

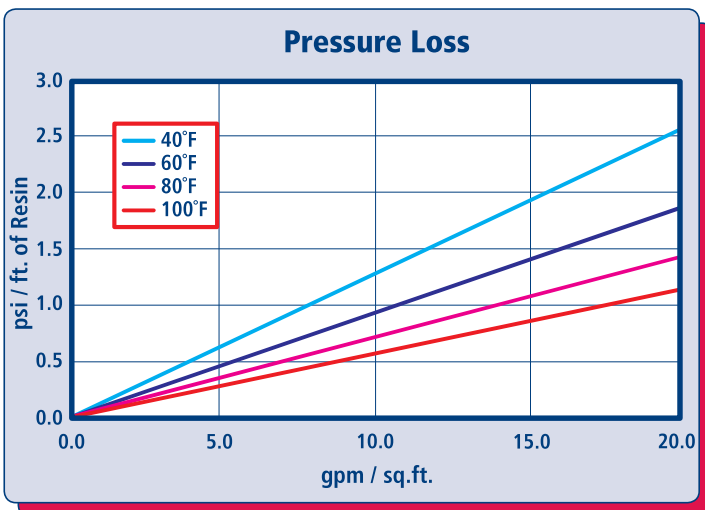
RESINTECH **SBG1-UPS** is a narrowly graded chloride form type 1 gel strong base anion resin. *SBG1-UPS* is a uniform particle size resin with high void space and low coefficient of drag. *RESINTECH SBG1-UPS* is intended for use where resin uniformity is an important attribute to help reduce pressure loss or prevent strainer plugging. *SBG1-UPS* is supplied in the chloride form or can be special ordered in the hydroxide form (when ordered as SBG1-OH-UPS).

## FEATURES & BENEFITS

- HIGHLY UNIFORM PARTICLE SIZE**  
 20 to 40 mesh size, provides low pressure drop and superior kinetics
- HIGH TOTAL CAPACITY**  
 Provides long run lengths in single use applications and is ideally suited for chloride form operation
- SUPERIOR PHYSICAL STABILITY**  
 95% plus sphericity and high crush strengths together with carefully controlled particle distribution provides long life and low pressure drop
- LOWER TOC LEACH RATE**  
 Ideal for use in polishing mixed beds when ordered in the hydroxide form
- COMPLIES WITH US FDA REGULATIONS**  
 Conforms to paragraph 21CFR173.25 of the Food Additives Regulations of the US FDA

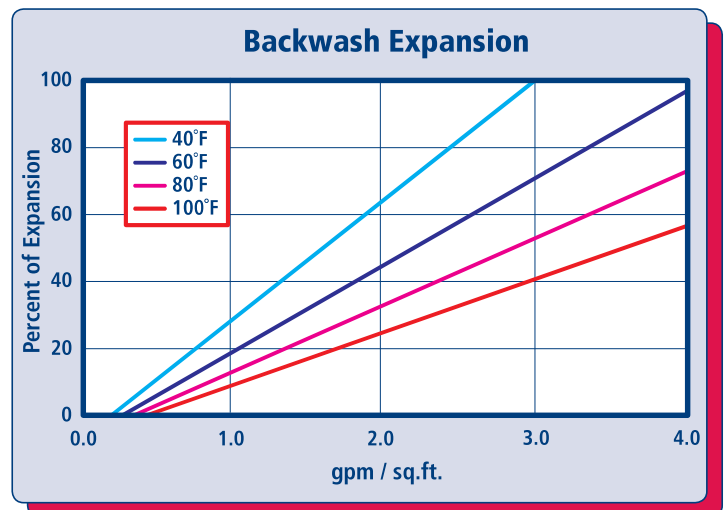
Prior to first use for potable water, resin should be backwashed for a minimum of 20 minutes, followed by 10 bed volumes of downflow rinse.

## HYDRAULIC PROPERTIES



### PRESSURE LOSS

The graph above shows the expected pressure loss of ResinTech SBG1-UPS per foot of bed depth as a function of flow rate at various temperatures.



### BACKWASH

The graph above shows the expansion characteristics of ResinTech SBG1-UPS as a function of flow rate at various temperatures.

# RESINTECH® SBG1-UPS

## PHYSICAL PROPERTIES

Polymer Structure	Styrene/DVB
Polymer Type	Gel
Functional Group	Trimethylamine
Physical Form	Spherical beads
Ionic Form as shipped	Chloride or Hydroxide
Total Capacity	
Hydroxide form	>1.2 meq/mL
Chloride form	>1.4 meq/mL
Water Retention	
Hydroxide form	52 to 60 percent
Chloride form	42 to 51 percent
Approximate Shipping Weight	
Hydroxide form	41 lbs./cu.ft.
Chloride form	44 lbs./cu.ft.
Swelling, Cl to OH	18 to 25 percent
Screen Size Distribution (U.S. mesh)	20 to 40
Maximum Fines Content (<50 mesh)	0.5 percent
Minimum Sphericity	95 percent
Uniformity Coefficient	1.25 approx.
Resin Color	White to amber

Note: Physical properties can be certified on a per lot basis, available upon request

## SUGGESTED OPERATING CONDITIONS

Maximum continuous temperature	
Hydroxide form	140°F
Chloride form	170°F
Minimum bed depth	24 inches
Backwash expansion	25 to 50 percent
Maximum pressure loss	20 psi
Operating pH range	0 to 14 SU
Regenerant Concentration	
Hydroxide cycle	2 to 6 percent NaOH
Salt cycle	2 to 10 percent NaCl
Regenerant level	4 to 10 lbs./cu.ft.
Regenerant flow rate	0.25 to 1.0 gpm/cu.ft.
Regenerant contact time	>40 minutes
Displacement flow rate	Same as dilution water
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 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

### DEMINEALIZATION

*RESINTECH SBG1-OH-UPS* can be used as the anion component in a variety of demineralization applications where a hydroxide form anion resin is coupled with a hydrogen form cation resin. SBG1-OH-UPS is suitable for high operating temperatures and for high flow rates encountered in polishing condensate and other low TDS waters such as RO permeate. SBG1-OH-UPS provides low TOC and low silica leakage in ultrapure demineralizers.

### PACKED BEDS

*RESINTECH SBG1-UPS* has a very narrow particle size range. The uniformity allows a slightly smaller bead size to be used which results in faster exchange of ions, more efficient regeneration and lower leakage. SBG1-UPS is ideal for packed beds and other types of countercurrent ion exchangers where consistent operation is important cycle after cycle. Higher void space and minimal fine mesh beads provides low pressure loss and helps prevent channeling and other distribution problems. Packed beds typically have limited freeboard (only a few inches with the resin in the swollen form).

### TRACE CONTAMINANT REMOVAL (U, Cr, As, Se, ClO<sub>4</sub>)

*RESINTECH SBG1-UPS* has high capacity and can be used to remove a variety of trace contaminants, even when that contaminant is not highly preferred compared to the other bulk ions in the feedwater. Useful capacities are obtained when the feedwater TDS is substantially less than the resin's internal TDS. Uranium, chromate, and perchlorate are particularly well removed. Arsenate and selenate are well removed but can be chromatographically displaced by sulfate and other ions.

### NITRATE REMOVAL

*RESINTECH SBG1-UPS* can be used in the chloride cycle to reduce nitrates along with sulfates. Regeneration is accomplished with sodium chloride brine, in a fashion similar to water softeners. Although high operating capacities and high salt efficiency can be obtained, there is also the possibility of nitrate dumping. Use of chloride form anion resin reduces pH during the early portion of the exhaustion cycle. When treating waters with high hardness the brine dilution and displacement waters should be softened and a low hardness salt used to prevent scaling during regeneration.

### SULFATE REMOVAL

High capacity resins such as *RESINTECH SBG1-UPS* have high affinity for divalent anions such as sulfate, provided the feedwater TDS is not greater than about 5,000 ppm. At higher TDS the resin loses its affinity for sulfate and begins to prefer chloride. Regeneration is accomplished with sodium chloride brine in a fashion similar to a water softener.

East Coast - West Berlin, NJ p:856.768.9600 • Midwest - Chicago, IL p:708.777.1167 • West Coast - Los Angeles, CA p:323.262.1600

**CAUTION: DO NOT MIX ION EXCHANGE RESIN WITH STRONG OXIDIZING AGENTS.** Nitric acid and other strong oxidizing agents can cause explosive reactions when mixed with organic materials, such as ion exchange resins.

**MATERIAL SAFETY DATA SHEETS (MSDS)** are available for all ResinTech Inc. products. To obtain a copy, contact your local ResinTech sales representative or our corporate headquarters. They contain important health and safety information. That information may be needed to protect your employees and customers from any known health and safety hazards associated with our products. We recommend that you secure and study the pertinent MSDS for our products and any other products being used. These suggestions and data are based on information we believe to be reliable. They are offered in good faith. However we do not make any guarantee or warranty. We caution against using these products in an unsafe manner or in violation of any patents; further we assume no liability for the consequences of any such actions.

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