ResinTech SIR-110-HP is a chloride form nitrate and perchlorate selective strong base anion resin. SIR-110-HP has unique functionality that greatly increases selectivity for nitrate while greatly decreasing the interference from sulfate ions. ResinTech SIR-110-HP has the highest possible selectivity for perchlorate when compared to other similar resins. SIR-110-HP is intended for all perchlorate removal applications, and where the highest possible affinity for nitrate is desired. SIR-110-HP is supplied in the chloride form.

**FEATURES & BENEFITS**

- **HIGHEST OPERATING CAPACITY OF ANY PERCHLORATE SELECTIVE RESIN**
  Highly selective for perchlorate and nitrate

- **LOW SULFATE SELECTIVITY**
  The unique functional group eliminates the possibility of nitrate dumping

- **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-110-HP 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-110-HP as a function of flow rate at various temperatures.
RESINTECH® SIR-110-HP

PHYSICAL PROPERTIES

Polymer Structure
Styrene/DVB

Functional Group
Tributylamine

Physical Form
Spherical beads

Ionic Form as shipped
Chloride

Total Capacity
Chloride form
>0.7 meq/mL

Water Retention
Chloride form
38 to 50 percent

Approximate Shipping Weight
Chloride form
41 lbs./cu.ft.

Screen Size Distribution (U.S. mesh)
20 to 50

Maximum Fines Content (<50 mesh)
1.5 percent

Minimum Sphericity
90 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
Chloride 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
Salt cycle
5 to 10 percent NaCl

Regenerant level
>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
1 to 3 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

PERCHLORATE REMOVAL
ResinTech SIR-110-HP is ideal for single use perchlorate removal applications and is a cost effective method to remove trace levels of perchlorate from water. The perchlorate ion is very strongly attracted to the ResinTech SIR-110-HP, so much so that regeneration is impractical or impossible. However, in most cases perchlorate loads to almost the full capacity of the resin, resulting in very long service life and eliminating the need to regenerate and re-use the spent resin.

NITRATE REMOVAL
ResinTech SIR-110-HP can be used in the chloride form to remove nitrates as well as perchlorates from potable water. SIR-110-HP has higher capacity for nitrate than SIR-100-HP in high TDS waters. When treating waters with high hardness the brine dilution and displacement waters should be softened and a low hardness salt used to prevent scaling.

IODIDE REMOVAL
ResinTech SIR-110-HP has much higher selectivity for iodide than other strong base anion resins (about 7 to 10 times higher). This high selectivity allows for single use removal of iodide against rather high concentrations of other ions with reasonable throughput capacity. Regeneration, although possible, is complicated, and cannot be accomplished with salt or other common regenerants.

PERTECHNETATE REMOVAL
ResinTech SIR-110-HP has similar affinity for pertechnetate as for perchlorate and can be used to remove trace levels of pertechnetate effectively over a very wide range of TDS and bulk ion compositions. Throughput capacities in the tens of thousands of bed volumes are typical.

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