

# POINT-OF-ENTRY / RESIDENTIAL SOLUTIONS

## Adsorption Media – Arsenic Reduction

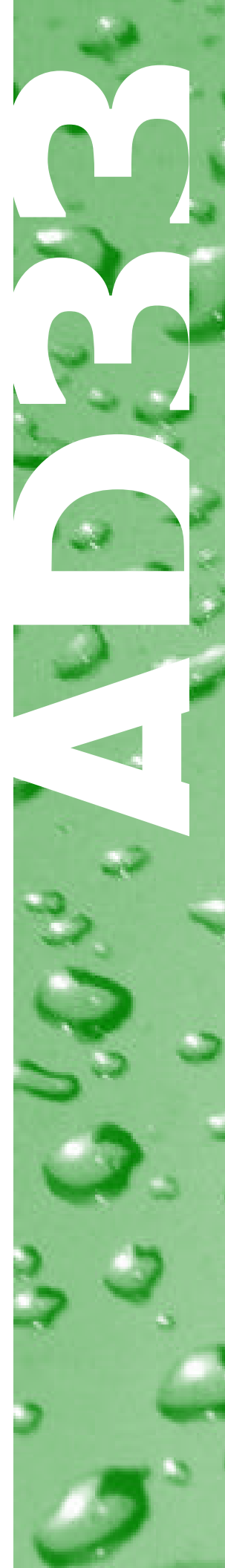
Adedge Technologies' AD33 media is the industry standard for arsenic reduction that reduces up to 99% of total arsenic, including both arsenic (III) and arsenic (V). It is also effective in reducing other heavy metals such as lead, cadmium, chromium, antimony and molybdenum. This revolutionary new iron-based granular adsorption media has 4 to 10 times the capacity of many adsorption medias. Adedge's product is specifically designed for commercial and residential POE and small systems to meet the new EPA arsenic standard of 10 ppb. Developed in the mid-nineties, this ferric oxide-based product has been successfully used in large-scale drinking water applications since 1999. The new AD33 media is discardable when spent and requires no chemicals or regeneration. It has become the premier product of choice for POE whole-house drinking water treatment systems for reliable, cost-effective, proven reduction of arsenic.

<ul style="list-style-type: none"> <li>✍ Removal of up to 99% of total Arsenic in water, including As (III) &amp; As (V) with no wasting of water.</li> </ul>	<ul style="list-style-type: none"> <li>✍ NSF 61 product listing (see AdEdge for listing site/product details)</li> <li>✍ Effective over broad water chemistry.</li> </ul>
<ul style="list-style-type: none"> <li>✍ Spent media discarded as non-hazardous household waste.</li> </ul>	<ul style="list-style-type: none"> <li>✍ Simple application for whole house POE applications for arsenic removal.</li> </ul>
<ul style="list-style-type: none"> <li>✍ Reliable performance, low maintenance</li> <li>✍ Adaptable add-on to water softening or other existing equipment.</li> </ul>	<ul style="list-style-type: none"> <li>✍ 2 - 2.5 times lighter than other iron-based media; easily backwashable; arsenic not released or discharged in backwash water.</li> </ul>
<ul style="list-style-type: none"> <li>✍ Effective for reducing lead, chromium, cadmium, molybdenum and antimony.</li> </ul>	<ul style="list-style-type: none"> <li>✍ Imparts no harmful chemicals into the treated product water.</li> <li>✍ No salt, chemicals or regeneration needed</li> </ul>

### TECHNICAL SPECIFICATIONS

AD33 provides cost effective centralized arsenic treatment with a typical life of 2-3+years before replacement. The media exhibits high operating capacity across a wide range of pH, influent arsenic concentrations and flow rates. It is simple to apply in standard POE vessels with typical flow rates of 2-10 gallons per minute. Once the media is exhausted, AD33 can be discarded as a non-hazardous waste (specific state requirements should be consulted). Media is easy to handle and can be stored and shipped dry.

Physical Properties	AD33 Media
Matrix	Iron Oxide Composite
Physical Form	Dry granular media
Color	Amber
Particle Size Distribution	10x35 mesh
Moisture Content	< 15% by wt.
Packaged	Dry



<b>Arsenic Removal Performance (POE)</b>	
Arsenic concentration range <sup>1,2</sup>	10 – 100+ ppb
Arsenic species reduced	As (III) and As (V)
Removal efficiency	Up to 99%
Estimated media life	2 to 3+ years
Expected life bed volumes <sup>3</sup>	15,000 to 125,000
Spent media disposal <sup>4</sup>	Non-hazardous waste
Empty bed contact time	3 minutes typical

**Notes:**

1. Typical arsenic contamination in U.S. < 50 ppb.
2. Capable of removing higher As concentrations. Consult AdEdge for applications above 100 ppb.
3. Actual bed volumes based on water quality.
4. Reference US EPA TCLP protocol

<b>Parameter</b>	<b>Value <sup>1</sup></b>
pH range <sup>2</sup>	5.5 - 8.5
Arsenic <sup>3</sup>	< 100 ug/L
Iron	< 0.3 mg/L
Manganese	< 0.05 mg/L
Phosphate	< 0.5 mg/L
Silica	< 30 mg/L
Sulfate	< 100 mg/L
Sulfides	< detect mg/L
TSS	< 5 mg/L
Fluoride	< 1 mg/L
Hardness	< 300 mg/L
Turbidity	5 NTU

**WATER QUALITY CRITERIA**

**Notes:**

1. Recommendations for best performance.
2. Water > 8.5 pH may require pH adjustment for best results. Contact Adedge for technical support.
3. For all applications, complete Adedge POE profile sheet to pre-qualify site for proper use; consult Adedge Authorized dealer or distributor for details
4. Pretreat for tannins if present prior to adsorption



Use of AD33 media in typical point-of-entry system installation. Picture courtesy of Aquamech, Inc.

**RESIDENTIAL SIZING PARAMETERS**

<b>System Design Parameters</b>	<b>5 GPM dual tank</b>	<b>5 GPM single tank</b>	<b>10 GPM single tank</b>
Typical Tank size (inches)	10 x 42	12 x 52	14 x 65
Media Volume (cubic feet)	(2) 1-ft <sup>3</sup> ea	2 ft <sup>3</sup>	4 ft <sup>3</sup>
Operation mode	2 in series	Single tank	Single tank
Media Type	AD33S	AD33S	AD33S
Underbedding	gravel	gravel	gravel
Typical Freeboard (%)	40	40	40
Backwash flow rate (gpm/ft <sup>2</sup> )	5	5	5
Backwash cycles (per month)	2x	2x	2x
Est. gallons per day <sup>3</sup>	300	300	500
Est. gallons to breakthrough <sup>2</sup>	374,000	374,000	561,000
Estimated time to media changeout <sup>1</sup>	2-3+ years	2-3+ years	2-3+ years
Max flow rate (gpm)	5	6	10

**Notes:**

1. Media life based on gallon usage and water profile (Above is example only; example assumes 40 ppb arsenic, 25,000 bed volumes); will vary by individual site based on water quality and usage
2. Adedge recommends effluent testing and monitoring program to determine media breakthrough.
3. Average gallons per day will be site and usage specific.



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