

## SUPRA SIR-2000

SELECTIVE EXCHANGER

**HYBRID AMPHOTERIC  
POLYSTYRENIC GEL  
SODIUM & HYDROXIDE FORM**

ResinTech SIR-2000 is a gel strongly basic anion resin that also has weakly acidic functionality. Its amphoteric nature results from the resin's two opposing functional groups – strong base anion & weak acid cation – which are interwoven and self-absorbed within the polymer structure of each resin bead. SIR-2000 is well-suited for chromatographic separation processes that require ion retardation, and can also be used to remove salts from organic solutions.

### APPLICATIONS

- Chromatographic Separations

TYPICAL PROPERTIES & PHYSICAL CHARACTERISTICS	
<b>Polymer Matrix</b>	Styrenic Gel
<b>Ionic Form</b>	Sodium & Hydroxide
<b>Functional Group</b>	Trimethylamine and Carboxylic Acid
<b>Physical Form</b>	Spherical Beads
<b>Particle Size</b>	40 to 100 US Mesh (2000 - 400 µm)
<b>% &lt; 50 mesh (300µm)</b>	< 1% minus 100
<b>Minimum Sphericity</b>	93%
<b>Uniformity Coefficient</b>	1.4
<b>Temp Limit</b>	140°F (60°C)
<b>Capacity (meq/mL)</b>	1.8
<b>Moisture Retention</b>	35% to 45%
<b>Shipping Weight</b>	45 - 47 lbs/ft <sup>3</sup> (721 - 753 g/L)
<b>Color</b>	Amber
<b>Regenerability</b>	Yes

### PACKAGING OPTIONS

- 1 ft<sup>3</sup> bags
- 1 ft<sup>3</sup> boxes
- 1 ft<sup>3</sup> drums
- 7 ft<sup>3</sup> drums
- 42 ft<sup>3</sup> supersacks

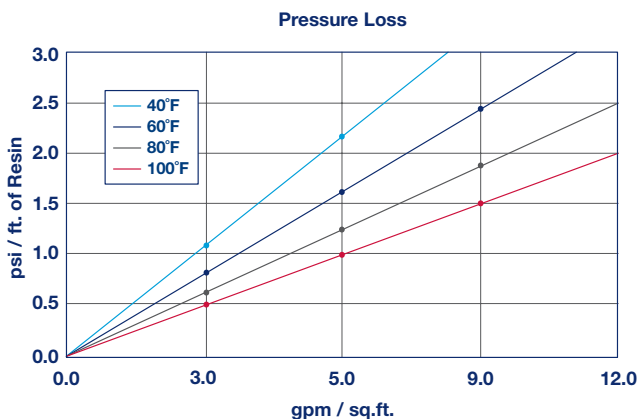
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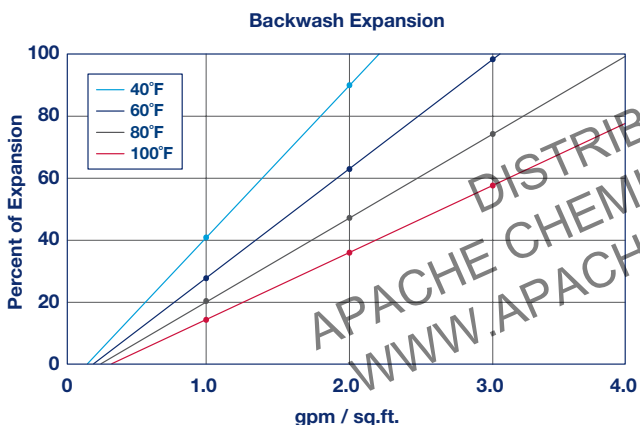
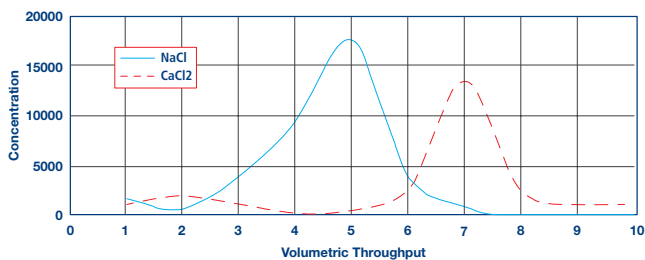
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**Generalized Representation of Ion Retardation Effect**  
Salt concentrations in column effluent from mixed NaCl/CaCl<sub>2</sub> influent Solution



### REGENERATIONS

Regeneration of ResinTech SIR-2000 can be accomplished with deionized water. The initial regeneration pushes the accumulated ions of greater affinity out of the column, completing the separation. Additional rinsing and backwashing ensures the amphoteric resin is returned to the self absorbed form.

### SUGGESTED OPERATING CONDITIONS

Maximum continuous temperature	170° F
Minimum bed depth	24 inches
Operating pH Range	
Ion retardation	4 to 10
Acid/base retardation	0 to 14*
Service flow rate	0.35 to 3.5 gpm/sq.ft.
Regenerant	Deionized Water
Regenerant flow rate	0.35 to 3.5 gpm/sq.ft.
Maximum regenerant temperature	170° F
Rinse flow rate	0.35 to 3.5 gpm/sq.ft.
Backwash flow rate	0.5 to 0.75 gpm/sq.ft.
Backwash expansion	25 to 50 percent

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

### ABSORPTION

ResinTech SIR-2000 removes impurities by absorption. Unlike traditional ion exchangers, the amphoteric resin's counter ions are not mobile, as they are the resin's opposing functional groups, which are permanently bound to the polymer matrix. The various ions of a solution feed stream are weakly held by these opposing groups in typically the same order of selectivity as in standard ion exchange resins. The ions of least affinity will exit the column first, while the ions of greatest affinity will be retarded from migration out of the column. The result is that the exiting salts will be of distinct fractions based on the aforementioned selectivities.

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