Aldex CR Series

CR 26 Iron, Manganese, Hydrogen Sulfide and Arsenic Removal Media

NSF/ANSI/CAN 61 Certified. *Aldex CR 26 is a* ***special media designed to provide excellent catalytic properties required for removal of many contaminants from potable and non-potable aqueous streams****. Aldex CR 26 is an insoluble media that oxidizes species in solution including hydrogen sulfide, iron and manganese. Metal-oxide nano-particles are precipitated within the resin bed where they form very strong chemical bonds with arsenite (As III) and arsenate (As V). This allows Aldex CR 26 to thoroughly and effectively remove arsenic along with Fe, Mn and H_2S.*

Physical Chemical Properties

Physical Form:	Black, moist spherical beads
Moisture Content:	46 to 52%
Net Weight (as shipped):	800 kgs/m3, approximately
Particle size:	0.3 to 1.2 mm
>1.2 mm %	5.0 maximum
<0.3 mm %	1.0 maximum
Effective Size:	0.50 to 0.60 mm
Uniformity Coefficient:	1.7 maximum

Recommended Operating Conditions

Influent pH:	6.0 to 9.0
Dissolved oxygen:	2 mg/l or 15% greater than Iron (Fe) content
Freeboard:	30% to 50%
Free chlorine:	0.5 to 1.0 mg/l
Organic matter:	Less than 1.0 ppm
Total dissolved solids:	2500 ppm maximum
Total suspended solids:	<1 ppm

Packing

Aldex CR 26 is supplied in 1 cubic foot poly bags.

Storage

Aldex resins require proper care at all times. The resins must never be allowed to dry. Recommended storage temperature is between 65°F to 110°F.

Safety Information

A material safety data sheet is available for Aldex CR 26. Copies can be obtained from Aldex Chemical Co., LTD. Aldex CR 26 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.

CR 26 Features

Chemical Free Regeneration

Aldex CR 26 does not require chemicals such as chlorine dioxide, potassium permanganate, chlorine or sodium chloride brine solution for regeneration. The oxidative chemical locked inside Aldex CR 26 beads is regenerated via the dissolved oxygen in the backwash water.

Potable and Non-Potable Water Applications

Aldex CR 26 requires less contact time and is like standard softening resins in bulk density and handling making it an ideal choice for point-of-entry (POE) systems. Aldex CR 26 can be backwashed at lower flow rates to achieve ideal bed expansion needed to remove metal-oxide precipitates generated during the service cycle. Aldex CR 26 is easy to handle versus other oxidative media and many naturally occurring zeolites.

Multiple Contaminant Removal

Aldex CR 26 was initially designed for the selective removal of iron and manganese but testing has shown the product to be ideal for multi-contaminant removal. See page 3 of this bulletin for a summary of various tests performed to date.

Expected Service Life

Due to the unique nature of Aldex CR 26 and its function as an oxidizing agent encapsulated within an ion exchange bead, a long service life of 7 to 10 years is expected.

Tested and Certified by WQA according to NSF/ANSI/CAN 61 for materials safety only. For use restrictions, please visit www.wqa.org.

Since 1976

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Operating Suggestions (POE Systems)

8 to 10 ppm feed iron

Bed depth:	30"
Maximum flow rate:	2.0 US GPM per cubic foot resin
Backwash velocity:	5.0 to 6.0 US GPM per square foot resin at 50°F*
Backwash time:	10 to 15 minutes
Bed expansion*:	50 to 60%
Backwash frequency:	Daily

5 to 7 ppm feed iron

Bed depth:	30"
Maximum flow rate:	2.5 US GPM per cubic foot resin
Backwash velocity:	5.0 to 6.0 US GPM per square foot resin at 50°F*
Backwash time:	10 to 15 minutes
Bed expansion*:	50 to 60%
Backwash frequency:	Daily

1 to 5 ppm feed iron

Bed depth:	30"
Maximum flow rate:	4.0 US GPM per cubic foot resin
Backwash velocity:	5.0 to 6.0 US GPM per square foot resin at 50°F*
Backwash time:	10 to 15 minutes
Bed expansion*:	50 to 60%
Backwash frequency:	Daily

** Bed expansion needs to lift the CR 26 bed to top of the vessel.*

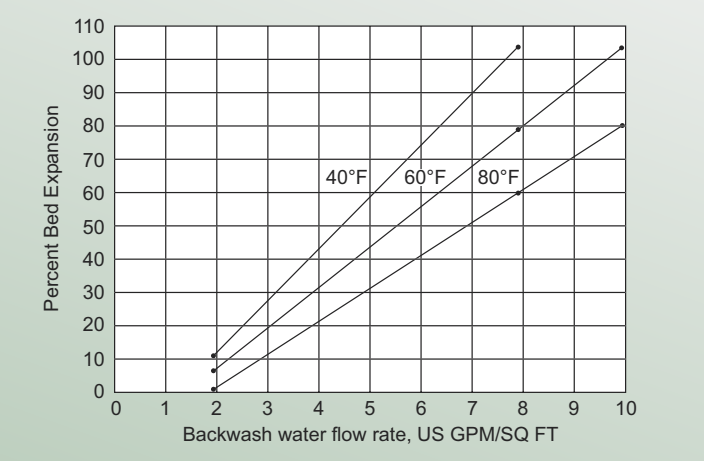

***Fig. 1** Bed expansion vs. backwash flow rate for various water temperatures

Vessel Specifications (POE Systems)

Vessel	Surface area (ft.2)	Min. Volume (CF)	Bed Depth (inches)	Backwash Expansion (%)	Backwash Flowrate (gpm)	Backwash Flowrate (gpm/ft.2)
10x54	0.546	1.5	33	55	2.9	5.3
12x48	0.785	2.0	31	50	3.9	5.0
12x52	0.785	2.0	31	60	4.4	5.6
13x54	0.923	2.5	33	55	5.1	5.5

Table 1 Calculations in the above table are based on using 50° water temperature and the Fig 1 graph above.

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CR 26 General Guidelines

1. The media can treat water having an iron content above 10 ppm, but the process is not economical particularly for large flow rates. Hence it is recommended to remove iron by pretreating the water by aeration, followed by clarification and filtration. Aldex CR 26 shall then be used as a polishing media.
2. A small amount of chlorine between 0.5 -1.0 mg/l is acceptable. Above 1.0 mg/l should be removed before passing water through the media.
3. The treated water from Aldex CR 26 will have an iron content of <0.1 ppm.
4. Aldex CR 26 removes dissolved iron from water, which is present as ferrous iron.* Iron can also exist in other forms such as bacterial iron, soluble organic iron and colloidal iron. Those forms of iron cannot be removed effectively by Aldex CR 26.

   *The removal of iron was not evaluated in the WQA certification.
5. All sequestering agents including polyphosphates and meta-phosphates should be added after the Aldex CR 26 unit.
6. For high iron content in feed water (> 10 ppm), it is recommended to backwash the unit with treated water, so as to avoid contamination of bottom portion of the bed.
7. The unit must be backwashed at specified flow rate for effective removal of precipitated iron and suspended solids.
8. The backwash frequency shall be every 24 to 48 hours for continuous operating unit. If the unit is operated intermittently, backwash at the end of each cycle.

Multi-Contaminant Removal – Lab data

Test 1:

- City water spiked - 10 ppm each of Fe, Mn, H2S, As III and As V.
- CR 26 column operated, effluent samples taken after several bed volumes.
- Third party testing found Fe, Mn, H2S all non-detect; As in effluent was 29 ppb.

Test 2

- City water spiked - 10 ppm each of Fe, Mn, H2S and 100 ppb As III and As V.
- CR 26 column operated, effluent samples taken after several bed volumes.
- Third party testing found Fe, Mn, H2S and As all non-detect.

Test 3

- City water spiked - 1 ppm each of Fe, Mn, H2S and 100 ppb As III and As V.
- CR 26 column operated, effluent samples taken after several bed volumes.
- Third party testing found Fe, Mn, H2S and as all non-detect.

Test 4

- City water spiked – 0.5 ppm each of Fe, Mn, H2S and 100 ppb As III and As V.
- CR 26 column operated, effluent samples taken after several bed volumes.
- Third party testing found Fe, Mn, H2S and As all non-detect.

Pilot plants

Aldex is actively seeking OEM's willing to install 1 cubic foot test units so we may more accurately measure performance at many installations throughout North America. If you have "problem water" and believe Aldex CR 26 may be able to address and resolve those issues, contact us at info@aldexchemical.com and we'll discuss the details of your test site.

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