Aldex Strong Base Anion Series

SB-1 MP SC Strong Base Anion Exchange Resin

*Aldex SB-1 MP SC is a **high capacity strong base, type 1 macroporous anion exchange resin** built on a cross-linked styrene-divinylbenzene matrix and **supplied in the Chloride or Hydrogen form**. Aldex SB-1 MP SC has a unique macroporous structure which contributes to its unusually high operating capacity, **excellent resistance to organic fouling and ideally suited for waters containing high levels of oxidants or where thermal shock may be of concern**. The open pore structure of Aldex SB-1 P MP SC gives a high reversible capacity for the adsorption of large organic molecules found in water treatment and sweetener applications such as corn, cane or beet sugar refining. It is also designed for high flow rate and high temperature polishing applications.*

Physical Chemical Properties

Polymer Structure:	Macroporous styrene divinylbenzene
Functional group:	R-N-$(CH_3)_3$
Ionic Form as Shipped:	Chloride or Hydroxide
Physical Form:	Tan, tough spherical beads
Screen Size:	16 to 50 mesh
Total Capacity	
Chloride form:	>1.1 meq/mL
Hydroxide form:	>.09 meq/mL
Moisture Content:	
Chloride form:	50 to 63%
Hydroxide form:	64 to 73%
Shipping Weight	
Chloride form:	42 lbs per cubic foot
Hydroxide form:	40 lbs per cubic foot
Solubility	Insoluble
Swelling (Cl to OH):	18 to 25%
Specific Gravity (g/cc):	1.08
Fines Content (<50 mesh):	1% maximum
Sphericity:	95% minimum
Uniform Coefficient:	1.6 approximately

Recommended Operating Conditions

Maximum Temperature:	140°F (Hydroxide Form) 170°F (Chloride Form)
Bed Depth:	24 inches minimum
pH Range:	0 to 14
Service Flow Rate:	1 to 5 US GPM per cubic foot
Backwash Flow Rate:	40 to 50% bed expansion
Pressure Loss:	20 psi maximum
Regenerant Strength:	
Hydroxide cycle	2 to 6% NaOH
Salt cycle	2 to 10% NaCl
Regenerant Dosage Level:	4 to 10 lbs per cubic foot
Regenerant Flow Rate:	0.25 to .90 US GPM per cubic foot
Regenerant Contact Time:	>40 minutes
Slow Rinse (Displacement)	0.25 to .90 US GPM per cubic foot
Slow Rinse Volume:	10 to 15 gallons per cubic foot
Fast Rinse Rate:	1 to 10 US GPM per cubic foot
Fast Rinse Volume:	35 to 60 gallons per cubic foot

SB-1 MP SC Features

Very low color, taste or odor

Aldex SB-1 MP SC 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 MP SC 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

Combined 98% sphericity 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 MP SC. Copies can be obtained from Aldex Chemical Co., LTD. Aldex SB-1 MP SC 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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Applications

Demineralization

Aldex SB-1 MP SC is highly recommended for use in multiple and mixed bed demineralizations, wherever complete ion removal and physical and osmotic stability are required.

The high total capacity of Aldex SB-1 MP SC makes it ideal for applications such as precious metal recovery, rad-water disposal and purification of toxic waste streams. The higher porosity also provides an increased resistance to osmotic and physical shock compared with less porous products such as Aldex SB-1P.

Type 1 anion exchangers have greater thermal and oxidation resistance than other types of strong base resins and can be operated at higher temperatures to insure low silica leakages. The higher porosity, high total capacity and Type 1 functionality of Aldex SB-1 MP SC make it 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 anion and where chlorides and organics represent only a small portion of the ions to be removed on a regeneration basis. At lower regeneration levels or where the removal and elution of organics is of concern Aldex SB-1P should be considered.

Aldex SB-1 MP SC, SB-1 MP and SB-1P are quite similar; the major difference between the three is the degree of porosity. The choice between them is not always clear cut. We suggest you consult our technical staff for specific recommendations.

Desilicizers

When water supplied with low dissolved solids need only be treated for hardness and silica removal, C-800 operating in the sodium cycle followed by SB-1 MP SC operating in the hydrogen cycle is an effective way of providing low silica and low hardness water for medium pressure boilers.

Radwaste

Aldex C-800H MP SC is ideally suited for radwaste applications requiring removal of radioactive anions, especially when the feed is highly radioactive. Due to its high cross-linked media, it has enhanced resistance to chemical damage caused by ionizing radiation. It is able to maintain its structural integrity up to 1 x 10^9 rads exposure.

Pressure Drop

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

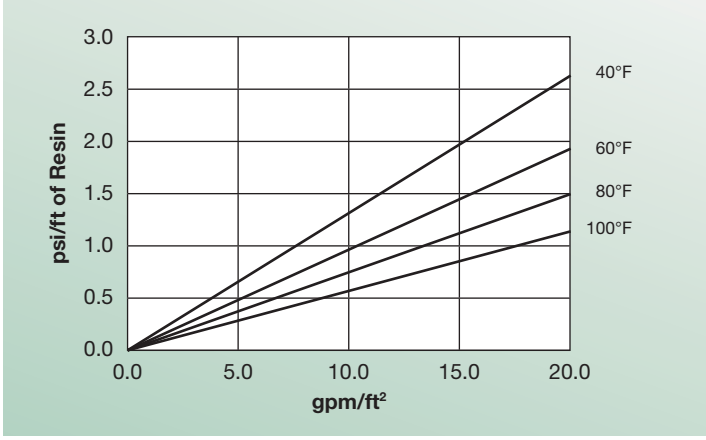

Fig. 1 Pressure Drop vs Flow Rate at various degrees Fahrenheit (F°)

Backwash Characteristics

After each cycle the resin bed should be backwashed at a rate that expands the bed 40 to 50 percent. This will remove any foreign matter and reclassify the bed. When using for the first time for potable water, backwash for 20 minutes minimum and follow by 10 bed volumes of downflow rinse. Fig. 2 shows the expansion characteristics of Aldex SB-1 MP SC in the chloride form.

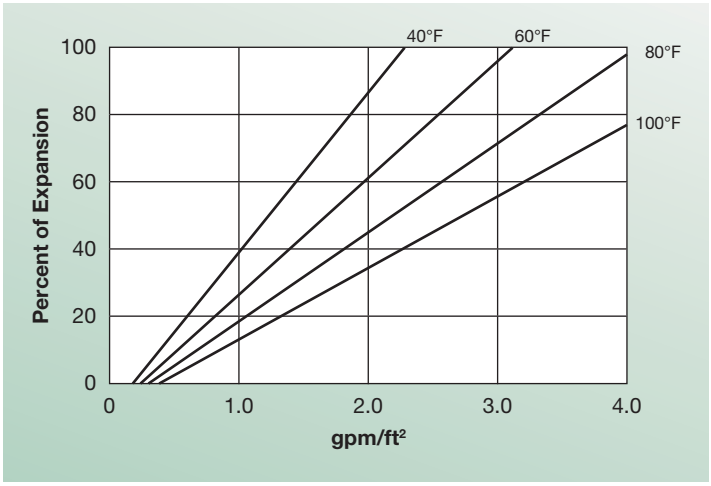

Fig. 2 Bed Expansion vs Flow Rate at various degrees Fahrenheit (F°)

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Operating Capacity

The operating capacity of Aldex SB-1 MP SC for acid removal at various regeneration levels when treating an influent with a concentration of 500 ppm, as CaCO3, is shown in Fig. 3. The data is based on a 36” bed depth and a flow rate of 2 to 4 US GPM per cubic foot. The regenerant contact time should be greater than 40 minutes.

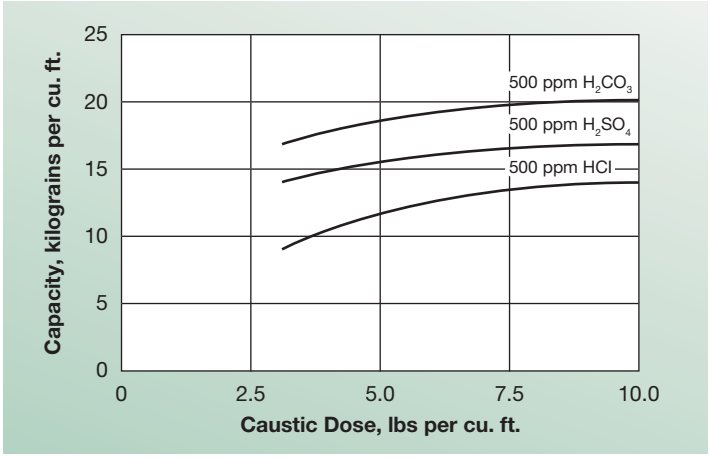

Fig. 3 Operating Capacity for acid removal at various regeneration levels

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