

RESINTECH SIR-150 is a macroporous borate selective weak base anion resin. SIR-150 has unique functionality which makes it extremely selective for borate. RESINTECH SIR-150 is intended for all borate removal applications including potable water, ultrapure water, and boron removal from concentrated brines. SIR-150 is supplied in the free base form.

FEATURES & BENEFITS

- **HIGHLY SELECTIVE FOR BORON**

Able to remove boron from almost any liquid solution, provided that the pH is greater than 4

- **SUITABLE FOR REGENERABLE APPLICATIONS**

Two stage acid/caustic regeneration process restores the capacity for hundreds of operating cycles

- **SUPERIOR PHYSICAL STABILITY**

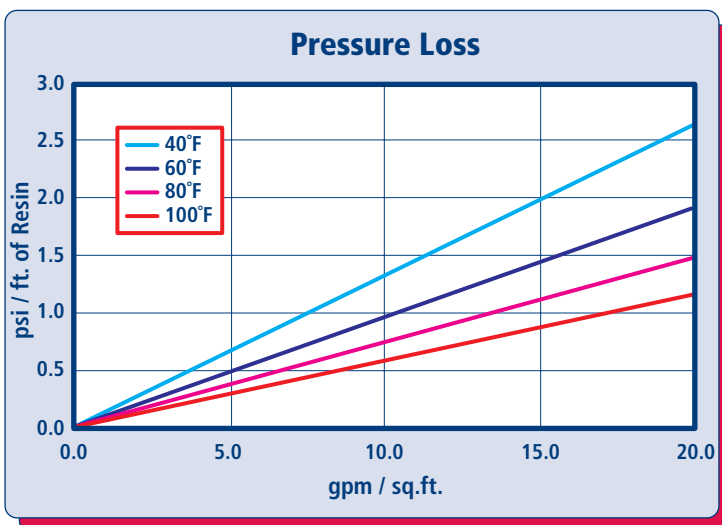
90% plus sphericity and high crush strengths together with carefully controlled particle distribution provides long life and low pressure drop

- **CONTROLLED PARTICLE SIZE**

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

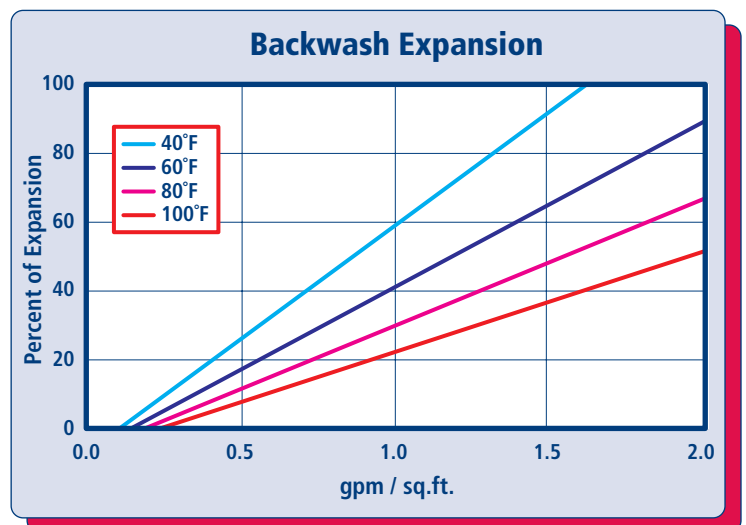
Prior to first use for potable water, resin should be backwashed for a minimum of 20 minutes, followed by 10 bed volumes of downflow rinse.

HYDRAULIC PROPERTIES



PRESSURE LOSS

The graph above shows the expected pressure loss of ResinTech SIR-150 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-150 as a function of flow rate at various temperatures.

RESINTECH® SIR-150

PHYSICAL PROPERTIES

Polymer Structure	Styrene/DVB
Polymer Type	Macroporous
Functional Group	Methylglucamine
Physical Form	Spherical beads
Ionic Form as shipped	Free Base
Total Capacity	
Free base form	>0.6 meq/mL
Water Retention	
Free base form	46 to 60 percent
Approximate Shipping Weight	
Free base 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	Tan

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

SUGGESTED OPERATING CONDITIONS

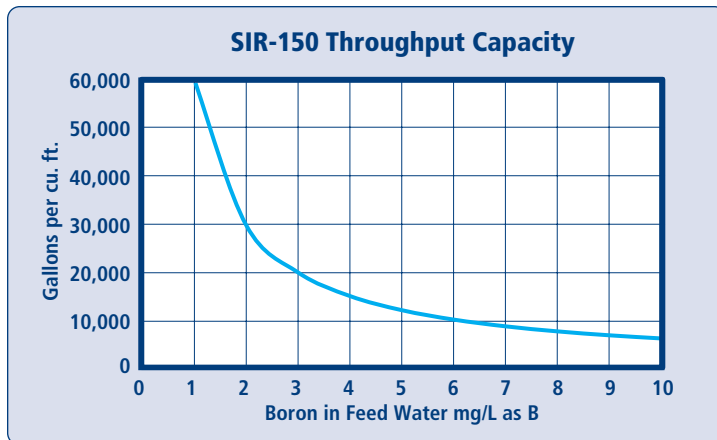
Maximum continuous temperature	
Free Base form	170°F
Minimum bed depth	24 inches
Backwash expansion	25 to 50 percent
Maximum pressure loss	20 psi
Operating pH range	4 to 10 SU
Regenerant Concentration	
Acid Strip	0.5 to 6 percent HCl
Caustic Neutralization	1 to 4 percent NaOH
Regenerant level	3 to 10 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 15 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

SIR-150 CAPACITY



Capacity chart is based on waters with TDS less than 500 ppm and is for borate alone, exclusive of other anions. No engineering downgrade has been applied.

BORON REMOVAL FROM POTABLE WATER

RESINTECH SIR-150 can be used to remove boron from potable waters of any type. SIR-150 selectivity for boron is so high that the concentration of common bulk ions such as chloride, sulfate, and bicarbonate are unimportant. SIR-150 is kinetically limited and cannot be operated at a high flow rate without experiencing increased leakage and decreased throughput capacity. Regeneration is accomplished with acid to strip the boron, followed by caustic to remove the acidity. The regenerated resin should be buffered into the potable water range to prevent possible pH excursions when first returned to service and also to prevent possible calcium carbonate scaling.

BORON REMOVAL FROM BRINE

RESINTECH SIR-150 can be used to remove boron from almost any brine stream, even when the brine is fully saturated. The brine pH must not be lower than approximately 4 or the chelating exchange groups will be destabilized and might not work properly. Ion exchange in any concentrated salt solution is kinetically hindered by high TDS, therefore flow rates are necessarily low.

BORON REMOVAL FROM ULTRAPURE WATER

RESINTECH SIR-150 can be used to remove boron from ultrapure water to sub ppb levels provided that certain precautions are taken. The resin must be completely regenerated to remove bulk ions such as chloride and sulfate, and then rinsed thoroughly with ultrapure water to reduce cation contaminants such as sodium. Resin must be ordered as HP grade and pretreated to reduce TOC leaching. The location of the boron removal resin should be in front of the polishing mixed beds so that trace levels of ionic leachables can be removed.

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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