SIR-350

Grade: Standard

Specialty media resin, styrene/DVB macroporous, sodium form

ResinTech SIR-350 is a sodium form macroporous chelating weak acid cation resin. Its unique chelating functionality removes divalent transition metals preferentially to alkaline earth metals such as calcium. It has a higher capacity than SIR-300. Since the sodium form is highly alkaline, pH adjustment is usually required before first use. SIR-350 is intended for the removal of low to moderate concentrations of heavy metals from waste streams.

FEATURES & BENEFITS

- High Capacity
- Removes Heavy Metal Cations From Process Solutions
- Removes Heavy Metals From Rinse Waters
- Superior Physical Stability

APPLICATIONS

- Cartridge Applications
- Copper Removal
- Heavy Metal Removal
- Lead Removal

PHYSICAL PROPERTIES

Polymer Matrix	Styrene/DVB
Polymer Type	Macroporous
Ionic Form (as shipped)	Sodium (Na^+)
Functional Group	Iminodiacetic
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	30 to 40% (Na → H)
Capacity (meq/mL)	1.60
Moisture Retention (%)	50 to 60
Shipping Weight	43 - 45 lbs/cu.ft. (689 - 721 g/L)
Color	White to Tan

SUGGESTED OPERATING CONDITIONS

Maximum Temperature	176°F (80°C)
Minimum Bed Depth	24 in. (61.0 cm)
Maximum Pressure Loss	25 psi (172 kPa)
Backwash Expansion (%)	50 to 75
Operating pH Range	4.0 to 10.0
Flow Rate	
Working Service	1-2 gpm/cu.ft. (8-16 BV/h)

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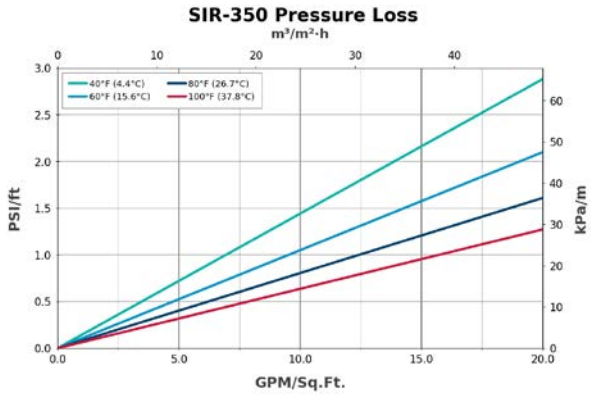
REGENERATION DETAILS

Acid Strip (HCl)	0.5 to 6%
Caustic Neutralization (NaOH)	5 to 6%
Regenerant Level	2-9 lbs/cu.ft. (32.0-144.2 g/L)
Regenerant Flow Rate	0.25-1.0 gpm/cu.ft. (2-8 BV/h)
Regenerant Contact Time	> 30 minutes
Displacement Flow Rate	Same as dilution water
Displacement Volume	10-20 gals/cu.ft. (1-3 BV)
Rinse Flow Rate	Same as service flow
Rinse Volume	35-60 gals/cu.ft. (5-8 BV)

PRESSURE LOSS



The graph above shows the expected pressure loss of ResinTech SIR-350 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-350 as a function of flow rate at various temperatures.

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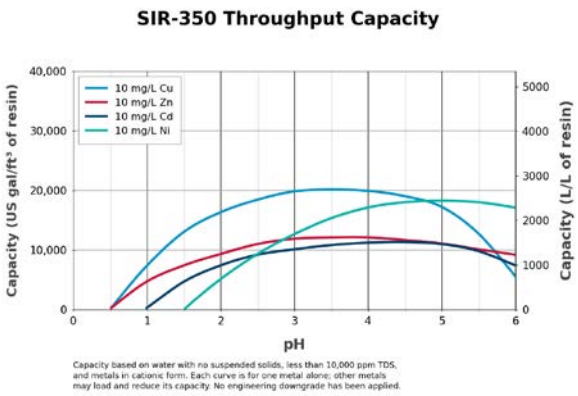
CAPACITY



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.

TRACE METALS REMOVAL
The relative affinity of ResinTech **SIR-350** for heavy metals in near neutral solutions is in accordance with the following sequence:
H>>Cu>Pb>Ni>Zn>Co> Cd>Fe>Mn>Mg>Ca>Sr>B>>Na

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-350** has similar chelating characteristics to EDTA and NTA, therefore it is less effective when these agents are present.

pH Notes:
For each particular metal cation there is a critical pH at which **SIR-350** has optimum selectivity. For most metals, this pH is approximately 4.0.

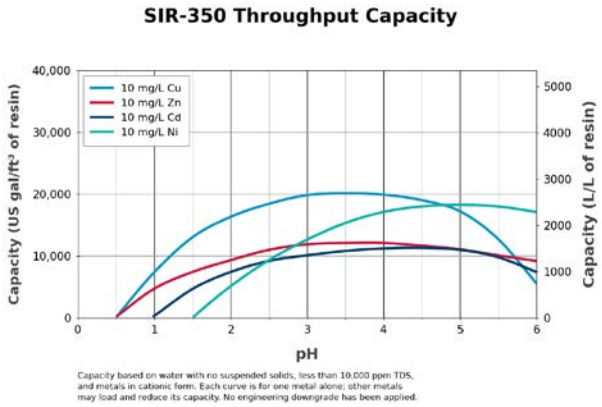
The minimum pH values for removal of some common metal ions are as follows:

Minimum pH for Metal ions

Manganese 4.0
Iron 3.0
Zinc, Cobalt 2.7

Nickel 2.5
Copper 1.5

The resin becomes less selective as the pH moves further away from 4.0. **SIR-350** loses its ability to remove most metals at or below a pH of 1.5 or at or above a pH of 9.0.



Capacity is based on water with no suspended solids, less than 1000 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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CERTIFICATIONS

REACH Registered

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

43 - 45 lbs/cu.ft. (689 - 721 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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