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Summary Table of Arsenic Water Treatment System Provider Information

All information provided by the vendors.

Company	**Alcan Alumina Specialties**	**Artesian of Pioneer**	**Filtronics**	**Hungerford & Terry, Inc.**	**Pureflow Filtration Systems**	**Sunshine Water Conditioners**	**TONKA Equipment Company**	**TONKA Equipment Company**
System	Activated alumina AA-400G and promoted activated alumina, Actiguard AAFS50	Artesian Filter King, Artesian Pressure Filter Systems	Electromedia I Electromedia V	Ferrosand Filtration	Pureflow PM-100	ADI Media G2	AsTEC Licensee of ADI Media G2	Co-Precipitation
Availability	Available now.	Available now.	Available now.	Available now.	Available now.	Available now.	Available now.	Available now.
Contact info	Jon Mogan (jon.mogan@alcan.com); Alcan Specialty Aluminas, 4000 Development Drive, PO Box 250, Brockville Ontario Canada, K6V 5V5 613-342-7462	Artesian of Pioneer 50 Industrial Drive Pioneer, Ohio 43554 800-547-2453 sales@kidstoncom.com www.kidstoncom.com Edward A. Kidston President	Filtronics, Inc.3726 Miraloma Ave. Anaheim, CZ 92806 714-630-5040; Fax 714-630-1160 Bill Hoyer whoyer@filtronics.com http://www.filtronics.com/	Hungerford & Terry, Inc., Frank Caligiuri, 226 Atlantic Avenue, Clayton, NJ 08312, 856-881-3200 for local rep. http://www.hungerfordterry.com/	Pureflow Filtration Div, 6739 S. Washington Ave., P.O. Box 469, Whittier, CA 90608 800-926-3426, Fax:562-693-5257; pureflow@pfdiv.com	Mike Fleeter, Sunshine Water Conditioners, 1014 N. Bridge St., Linden, MI, 48451; 800-708-7873; mcintwater@aol.com www.sunshinewatertreatment.com	Richard P. Mann Vice President Sales Tonka Equipment Co. 13305 Watertower Circle Plymouth, MN 55441 763-252-0064, http://www.tonkawater.com/	Richard P. Mann Vice President Sales Tonka Equipment Co. 13305 Watertower Circle Plymouth, MN 55441 763-252-0064, http://www.tonkawater.com/
Service area	Contact equipment suppliers	Systems can be leased and or purchased throughout the U.S. and Canada. Focus on MI, IN, OH.		National		No geographical boundaries. Some distant sales include Australia, Canada, Mexico, California, Wisconsin, and Florida.	Supply equipment nationally	Supply equipment nationally

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Technology	Adsorption by activated alumina and iron promoted activated alumina.	Specifically designed media used to enhance oxidation and filtration of Arsenic among other contaminants.	Coagulation and high rate filtration	Filtration system based upon co-precipitation of arsenic with iron.	Adsorption onto an iron precipitate The media filter adsorbs the iron and arsenic.	Iron oxide-based adsorptive media.	Adsorptive media; NSF listed media and CAETV verified.	Standard filter system modified slightly to maximize arsenic removal.
Treatable level	~97% removal: 300 ppb influent treated to 10 ppb effluent.	No upper limit. Systems are installed on waters up to 32 PPB and removing down to less than 3 PPB.	Systems operations in the 60 ug/1 range reducing to 5 ug/1 or less.	Just about any reasonable amount of arsenic can be removed using a filtration process.			Over 100ppb with results below 5ppb to non-detect.	
Capacity		10 to 3,500 GPM.	20 gpm to 15 MGD		20 to 10,000 GPM.		100 GMP and up.	
Media disposal	Spent medias have passed US-EPA TCLP and Ca-WET, landfill disposal.	Replacement every 20+ yrs. Non- hazardous waste.	Filters are backwashed and the residuals can go to a sanitary sewer or a reclaim system	Non-toxic waste.		Passes TCLP as a non-hazardous waste. Media life is 3 months to multiple years depending on water chemistry.	Passes TCLP as a non-hazardous waste. Media life is 3 months to multiple years depending on water chemistry.	Media life of 10-20 years before disposal of media. Backwash is a non hazardous waste per EPA.
System cost (approximate)	Difficult to provide general numbers due to differences in site water chemistry.	Quotations provided within 5 business days.	Need more specific water quality information to estimate an equipment cost. Generally for a 200 gpm system, it might run $140,000.	(2) 72" diameter (50% capacity each) filters $70,000 to $130,000 depending on the scope of equipment, quality of materials, and automation.		$120,000 for equipment, engineering and start-up.	Equipment for a 200gpm manual system is $190,000 (not including pipe fit-up, building, installation, and wiring).	Typical cost fully automated $140,000.
Operating cost	Difficult to provide general numbers due to differences in site water chemistry.	Low skill operator is sufficient. Can be automatic with part-time supervision and occasional testing. Cost depends upon design and water: $2,000 to $50,000 annually.	Unable to estimate chemical cost without specific water quality information. Plants are automated. Labor is about 2 hours a week.	2-2.5% equipment cost per year plus $700 per year for chemicals.		$0.16 to $0.20 per 1000 gal.	$0.25-$1.00 per 1,000 gal treated. Typical operator time would be 1 hr per day plus 2 hrs every two weeks to backwash the filters.	$0.07-$0.15 per 1,000 gal treated. Backwashes daily to weekly depending on water chemistry..

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Lead time	Contact equipment suppliers.	6 weeks to 6 months.	About 3 months.	2-8 weeks design plus 12 to 24 weeks prod.			20 weeks.	20 weeks.
Track record	Used in AWWA-NSF ETV study for small systems (MHP). Used in EPA demonstration site round 1, upcoming EPA demonstration site round 2. Numerous pilots and other small systems throughout North America. 100's of small installations in Bangladesh.	Hundreds of systems installed in OH, IN and MI.	Have been in the arsenic removal business for over 30 years with systems in operation for extended periods.	In business since 1909. Among the few firms internationally with adequate QC standards to supply water treatment systems for nuclear applications. See reference list.		First Media G2 plant opened in 1997. Now 12 in operation worldwide.	Longest track record in the USA for this type of technology with over 6 years operating on line at a facility in MI.	Have had systems treating for arsenic for over 10 years. Widely accepted standard operating design. Multiple sites in operation and multiple pilots completed with multiple jobs in design.
Site factors	Some common water ions interfere with arsenic adsorption due to co-adsorption. These include OH (therefore pH), SiO2, PO4, F, SO4.			The filtration process lends itself to a pH range between 6.2 and 8.5.		Media G2 arsenic filtration systems work well in the pH range of 5.5 to 7.5. Unlike other adsorbents, it is not affected by concentrations of sulfate, chloride, iron or silica.		
Other	Alcan is a manufacturer of media only. Alcan has partnered with two system suppliers: Kinetico Inc and the Calgon Carbon Corp.	Also removes iron, manganese and hydrogen sulfide. Can pilot test any type of water quality.		Removes soluble iron, manganese, hydrogen sulfide, arsenic, and radium.	Deductible pilot program.			If well water has iron levels that are 20:1 ratio to arsenic then may not need ferric chloride addition.
Notes	See detailed response.	See detailed response.		See detailed response and brochure.	See detailed response and bulletins.		See detailed response and brochure.	See detailed response.