

SUPRA SIR-150

CHELATING RESIN

**BORATE REMOVAL
POLYSTYRENIC MACROPOROUS
FREE BASE FORM**

ResinTech SIR-150 is a borate selective macroporous chelating weak base anion resin. Its unique functionality provides exceedingly high selectivity for boron in almost any aqueous solution, yet can be regenerated with acid and then neutralized with various alkaline salts prior to use. SIR-150 is intended for all borate removal applications including potable water, ultrapure water, and boron removal from concentrated brines.

APPLICATIONS

- Boron Removal - Potable Water
- Boron Removal - Brine
- Boron Removal - Ultrapure Water

| TYPICAL PROPERTIES & PHYSICAL CHARACTERISTICS | |
|---|---|
| Polymer Matrix | Styrenic Macroporous |
| Ionic Form | Free Base |
| Functional Group | Methylglucamine |
| Physical Form | Spherical Beads |
| Particle Size | 16 to 50 US Mesh (297 - 1190µm) |
| % < 50 mesh (300µm) | < 1% |
| Minimum Sphericity | 95% |
| Uniformity Coefficient | 1.6 |
| Reversible Swelling | Free Base to Cl 15% to 20% |
| Temp Limit | 250°F (121°C) |
| Capacity (meq/mL) | 0.8 |
| Moisture Retention | 46% to 60% |
| Shipping Weight | 38 - 40 lbs/ft ³ (609 - 641 g/L) |
| Color | White to Tan |
| Regenerability | Yes |

PACKAGING OPTIONS

- 500 ml samples
- 1 ft³ bags
- 1 ft³ boxes
- 1 ft³ drums
- 7 ft³ drums
- 42 ft³ supersacks

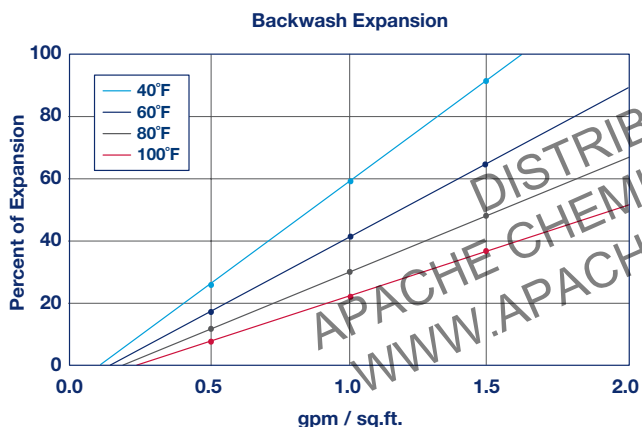
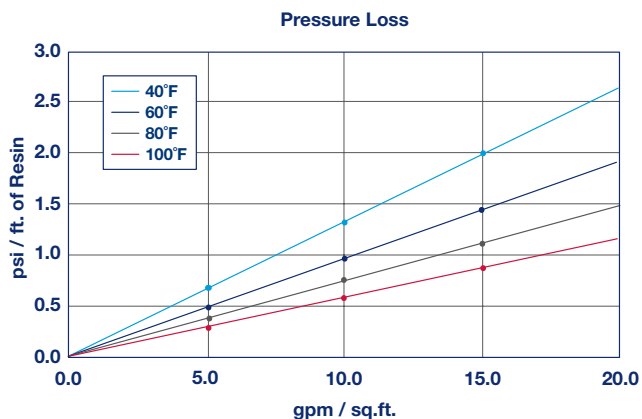
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BORON REMOVAL FROM POTABLE WATER

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.

SUGGESTED OPERATING CONDITIONS

| | |
|--------------------------------|-------------------------|
| Maximum continuous temperature | 170°F |
| Free Base form | |
| 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