RESINTECH® INC.
INNOVATIONS IN ION EXCHANGE

SBG2-UPS

ANION EXCHANGE RESIN
TYPE 2 GEL
Cl OR OH FORM

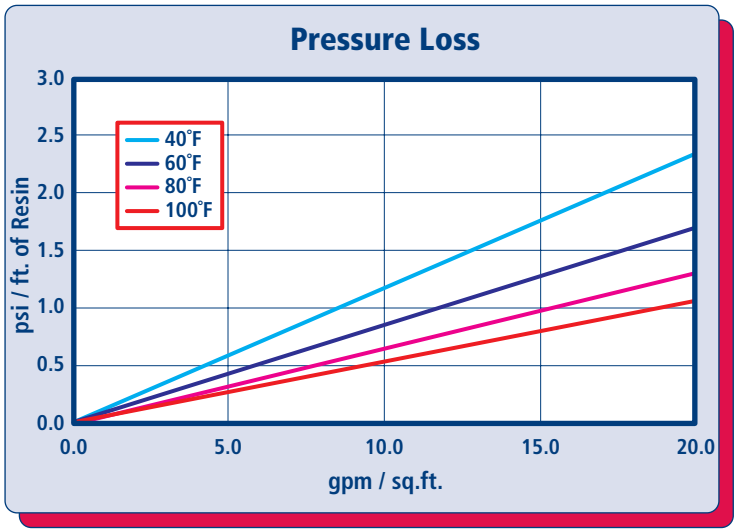
RESINTECH SBG2-UPS is a narrowly graded chloride form type 2 gel strong base anion resin. *SBG2-UPS* is a uniform particle size resin which results in increased void space and lower coefficient of drag. *RESINTECH SBG2-UPS* is intended for use where resin uniformity is an important attribute to help reduce pressure loss or prevent strainer plugging. *SBG2-UPS* is supplied in the chloride form or can be special ordered in the hydroxide form (when ordered as *SBG2-OH-UPS*).

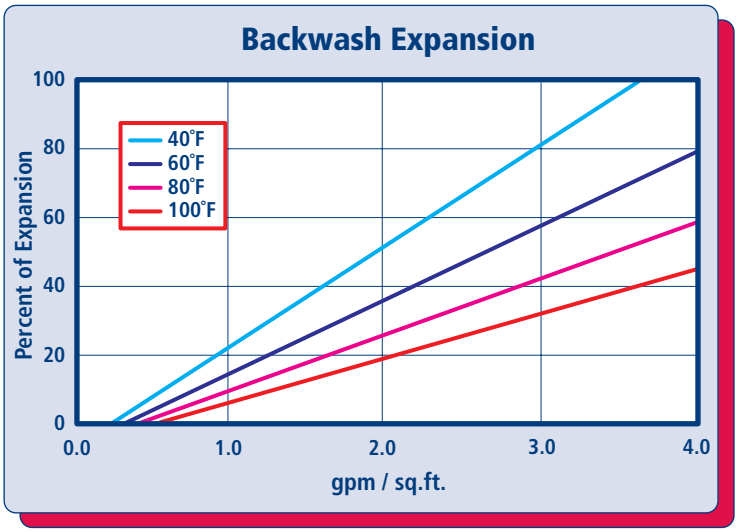
FEATURES & BENEFITS

- **HIGHLY UNIFORM PARTICLE SIZE**
  20 to 40 mesh size, provides low pressure drop and superior kinetics
- **HIGH OPERATING CAPACITY**
  Type 2 anion provides high regeneration efficiency and high throughput per pound of caustic regenerant
- **SUPERIOR PHYSICAL STABILITY**
  95% plus sphericity and high crush strengths together with carefully controlled particle distribution provides long life and low pressure drop
- **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 SBG2-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 SBG2-UPS* as a function of flow rate at various temperatures.

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RESINTECH® SBG2-UPS

PHYSICAL PROPERTIES

Polymer Structure	Styrene/DVB
Polymer Type	Gel
Functional Group	Dimethylethanolamine
Physical Form	Spherical beads
Ionic Form as shipped	Chloride or Hydroxide
Total Capacity	
Chloride form	>1.4 meq/mL
Water Retention	
Chloride form	40 to 53 percent
Approximate Shipping Weight	
Chloride form	44 lbs./cu.ft.
Swelling, Cl to OH	10 to 15 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	95°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

DEMINERALIZATION

RESINTECH SBG2-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. SBG2-OH-UPS is more efficiently regenerated than type 1 resins such as SBG1-OH-UPS and often has higher operating capacity. SBG2-OH-UPS does not have the fishy odor typically associated with type 1 anion resins.

TRACE CONTAMINANT REMOVAL (U, Cr, As, Se, ClO_4)

RESINTECH SBG2-UPS has high capacity in the chloride form 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 feed 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 SBG2-UPS can be used in the chloride cycle to reduce nitrates along with sulfates. 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 the pH of the product water during the early part 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 due to calcium sulfate precipitation during regeneration.

SULFATE REMOVAL

High capacity chloride form resins such as *RESINTECH SBG2-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.

DEALKALIZER

RESINTECH SBG2-UPS can be used in the chloride cycle to remove bicarbonate alkalinity. The exchange is somewhat unfavorable and results in modest capacity and substantial alkalinity leakage. When the dealkalizer follows a water softener and when low hardness salt is used, a small amount of sodium hydroxide can be mixed in with the salt to obtain higher operating capacity and lower leakage.