**ResinTech SIR-100-HP** is a chloride form macroporous nitrate selective strong base anion resin. **SIR-100-HP** has a unique functionality that increases selectivity for nitrate and decreases selectivity for sulfate. This results in higher operating capacity, lower leakage, and freedom from nitrate dumping if operated past sulfate break. **SIR-100-HP** is intended for all nitrate removal applications, and can also be used to remove perchlorate. **SIR-100-HP** is supplied in the chloride form.

**FEATURES & BENEFITS**

- **HIGHEST OPERATING CAPACITY AND EFFICIENT BRINE REGENERATION**
  Unique amine functional group provides the highest possible operating capacity

- **LOW SULFATE SELECTIVITY**
  Eliminates the possibility of nitrate dumping

- **SUPERIOR PHYSICAL STABILITY**
  95% 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-100-HP** 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-100-HP** as a function of flow rate at various temperatures.
RESINTECH® SIR-100-HP

PHYSICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polymer Structure</td>
<td>Styrene/DVB</td>
</tr>
<tr>
<td>Polymer Type</td>
<td>Macroporous</td>
</tr>
<tr>
<td>Functional Group</td>
<td>Triethylamine</td>
</tr>
<tr>
<td>Physical Form</td>
<td>Spherical beads</td>
</tr>
<tr>
<td>Ionic Form as shipped</td>
<td>Chloride</td>
</tr>
<tr>
<td>Total Capacity</td>
<td>≥ 0.9 meq/mL</td>
</tr>
<tr>
<td>Water Retention</td>
<td>46 to 56 percent</td>
</tr>
<tr>
<td>Approximate Shipping Weight</td>
<td>41 lbs./cu.ft.</td>
</tr>
<tr>
<td>Screen Size Distribution (U.S. mesh)</td>
<td>16 to 50</td>
</tr>
<tr>
<td>Maximum Fines Content (&lt;50 mesh)</td>
<td>1 percent</td>
</tr>
<tr>
<td>Minimum Sphericity</td>
<td>95 percent</td>
</tr>
<tr>
<td>Uniformity Coefficient</td>
<td>1.6 approx.</td>
</tr>
<tr>
<td>Resin Color</td>
<td>White to tan</td>
</tr>
</tbody>
</table>

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
  - Average flow: 1 to 4 gpm/cu.ft.
  - Peak Flow: <10 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

NITRATE REMOVAL

ResinTech SIR-100-HP is used in the chloride form to remove nitrates from potable water. It has a unique amine functional group that eliminates the possibility of nitrate dumping. SIR-100-HP has reduced affinity for sulfate which provides high operating capacity and efficient regeneration. When treating waters with high hardness the brine dilution and displacement waters should be softened and a low hardness salt used to prevent scaling.

PERCHLORATE REMOVAL

ResinTech SIR-100-HP can be used for the removal of perchlorate from groundwater supplies. The perchlorate ion is so strongly attracted that in some cases it makes regeneration impractical.