Aldex Strong Base Anion Series

SB-1 UPS Uniform Particle Size Strong Base, Type 1 Anion

*Aldex SB-1 UPS is a **uniform particle size**, high quality **strong base type 1 styrenic anion** resin designed for use in all demineralization systems. The uniformity and mean particle size of Aldex SB-1 UPS were optimized for use in commercial and industrial systems either in single or mixed beds. Aldex SB-1 UPS is typically paired with Aldex C800H LT UPS or Aldex C800H LS UPS. Aldex SB-1 UPS may replace conventional gaussian resins, narrow particle size distribution products as well as competitive UPS resins.*

Physical Chemical Properties

Polymer Structure:	Styrene crosslinked with divinylbenzene
Functional group:	R-N-$(CH_3)_3$
Ionic Form as Shipped:	Chloride
Physical Form:	Tough, Spherical beads
Screen Size:	20 to 40 mesh
Uniformity Coefficient:	1.2
Harmonic Mean:	30-40 US mesh
pH Range:	0 to 14
Moisture Content:	40 to 48%
Solubility	Insoluble
Shipping Weight:	42 lbs per cubic foot
Total Capacity Cl- Form:	1.4 eq/l minimum
Reversible Swelling:	30% maximum

Recommended Operating Conditions

Maximum Temperature:	
Hydroxide Form	140°F
Chloride Form	212°F
Bed Depth:	24 inches minimum
Service Flow Rate:	2 to 4 US GPM per cubic foot
Backwash Flow Rate:	50 to 75% bed expansion
Regenerant:	2 to 6% NaOH
Regenerant Flow Rate:	0.25 to 1.0 US GPM per cubic foot
Regenerant Contact Time:	60 minutes minimum
Regenerant Dosage Level:	3 to 8 lbs per cubic foot
Slow Rinse (Displacement)	0.25 to 1.0 US GPM per cubic foot
Slow Rinse Volume:	10 to 15 gallons per cubic foot
Fast Rinse Rate:	2 to 4 US GPM per cubic foot
Fast Rinse Volume:	35 to 60 US GPM per cubic foot

SB-1 UPS Features

Very low color, taste or odor

Aldex SB-1 UPS meets the requirements for paragraph 173.25 of the Food Additive Regulation of the U.S. Food and Drug Administration.

High Capacity

The high total capacity of Aldex SB-1 UPS allows greater capacity in applications where high levels of regeneration are used, or in one time use applications such as precious metal recovery and cartridge deionization.

Long Life

Strong and durable beads insure long service life.

Superior Physical Stability

Over 90% sphericity combined with high crush strengths and uniform particle size provide greater resistance to bead breakage due to mechanical, thermal or osmotic stresses.

Potable Water

For potable water applications the resin must be properly pretreated, usually multiple exhaustion and regeneration cycles, to insure compliance with extractable levels.

Safety Information

A material safety data sheet is available for Aldex SB-1 UPS. Copies can be obtained from Aldex Chemical Co., LTD. Aldex SB-1 UPS is not a hazardous product and is not WHMIS controlled.

Caution: Acidic and basic regenerant solutions are corrosive and should be handled in a manner that will prevent eye and skin contact. Before using strong oxidizing agents in contact with ion exchange resin, consult sources knowledgeable in the handling of these materials.

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Pressure Drop

Fig. 1 shows the expected pressure loss per foot of bed depth as a function of flow rate at various temperatures.

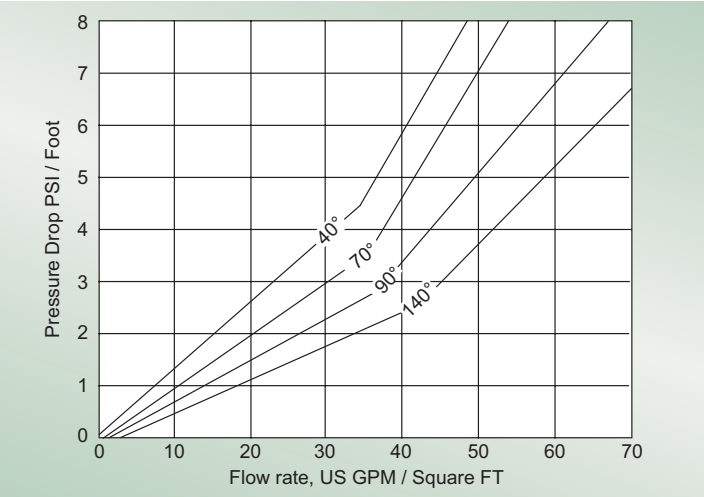

Fig. 1 Pressure Drop vs Flow Rate at various degrees Fahrenheit (F°)

Backwash Characteristics

After each cycle the resin bed should be backwashed at a rate that expands the bed 50 to 75 percent. This will remove any foreign matter and reclassify the bed. Fig. 2 shows the expansion characteristics of Aldex SB-1 UPS in the chloride form.

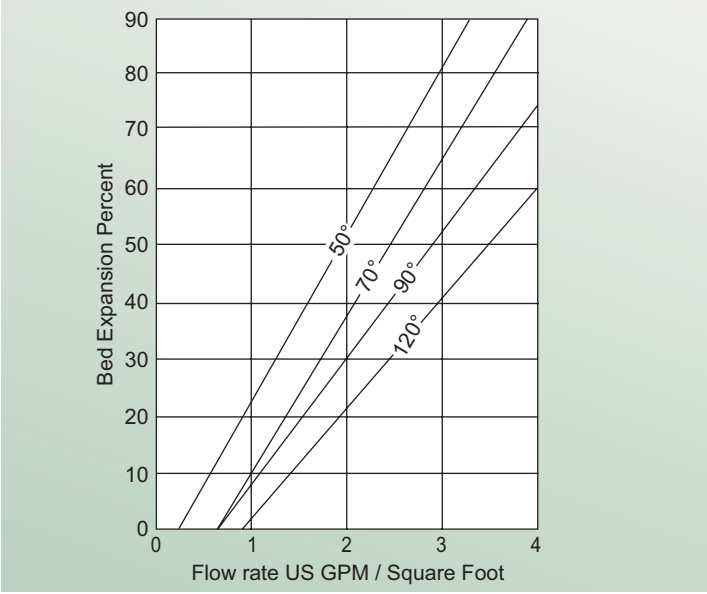

Fig. 2 Bed Expansion vs Flow Rate at various degrees Fahrenheit (F°)

Operating Capacity

Fig. 3 shows operating capacity of Aldex SB-1 UPS for acid removal at various regeneration levels when treating an influent with a concentration of 500 ppm, as $CaCO_3$.

POUNDS NaOH per cubic foot	Capacity kilograins per cubic foot				
	HCl	H_2SO_4	H_2SiO_3	H_2CO_3	H_3PO_4
4	11.5	14.0	12.6	18.6	16.1
6	13.5	16.3	14.8	19.8	17.8
8	15.2	18.3	16.7	21.6	19.2
10	16.8	20.0	19.0	22.2	20.5

Fig. 3 Operating Capacity

Applications

Demineralizations

Aldex SB-1 UPS is widely used in multiple and mixed bed demineralizers, wherever complete ion and organic removal are required. The porosity of Aldex SB-1 UPS provides the capability of reversibly sorbing naturally occurring organic substances that tend to foul anion resins.

Type 1 anion exchanges have greater thermal and oxidation resistance than other types of stong base resins and can be operated at higher temperature to insure low silica leakages. The combination of porosity and functionality make SB-1 UPS the resin of choice where the water temperature is in excess of 85°F or where the combination of carbon dioxide plus silica exceed 40% of the total anions.

The low density of Aldex SB-1 UPS provides maximum separation during the regeneration cycle of mixed bed demineralizers. This results in longer service runs and higher quality effluents.

Desilicizers

In certain applications, water supplied with low dissolved solids need only be treated for hardness and silica removal. Aldex C-800 operating in the sodium cycle followed by Aldex SP-1 UPS operated in the hydroxide cycle is a very effective way of providing low silica, and low hardness water for medium pressure boilers.

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