ResinTech SIR-110-HP is a chloride form PFAS, 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 and PFAS 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 AND PFAS SELECTIVE RESIN**
  Highly selective for perchlorate, PFAS 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

NSF/ANSI-61 compliance requires conditioning with a minimum 20 bed volume rinse prior to first use.

**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**
The graph above shows the expansion characteristics of ResinTech SIR-110-HP as a function of flow rate at various temperatures.
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.

PHYSICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Styrene/DVB</th>
<th>Tributylamine</th>
<th>Spherical beads</th>
<th>Chloride</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polymer Structure</td>
<td>Styrene/DVB</td>
<td>Tributylamine</td>
<td>Spherical beads</td>
<td>Chloride</td>
</tr>
<tr>
<td>Functional Group</td>
<td>Styrene/DVB</td>
<td>Tributylamine</td>
<td>Spherical beads</td>
<td>Chloride</td>
</tr>
<tr>
<td>Physical Form</td>
<td>Styrene/DVB</td>
<td>Tributylamine</td>
<td>Spherical beads</td>
<td>Chloride</td>
</tr>
<tr>
<td>Ionic Form as shipped</td>
<td>Chloride</td>
<td></td>
<td>Spherical beads</td>
<td>Chloride</td>
</tr>
<tr>
<td>Total Capacity</td>
<td>&gt;0.7 meq/mL</td>
<td></td>
<td>Spherical beads</td>
<td>Chloride</td>
</tr>
<tr>
<td>Chloride form</td>
<td>&gt;0.7 meq/mL</td>
<td></td>
<td>Spherical beads</td>
<td>Chloride</td>
</tr>
<tr>
<td>Water Retention</td>
<td>38 to 50 percent</td>
<td></td>
<td>Spherical beads</td>
<td>Chloride</td>
</tr>
<tr>
<td>Chloride form</td>
<td>38 to 50 percent</td>
<td></td>
<td>Spherical beads</td>
<td>Chloride</td>
</tr>
<tr>
<td>Approximate Shipping Weight</td>
<td>41 lbs./cu.ft.</td>
<td></td>
<td>Spherical beads</td>
<td>Chloride</td>
</tr>
<tr>
<td>Screen Size Distribution (U.S. mesh)</td>
<td>20 to 50</td>
<td></td>
<td>Spherical beads</td>
<td>Chloride</td>
</tr>
<tr>
<td>Maximum Fines Content (&lt;50 mesh)</td>
<td>1.5 percent</td>
<td></td>
<td>Spherical beads</td>
<td>Chloride</td>
</tr>
<tr>
<td>Minimum Sphericity</td>
<td>90 percent</td>
<td></td>
<td>Spherical beads</td>
<td>Chloride</td>
</tr>
<tr>
<td>Uniformity Coefficient</td>
<td>1.6 approx.</td>
<td></td>
<td>Spherical beads</td>
<td>Chloride</td>
</tr>
<tr>
<td>Resin Color</td>
<td>White to tan</td>
<td></td>
<td>Spherical beads</td>
<td>Chloride</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 | 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

PFAS REMOVAL
ResinTech SIR-110-HP can be used for removal of various PFAS compounds, including PFOA and PFOS, from water. Testing has shown it can remove a wide range of other PFAS species in addition to these compounds. Ion exchange offers the benefit of reduced contact times and longer throughputs vs. conventional activated carbon treatment. An understanding of the influent water chemistry is needed for thorough review. Levels of TOC, VOC and individual PFAS compounds are needed in addition to the basic background water chemistry (chloride, sulfate, alkalinity, etc.). Any other contaminants that may be present are also needed to determine impact on PFAS removal (uranium, perchlorate, chromate, arsenic, etc.).

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. Regeneration, although possible, can be complicated, and may require special brining techniques or brine dosages.

Capacity chart is based on waters with inlet conditions of 10 ppb ClO⁴⁻, TDS less than 500 ppm, and is for perchlorate alone, exclusive of other anions. No engineering downgrade has been applied.