESINTECH SIR-300* for heavy metals in near neutral solutions is in accordance with the following sequence:



High concentrations of chlorides or sulfates, or the presence of chelating or complexing agents can alter this sequence and likewise will affect the operating capacity.

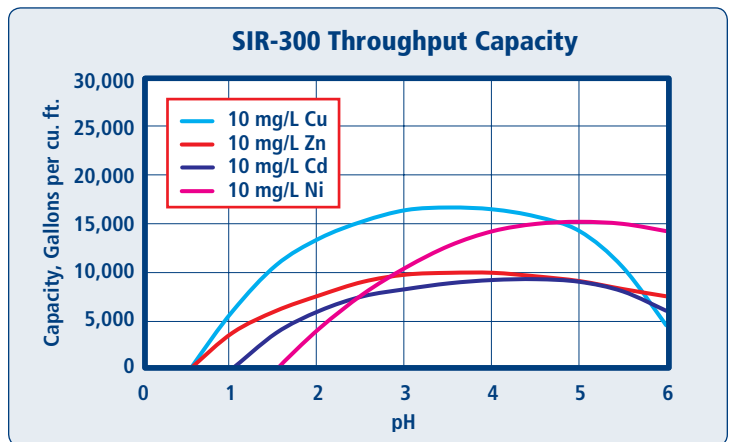
High Chloride Solutions
Cu > Ni > Co > Zn > Cd > Fe

High Sulfate Solutions
Cu > Ni > Cd > Zn > Co > Fe

RESINTECH SIR-300 has similar chelating characteristics to EDTA and NTA, therefore it is less effective when these agents are present. For each particular metal cation there is a critical pH at which SIR-300 has optimum selectivity. For most metals this pH is approximately 4.0. As the pH decreases, so does the selectivity. At a pH of approximately 1.5, SIR-300 loses its ability to remove most metals. The minimum pH values for removal of some common metal ions are as follows:

Manganese 4.0
Iron 3.0
Zinc, Cobalt 2.7
Nickel 2.5
Copper 1.5

As the pH increases, selectivity generally decreases. Above a pH of 9.0 many metals form anionic complexes and are no longer present in a form that can be removed by ResinTech SIR-300.



Capacity is based on water with no suspended solids, less than 10,000 ppm TDS, and where the metals are present in cationic form. Capacity shown is for one metal alone. Other metals may also load and reduce capacity for a particular metal of interest. No engineering downgrade has been applied.



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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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