ATOMUS® BY Applied CARTRIDGE SYSTEMS

ATOMUS® F11 AND Z21 MEDIA

APPLIED CARTRIDGE SYSTEMS® by Applied Process Equipment are the next level of water treatment for small to medium scale commercial water systems. All systems are NSF 61 certified. Installation is fast and maintenance is exceptionally simple. They feature the **ATOMUS®** F11 and Z21 binary mixed metal adsorption filtration medias for the removal of ARSENIC from potable water. They have been engineered and proven to provide maximum removal capacity and improved stability against pH upset to prevent possible desorption of bound arsenic both during operation and in landfill conditions. This ensures successful evaluation against USEPA TCLP^ and California WET Tests with our unparalleled, non-leachable arsenic bond.

ATOMUS F11 and Z21 media are NSF International certified to NSF/ANSI Standard 61 and are more resistant to interference from silica, phosphorus and vanadium than other arsenic removal medias on the market today. Both filtration medias are designed for use in point-of-entry (POE) applications to meet or exceed EPA reduction requirements for arsenic in water systems.

ATOMUS® F11 is the powder version of the media used in cartridges specifically formulated for the removal of arsenic from drinking water. Powder has more surface area than granular medias, which gives it the ability to address arsenic in a water stream in less than 30 seconds (versus 3 to 5 minutes with traditional granular media). Rapid kinetics is precisely what makes our unique, non-backwashing ATOMUS F11 technology possible.

ATOMUS® Z21 is the backwashable granular version of the media used in bulk media pressure vessels in residential, commercial and light commercial applications. With large, solid, high surface area granules, ATOMUS Z21 media has demonstrated twice the arsenic loading capacity, longer life and shorter reaction time (EBCT) than other arsenic removal medias.

FEATURES

- Effective at removing ARSENIC III and V, as well as reducing phosphate, silica, chromium, lead, vanadium and other heavy metals
- Unparalleled non-leachable ARSENIC bond
- Removes ARSENIC III and V simultaneously
- NSF 61 certified for drinking water use
- Non-toxic—media passed USEPA TCLP^ and California WET Tests
- No chemicals or regeneration needed
- Superior surface area; > 99% of contaminant removal within internal area of media

BENEFITS

- Imparts no odor, taste or color to water
- No backwashing required while using ATOMUS F11 cartridges
- pH range greater than any other arsenic adsorption media (5.5–9.5)
- Less of an impact made by interference from competing ions like silica, phosphorus or vanadium

TECHNICAL SPECIFICATIONS

- **Physical form:** Dry granular media
- **EBCT:** 30 seconds–3 minutes
- **pH range:** 5.5–9.5
- **Surface loading rate:** Up to 7 gpm/ft²
- **Backwash rate for ATOMUS Z21:** 7–10 gpm/ft²
- **Mesh size:** 0.2–2.0 mm (10 x 70 mesh)
- **Specific gravity:** ~ 0.8 g/cm³ (~ 50 lbs/ft³)
- **Spec. Surface area:** > 250 m²/g
- **Total adsorptive capacity:** > 50 g/kg
- **Surface area:** > 250 m²/g

APPLICATIONS

- Residential
- Light commercial
- Industrial water treatment
- Small systems

APPLIED PROCESS EQUIPMENT, INC.

ATOMUS F11 AND Z21: WHICH ONE IS RIGHT FOR YOU?

	ATOMUS® +F11	ATOMUS® +Z21
System Type	Powdered media in cartridges	Granular bulk media in pressure vessels
Media Type	Patented binary mixed metal adsorption media	Patented binary mixed metal adsorption media
Water System GPM	5 to 500	50 to 2,000
pH Range	5.5–9.5	5.5–9.5
Minimum Empty Bed Contact Time (EBCT)	30 seconds	2.5 to 3 minutes
Backwashing	None	Monthly
Cost Per Gallon Treated	Low	Low
Contaminant Removal	Arsenic III and V, plus reduction of phosphates, silica, chromium, lead, vanadium and more	Arsenic III and V, plus reduction of phosphates, silica, chromium, lead, vanadium and more
Pressure Drop	Less than 10 psi	Less than 10 psi
Pre/Post-Filtration	1 micron	50 micron
Media Disposal	Landfill^	Landfill^
Additional Considerations	Exclusively available for use in Applied Cartridge Systems	Use with bulk media pressure vessels
Certifications	NSF/ANSI Standard 53 and 61 certified for the removal of both Arsenic III and V in Applied Cartridge Systems	NSF/ANSI 61

WATER QUALITY OPTIMUM WORKING CONDITIONS*

ATOMUS® F11 and Z21 outperform competitive medias when one or more of the ideal water characteristics are exceeded.

pH: 5.5–9.5	**Silica:** < 35 mg/L	**Fluoride:** < 1 mg/L
Total arsenic: 0.010–0.100 mg/L	**Total suspended solids:** < 5 mg/L	**Turbidity:** 5 NTU
Iron: < 0.3 mg/L	**Sulphate:** < 100 mg/L	**Hardness:** < 300 mg/L
Manganese: < 0.05 mg/L	**Sulfides:** < detect mg/L	
Phosphate: < 0.55 mg/L	**Vanadium:** < 0.05 mg/L	

A ratio of 1:3 silica vs total hardness will maintain silica in solution and optimize performance.

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**Note: Water with pH > 9 may require pH adjustment for best performance. Economical treatment can still be achieved if ideal range is exceeded. Particularly for increased levels of silica and phosphate, arsenic removal media will often provide the most economical treatment when compared to other adsorptive arsenic removal medias.*

^USEPA TCLP tested as non-hazardous waste safe for landfill, but due to variances in influent water quality, users are urged to perform independent verification of the non-hazardous character of spent media cartridges. Additionally, some states may have disposal criteria different from federal guidelines (TCLP). Notice: Information is believed to be reliable and is offered in good faith with no warranties or implied warranties or fitness for a particular use. Customer is responsible for determining whether use conditions and information in this document are appropriate for specific applications and for ensuring compliance with applicable laws and regulations.