

## Aldex Strong Base Anion Series

# SB-2 Strong Base Anion Exchange Resin

Aldex SB-2 is a **strongly basic, Type 2, gel anion resin**. It provides **superior regeneration efficiency and greater resistance to organic fouling than Type 1 strongly basic exchangers**. Aldex SB-2 is intended for use in all types of dealkalization deionization and chemical processing applications. It is supplied in the chloride form as moist, tough uniform spherical beads.

## Physical Chemical Properties

Polymer Structure:	Styrene crosslinked with divinylbenzene
Functional group:	R-N-(CH <sub>3</sub> ) <sub>2</sub> CH <sub>2</sub> CH <sub>2</sub> OH
Ionic Form as Shipped:	Chloride
Physical Form:	Tough, Spherical beads
Screen Size:	16 to 50 mesh
+16 mesh	<2%
-40 mesh	<2%
-50 mesh	<1%
pH Range:	0 to 14
Moisture Content (Cl <sup>-</sup> Form):	38 to 44%
Solubility	Insoluble
Shipping Weight (Cl <sup>-</sup> Form):	44 lbs per cubic foot
Total Capacity:	1.4 meq/ml minimum
Sphericity:	90+% minimum

## Recommended Operating Conditions

Maximum Temperature:	
Hydroxide Form	95°F
Chloride Form	120°F
Bed Depth:	24 inches minimum
Service Flow Rate:	1 to 5 US GPM per cubic foot
Backwash Flow Rate:	50 to 75% bed expansion
Regenerant Flow Rate:	0.25 to 1.0 US GPM per cubic foot
Regenerant Contact Time:	60 minutes minimum
Regenerant Dosage Level:	4 to 10 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 gallons per cubic foot

## SB-2 Features

### Very low color, taste or odor

Aldex SB-2 meets the requirements for paragraph 173.25 of the Food Additive Regulation of the U.S. Food and Drug Administration.

### High Capacity

Aldex SB-2 Type 2 exchange functionality provided a dramatic increase in regeneration efficiency and superior resistance to organic fouling compared to other types of strongly basic anion exchangers. In cases where natural organics are found, Type 2 resins such as Aldex SB-2 will retain their original operating capacity longer than Type 1 resins such as Aldex SB-1P, operating at similar regeneration levels.

### Long Life

Strong and durable beads insure long service life.

### Superior Physical Stability

Over 95% 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-2. Copies can be obtained from Aldex Chemical Co., LTD. Aldex SB-2 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.

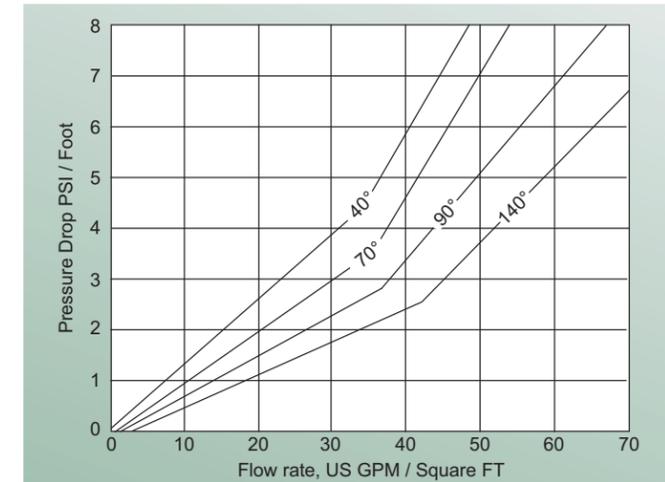


Fig. 1 Pressure Drop vs Flow Rate at various degrees Fahrenheit (F°)

## 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-2.

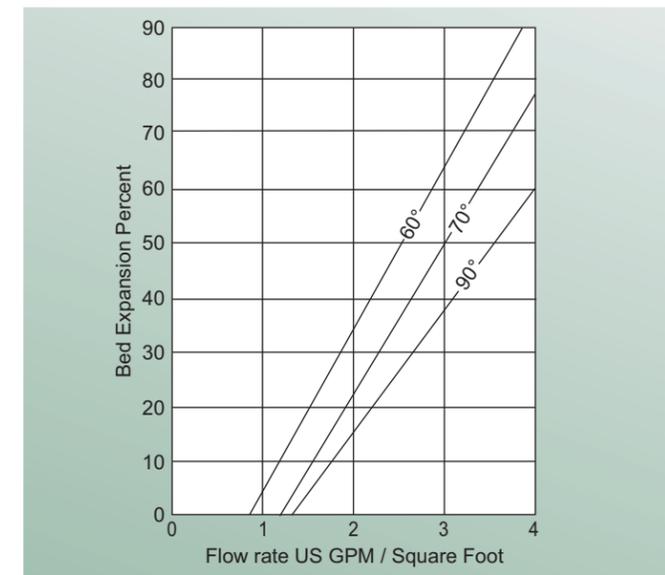


Fig. 2 Bed Expansion vs Flow Rate at various degrees Fahrenheit (F°)

## Operating Capacity

The operating capacity of Aldex SB-2 for acid removal at various regeneration levels when treating an influent of 500 ppm of Hydrochloric Acid, as Calcium Carbonate, is shown in Fig 3.

The salt splitting capacity of Aldex SB-2 at various regeneration levels, based on an influent water containing 500 ppm of NaCl as CaCO<sub>3</sub>, is shown in Fig. 4.

Pounds NaOH per cubic foot	Capacity Kilograins per cubic foot
4	21.0
6	22.5
8	23.5
10	24.4

Fig. 3 Operating Capacity

Pounds NaOH per cubic foot	Capacity Kilograins per cubic foot
4	19.5
6	20.7
8	21.6
10	22.2

Fig. 4 Salt Splitting

## Applications

### Demineralization

Aldex SB-2 is generally used in multiple bed systems where its tremendous operating capacity is best utilized. Use should be restricted to when water temperatures are less than 95° or carbon dioxide plus silica do not exceed 40% of the exchangeable anions.

Aldex SB-2 is less susceptible to fouling by naturally occurring organics and can often be used alone as a "working resin" on waters that would normally require extensive pretreatment or an organic scavenger prior to the demineralization.

### Dealkalization

Aldex SB-2 can be regenerated with NaCl and used to remove alkalinity, without the use of acid. A small amount of NaOH is generally mixed with salt to obtain a higher operating capacity. A regeneration level of 5 lbs of salt mixed with 0.25 lb of caustic per cubic foot will provide an operating capacity of up to 15 kilograins per cubic foot on waters containing 100% alkalinity.

NOTE: Do not use salt containing cleaning agents, iron additives or rust removers to regenerate this resin. Only nontreated, evaporated sea salt or rock salt are suitable.

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