Aldex Weak Base Anion Series

WB-2 Acrylic Weak Base Anion Resin

Aldex WB-2 is a macroporous, weakly basic anion exchange resin using tertiary amine functionality in a cross-linked acrylic matrix. In addition to exhibiting high exchange capacity, this resin has ***good chemical and thermal stability*** *and is specially suited to the adsorption and desorption of organic acids from solution. Aldex WB-2 has* ***high regeneration efficiency, low rinse requirements, and is capable of desorbing large organic molecules****. Aldex WB-2 may also be used in pharmaceutical, chemical and food processing applications for the neutralization of strong acids and other special processes.*

Physical Chemical Properties

Polymer Structure:	Macroporous, acrylic-divinylbenzene
Functional Group	R-N-$(CH_3)_2$
Ionic Form as Shipped:	Free Base
Physical Form:	White, spherical beads
Screen Size Distribution:	16 to 40 mesh
+16 mesh (U.S. Std.)	Less than 2%
-40 mesh	Less than 2%
-50 mesh	Less than 1%
pH Range (operating):	0 to 9
Moisture Content:	57 to 62%
Solubility:	Insoluble
Shipping Weight:	44 lbs per cubic foot
Swelling:	20% maximum
Total Capacity:	2.75 eq/l minimum
Sphericity:	95% minimum

Recommended Operating Conditions

Maximum Temperature (H Form):	105°F (40°C)
Bed Depth:	30” minimum
Service Flow Rate:	2 to 4 US GPM per cubic foot
Backwash Flow Rate:	50 to 75% bed expansion
Regenerant Strength*:	2 to 4% NaOH
Regenerant Flow Rate:	0.5 to 1.0 US GPM per cubic foot
Regenerant Contact Time:	30 minutes minimum
Regenerant Dosage Level:	3 to 6 lbs NaOH per cubic foot
Displacement Rinse:	0.5 to 1.0 US GPM per cubic foot
Displacement 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

**CAUTION: Do not mix ion exchange resins 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.*

WB-2 Features

Organic Fouling Resistance and High Capacity

Aldex WB-2 tertiary amine functionality plus its macroporous structure provides near stoichiometric regeneration efficiency and the ability to reversibly sorb naturally occurring organic substances that eventually foul all strongly basic resins. Aldex WB-2 can be used in multiple bed systems to protect strongly basic resins from fouling while decreasing regenerant consumption.

Very low color, taste or odor

Aldex WB-2 meets the requirements for paragraph 21CFR 173.25 of the Food Additive Regulation of the U.S. Food and Drug Administration.

Superior Physical Stability

95% plus sphericity and high crush strengths together with a very uniform particle size provide greater resistance to bead breakage while maintaining low pressure drop.

Potable Water Applications

The resin must be properly pre-treated, usually by multiple exhaustion and regeneration cycles, to ensure compliance with extractable levels.

Safety Information

A material safety data sheet is available for Aldex WB-2. Copies can be obtained from Aldex Chemical Co., LTD. Aldex WB-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

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

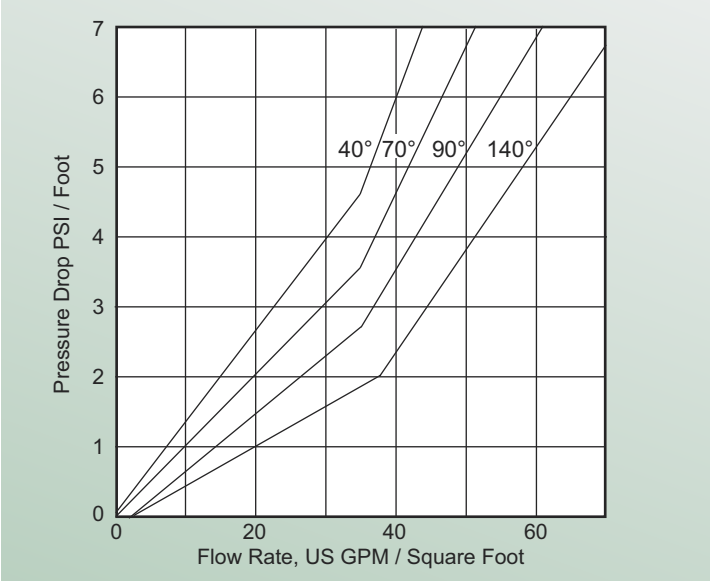

Fig. 1 Pressure Drop vs Flow Rate at various degrees Fahrenheit (F°)

Operating Capacity

The exchange capacity of Aldex WB-2 is unaltered by changes in the composition of the influent water. A minimum capacity of 28 kilograms (as $CaCO_3$) per cubic foot may be expected with 3.0 lbs of sodium hydroxide per cubic foot.

Backwash Characteristics

Aldex WB-2 is supplied in the free base form which has the lowest density. When the resin is in the free base form, its expansion is greater than when it is exhausted and has a greater density. Always take care to backwash the resin so as to not lose resin while expanding the bed a minimum of 50% during backwash.

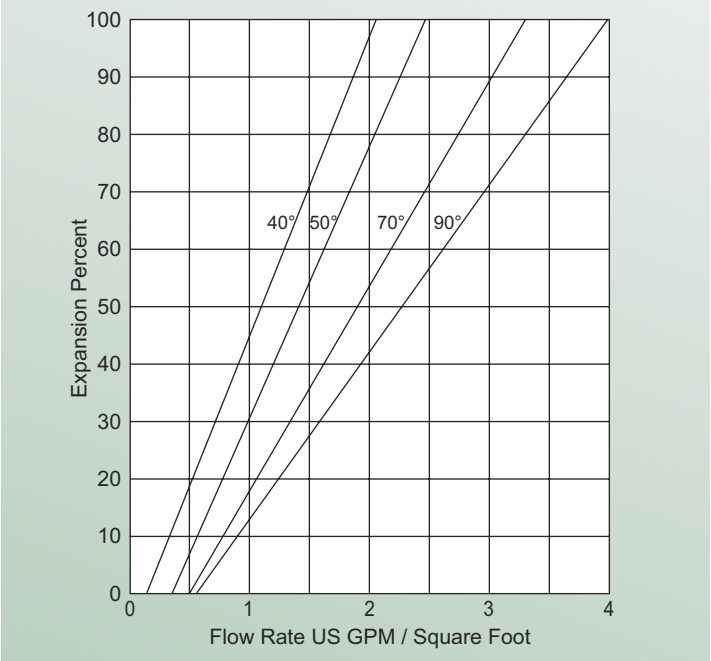

Fig. 2 Expansion vs Flow Rate at various degrees Fahrenheit (F°)

Applications

Demineralization

Aldex WB-2 is generally intended to be used in multiple bed systems with high levels of strong acid ions such as sulfates and chlorides where its tremendous regeneration efficiency is best utilized.

Aldex WB-2 has the ability to reversibly sorb organic molecules like the naturally occurring humic and fulvic acids that are primarily responsible for organic fouling. It can be used as a separate bed, ahead of the strong base exchanger to remove organics and strong acid ions. When used in this scheme Aldex WB-2 protects the strongly basic exchanger from becoming fouled.

Aldex Chemical Company, Ltd. • 630 Laurent Street • Granby QC Canada J2G 8V1
450 372 8844 • Fax 450 372 2566 • info@aldexchemical.com

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