

## Aldex Weak Acid Cation Series

# WAC MP Macroporous Weak Acid Cation Resin

Aldex WAC MP is a **premium grade, weakly acidic, macroporous, acrylic-based cation exchange resin** supplied in the hydrogen form. This resin utilizes a **narrow particle size distribution** making it ideally suited for packed beds, layered beds and other counter-current systems. The **high total exchange capacity, excellent mechanical and chemical stability, and high resistance to osmotic shock** make this the resin of choice for dealkalization and chemical processing applications. Increased regeneration efficiency can be achieved when Aldex WAC MP is used in conjunction with Aldex C-800H in demineralization systems, either as a layered bed or preceding the strong acid cation vessel.

## Physical Chemical Properties

Polymer Structure:	Acrylic / divinylbenzene copolymer
Functional Group:	R-(COOH) <sup>-</sup>
Ionic Form as Shipped:	Hydrogen
Physical Form:	Tough, spherical beads
Screen Size Distribution:	16 to 40 mesh
+16 mesh	Less than 5%
-40 mesh	Less than 2%
Operating pH Range:	5 to 14
Moisture Content:	45 to 51%
Solubility:	Insoluble
Shipping Weight:	47 lbs per cubic foot
Swelling H <sup>+</sup> to Na <sup>+</sup> :	60% maximum
Total Capacity:	4.4 eq/l minimum
Sphericity:	90+%

## Recommended Operating Conditions

Maximum Temperature:	165°F (75°C)
Bed Depth:	30" minimum
Service Flow Rate:	2 to 5 US GPM per cubic foot
Backwash Flow Rate:	50 to 75% bed expansion
Regenerant Strength*:	
Hydrochloric acid	3 to 6%
Sulfuric acid	0.5 to 0.8%
Regenerant Flow Rate:	0.3 to 0.75 US GPM per cubic foot
Regenerant Contact Time:	30 minutes minimum
Regenerant Dosage Level:	Depends on alkalinity
Displacement Rinse:	0.3 to 0.75 US GPM per cubic foot
Displacement Rinse Volume:	10 to 15 Gallons per cubic foot
Fast Rinse Rate:	2 to 5 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.

## WAC MP Features

### Carboxylic Functional Groups

Give extremely high regeneration efficiencies and high operating capacities.

### Uniform Particle Size

95% of all beads are in the minus 16 to plus 40 mesh range; giving a lower pressure drop while maintaining the superior kinetics of standard mesh size products.

### Superior Physical Stability

90% plus sphericity and high crush strengths together with a very uniform particle size provide greater resistance to bead breakage while maintaining low pressure drop.

### Low Swelling

Less than 60% on complete exhaustion to the sodium form.

## Safety Information

A material safety data sheet is available for Aldex WAC MP. Copies can be obtained from Aldex Chemical Co., LTD. Aldex WAC MP 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.

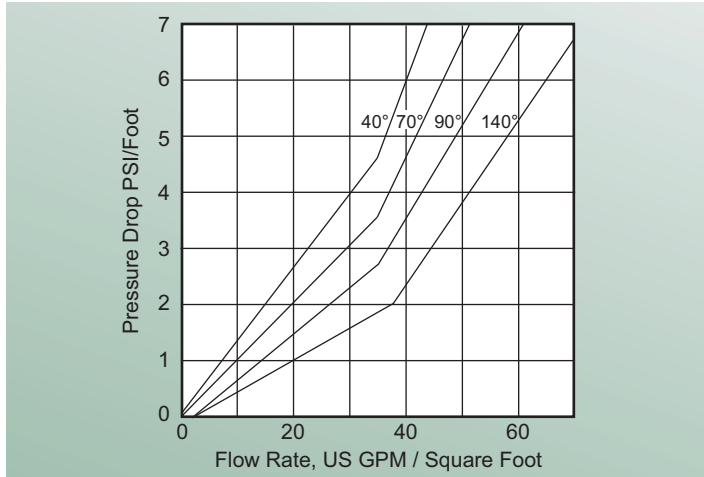


Fig. 1 Pressure Drop vs Flow Rate at various degrees Fahrenheit (F°)

## 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.)

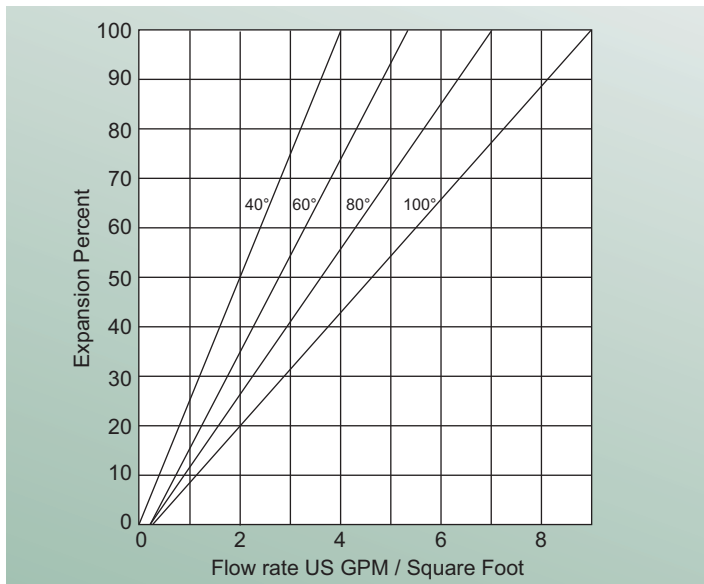


Fig. 2 Expansion vs Flow Rate at various degrees Fahrenheit (F°)

## Applications

### Demineralization

Aldex WAC MP can be used to remove cations associated with alkalinity in multiple bed demineralizers.

### Softening

In certain applications, Aldex WAC MP can be operated as softener in sodium cycle. This requires a two stage regeneration using a strong acid first stage to remove multivalent ions from the bed followed by a neutralization rinse with an alkali.

### Dealkalization

Bicarbonate alkalinity can be effectively removed using Aldex WAC MP in the hydrogen form.

## Operating Capacity

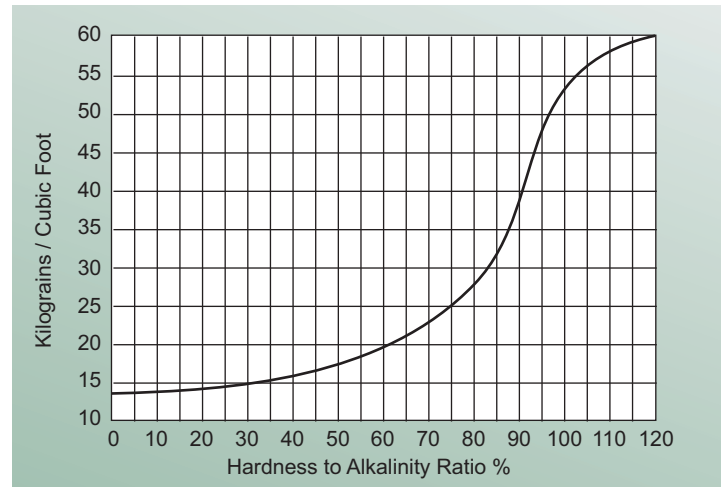


Fig. 3

