

K5 DRINKING WATER STATION

Performance Data Sheet



IMPORTANT

- Installation of this product must comply with all applicable laws.
- Provisions for an antisiphon air gap should be part of the installation to prevent a cross connection between the water system and the waste system.
- Do not use on water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system. Systems certified for cyst reduction may be used on disinfected water that may contain filterable cysts.
- Do not use on water that contains more than 0.1 ppm iron, more than 10 gpg hardness, more than 3000 ppm TDS or falls outside the pH range of 3 to 11.
- Do not use systems with sediment prefilters on water that contains chlorine.
- If a noticeable change in product water production, taste or odor occurs, contact your authorized Kinetico dealer.
- If you purchased your system specifically for nitrate reduction, Kinetico recommends periodic (quarterly) testing to assure that nitrate/nitrites are being reduced to acceptable levels.
- This system shall only be used for arsenic reduction on chlorinated water supplies containing detectable residual free chlorine at the system inlet.



Tested and certified by WQA against NSF/ANSI Standards 42, 53, 58, and 372 for the reduction of claims specified on the Performance Data Sheet. Conforms to CSA Standard B483.1 - Drinking Water Treatment Systems and NSF Protocol P231 - Microbiological Water Purifiers (refer to the Performance Data Sheet for individual contaminants and reduction performance).

Do not use with water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system. Systems certified for cyst reduction may be used on disinfected water that may contain filterable cysts.

This system is acceptable for treatment of influent concentrations of no more than 27 mg/L nitrate and 3 mg/L nitrite in combination measured as N and are certified for nitrate/nitrite reduction only for water supplies with a pressure of 344.74 kPa (50 psi) or greater.

WQA certified our product performance, and reviewed our manufacturing facility and procedures to assure product consistency and integrity. They also assure that our literature accurately reflects our product capabilities. The system and installation must comply with state/provincial and local laws and regulations.

Conforms to NSF Protocol P231. When used in conjunction with a 3 Gallon Standard Tank and Prefilter (Part Nos. 9309A or 9461A), the K5 Drinking Water Station equipped with a Purefecta Virus/Bacteria Guard (Part No. 12873B) meets the minimum requirements for health and sanitation characteristics of microbiological water purifiers.

Conforms to NSF/ANSI 58 for pentavalent arsenic reduction. See performance data sheet and Arsenic facts sheet section for an explanation of reduction performance. The following cartridges are not NSF or WQA Certified: Arsenic Guard, Perchlorate Guard, Chloramine Guard, and Mineral Plus.

This system has been tested for the treatment of water containing pentavalent arsenic (also known as As(V), As(+5), or arsenate) at concentrations of 0.30 mg/L or less. This system reduces pentavalent arsenic, but may not remove other forms of arsenic. This system is to be used on water supplies containing a detectable free chlorine residual at the system inlet or on water supplies that have been demonstrated to contain only pentavalent arsenic. Treatment with chloramine (combined chlorine) is not sufficient to ensure complete conversion of trivalent arsenic to pentavalent arsenic. Please see the Arsenic Facts section of the Performance Data Sheet for further information.

GENERAL SPECIFICATIONS

Minimum/Maximum Operating Temperature: 2°C-38°C (35.6°F - 100.4°F)

Minimum/Maximum Operating Pressure: 344.74-827.37 kPa (50/120 psi)

System Flow Rate: 1.89 Lpm (.5 gpm)

TDS Influent challenge concentration (mg/L): 750 +/- 40mg/L

TDS Maximum permissible product water concentration (mg/L): 187

MODEL SPECIFIC INFORMATION

Model Name: K5 Drinking Water Station with **3 Gallon Standard Tank**

Product Water Production Rate (Daily Production Rate): 90.47 Lpd (23.9 gpd)

Recovery Rating*: 34.6%

Efficiency Rating:** 16.3%

Model Name: K5 Drinking Water Station with **3 Gallon Water on Water Tank**

Product Water Production Rate (Daily Production Rate): 148.39 Lpd (39.2 gpd)

Recovery Rating*: 36.7%

Efficiency Rating:** 22.8%

* *Recovery Rating means the percentage of the influent water to the membrane portion of the system that is available to the user as reverse osmosis treated water when the system is operated without a storage tank or when the storage tank is by-passed.*

** *Efficiency Rating means the percentage of the influent water to the system that is available to the user as reverse osmosis treated water under operating conditions that approximate typical daily usage.*

PERFORMANCE AND MAINTENANCE

This reverse osmosis system contains a replaceable treatment component critical to the efficiency of the system. Replacement of the reverse osmosis component should be with one of identical specifications, as defined by the manufacturer, to ensure the same efficiency and contaminant reduction performance. This component is also critical for the effective reduction of total dissolved solids (TDS). Test the product water quarterly to verify that the system is performing satisfactorily. The flow from the faucet will shut off or slow to a trickle. This shut down prevents the effluent contaminant level from exceeding the EPA's maximum contaminant level under normal operating conditions. To restore service, replace both the prefilter and postfilter cartridges and any auxiliary cartridges that may be installed on your system. Annual replacement is recommended even if your system has not yet shut down. See chart below to select cartridges for your system. These cartridges are available through your local Kinetico dealer. You may opt to have the product water tested at this time to verify performance. For operation and maintenance information, consult the owner's manual. Installation instructions are available for review from your authorized Kinetico dealer.

WARRANTY COVERAGE

The Kinetico K5 Drinking Water Station carries a limited manufacturer's warranty. For complete details, see the actual warranty.

REPLACEMENT ELEMENTS

Element Name	Part No.	Element Position	Gallons	Comments
VOC Filter	12778	Auxiliary	500	Removes volatile organic compounds.
Purefecta® Virus/Bacteria Guard	12873B	Auxiliary	500	For use as a certified microbiological purifier, the system can only be used with an air charge tank. When used with the water on water tank, the system must be installed on microbiologically safe water.
Arsenic Guard®	11781A	Auxiliary	500	Works with the RO membrane to remove Arsenic III and Arsenic V. See the Arsenic facts section on page 4 of this document.
Perchlorate Guard	11682	Auxiliary	500	Removes perchlorate, a by-product of rocket fuel.
Chloramine Guard	13766	Auxiliary	500	Removes chloramine, a chemical used to treat approximately 1/3 of US municipal water sources.
Mineral Plus	13041	Auxiliary	500	Adds calcium and magnesium to your water.
RO membrane	12752B	RO Membrane	N/A	
Carbon/Sediment Prefilter	9461A	Prefilter	N/A	Chlorinated feed water - activated carbon
Sediment Prefilter	9309A	Prefilter	N/A	Non-chlorinated feed water - 5 micron sediment
Taste & Odor Postfilter	9306B	Postfilter	500	Activated carbon block

CONTAMINANT REDUCTION CAPABILITIES

IMPORTANT NOTICE! Read this performance data sheet and compare the capabilities of the K5 unit with your actual water treatment needs. Please note that the contaminants listed below are not necessarily in your water and that while testing was performed under standard laboratory conditions, actual performance may vary. It is recommended that before purchasing a water treatment unit, you have your water supply tested to determine your actual water treatment needs. This system has been tested for the reduction of the substances listed below. The concentration of the indicated substances in water entering the system was reduced to a concentration less than or equal to the permissible limit for water leaving the system, as specified in NSF/ANSI 42, NSF/ANSI 53, NSF/ANSI 58, and NSF Protocol P231. The charts below contain the following information based on the applicable standard:

- A list of substances that will be reduced by a Kinetico K5 Drinking Water Station
- The percent of reduction that can be expected
- Conditions under which the units were tested (pressure, pH and temperature)
- Influent and effluent levels of contaminated tested water
- The EPA's maximum contaminant level (MCL)

STANDARD NSF/ANSI 58 REDUCTION CLAIMS

Substance	Test Pressure (psi)	Average Influent Level (mg/L)	Average Effluent Level (mg/L)	Maximum Effluent Level	Average Percent Reduction	Influent Challenge Concentration mg/L	Maximum Permissible Product Water Concentration (mg/L)
Pentavalent Arsenic *	50	.3	.002	.005	99.2	0.30 ± 10%	.010
Barium	50	9.7	.02	.03	99.8	10.0 ± 10%	2.0
Hexavalent Chromium	50	.282	.0118	.118	95.8	0.30 ± 10%	.1
Trivalent Chromium	50	.281	.002	.004	99.3	0.30 ± 10%	.1
Cadmium	50	.027	.0006	.003	97.8	0.03 ± 10%	.005
Copper	50	3.202	.0294	.068	99.1	3.0 ± 10%	1.3
Fluoride	50	7.9	---	1.87	87.6	8.0 ± 10%	1.5
Radium 226/228	50	9.77 pCi/L	.02 pCi/L	.03	99.8	25pCi/L ± 10%	5pCi/L
Selenium	50	.102	.001	.003	98.9	0.10 ± 10%	.05
Lead	50	.141	.001	.003	99.3	0.15 ± 10%	.005
Turbidity	50	---	---	---	99	11 ± 1 NTU	.5 NTU
PFOA/PFOS	50	.001	.015 µg/L	---	99	0.0015 ± 10%	.00007
Nitrate/Nitrite	50	28.5	2.51	4.96	91.2	70 ± 10%	10

* See page 4 for additional arsenic treatment facts.

Substance	Test Pressure (psi)	Average Percent Reduction	Influent Challenge Concentration	Reduction Requirement
Cyst	50	99.99	minimum 50,000/mL	99.95%

STANDARD NSF/ANSI 42 REDUCTION CLAIMS

Substance	Average Influent concentration (mg/L)	Average Effluent concentration (mg/L)	Average Percent Reduction
Chlorine Taste and Odor	1.98 mg/L ±10%	.02 mg/L ±10%	99
Particulate, Class I particles ≥ 0.5 < 1 µm	at least 10,000 particles/mL	>/=85%	94.9

STANDARD NSF/ANSI 53 REDUCTION CLAIMS

Substance	Average Influent Level (µg/L)	Average Effluent Level (µg/L)	Average Percent Reduction	Maximum Effluent Level	Influent Challenge Concentration (mg/L)	Maximum Permissible Product Water Concentration (mg/L)
MTBE	16.2	1.06	93.5	3	.015 ± 20%	.005
VOC	321	2.19	99.3	12.9	---	---
Pentavalent Arsenic 6.5	296	0.5	99.8	0.5	---	---
Pentavalent Arsenic 8.5	310	1.2	99.6	5.21	---	---

Substance	Drinking Water Regulatory Level ¹ (MCL/MAC)	Influent Challenge Concentration ² mg/L	Chemical Reduction Percent	Maximum Permissible Product Water Concentration mg/L
alachlor	0.002	0.050	>98	0.001 ³
atrazine	0.003	0.100	>97	0.003 ³
benzene	0.005	0.081	>99	0.001 ³
carbofuran	0.04	0.190	>99	0.001 ³
carbon tetrachloride	0.005	0.078	98	0.0018 ⁴
chlorobenzene	0.1	0.077	>99	0.001 ³
chloropicrin	---	0.015	99	0.0002 ³
2,4-D	0.07	0.110	98	0.0017 ⁴
dibromochloropropane (DBCP)	0.0002	0.052	>99	0.00002 ³
o-dichlorobenzene	0.6	0.080	>99	0.001 ³
p-dichlorobenzene	0.075	0.040	>98	0.001 ³
1,2-dichloroethane	0.005	0.088	95 ⁵	0.0048 ⁵
1,1-dichloroethylene	0.007	0.083	>99	0.001 ³
cis-1,2-dichloroethylene	0.07	0.170	>99	0.0005 ³
trans-1,2-dichloroethylene	0.1	0.086	>99	0.001 ³
1,2-dichloropropane	0.005	0.080	>99	0.001 ³
cis-1,3-dichloropropylene	---	0.079	>99	0.001 ³
dinoseb	0.007	0.170	99	0.0002 ⁴
endrin	0.002	0.053	99	0.00059 ⁴
ethylbenzene	0.7	0.088	>99	0.001 ³
ethylene dibromide (EDB)	0.00005	0.044	>99	0.00002 ³
haloacetonitriles (HAN):				
bromochloroacetonitrile	---	0.022	98	0.0005 ³
dibromoacetonitrile	---	0.024	98	0.0006 ³
dichloroacetonitrile	---	0.0096	98	0.0002 ³
trichloroacetonitrile	---	0.015	98	0.0003 ³
haloketones (HK):				
1,1-dichloro-2-propanone	---	0.0072	99	0.0001 ³
1,1,1-trichloro-2-propanone	---	0.0082	96	0.0003 ³
heptachlor (H-34, Heptox)	0.0004	0.025	>99	0.00001
heptachlor epoxide	0.0002	0.0107 ⁶	98	0.0002 ⁶
hexachlorobutadiene	---	0.044	>98	0.001 ³
hexachlorocyclopentadiene	0.05	0.060	>99	0.000002 ³
lindane	0.0002	0.055	>99	0.00001 ³
methoxychlor	0.04	0.050	>99	0.0001 ³
pentachlorophenol	0.001	0.096	>99	0.001 ³
simazine	0.004	0.120	>97	0.004 ³
styrene	0.1	0.150	>99	0.0005 ³
1,1,2,2-tetrachloroethane	---	0.081	>99	0.001 ³
tetrachloroethylene	0.005	0.081	>99	0.001 ³
toluene	1	0.078	>99	0.001 ³
2,4,5-TP (silvex)	0.05	0.270	99	0.0016 ⁴
tribromoacetic acid	---	0.042	>98	0.001 ³
1,2,4-trichlorobenzene	0.07	0.160	>99	0.0005 ³
1,1,1-trichloroethane	0.2	0.084	95	0.0046 ⁴
1,1,2-trichloroethane	0.005	0.150	>99	0.0005 ³
trichloroethylene	0.005	0.180	>99	0.0010 ³
trihalomethanes (includes):				
chloroform (surrogate chemical)	0.080	0.300	95	0.015
bromoform				
bromodichloromethane				
chlorodibromomethane	10	0.070	>99	0.001 ³
xylenes (total)				

¹ These harmonized values were agreed upon by representatives of US EPA and Health Canada for the purpose of evaluating products to the requirements of this Standard.

² Influent challenge levels are average influent concentrations determined in surrogate qualification testing.

³ Maximum product water level was not observed but was set at the detection limit of the analysis.

⁴ Maximum product water level is set at a value determined in surrogate qualification testing.

⁵ Chemical reduction percent and maximum product water level calculated at chloroform 95% breakthrough point as determined in surrogate qualification testing.

⁶ The surrogate test results for heptachlor epoxide demonstrated a 98% reduction. These data were used to calculate an upper occurrence concentration that would produce a maximum product water level at the MCL.

NSF PROTOCOL P231 REDUCTION CLAIMS*

Prefilter	Reduction Type	Average Percent Reduction
9309A and 12873B	cyst	99.9
9309A and 12873B	virus	99.9
9309A and 12873B	bacteria	99.9
9461A and 12873B	cyst	99.9
9461A and 12873B	virus	99.9
9461A and 12873B	bacteria	99.9

*See certification information for specific details regarding the K5 system use as a microbiological filter.

ARSENIC TREATMENT SYSTEM FACTS

This system has been tested for the treatment of water containing pentavalent arsenic (also known as As(V), As(+5), and arsenate) at concentrations of 0.30 mg/L or less. This system reduces pentavalent arsenic, but may not remove other forms of arsenic. This system is to be used on water supplies containing a detectable free chlorine residual at the system inlet or on water supplies that have been demonstrated to contain only pentavalent arsenic. Treatment with chloramine (combined chlorine) is not sufficient to ensure complete conversion of trivalent arsenic to pentavalent arsenic.

Arsenic (abbreviated As) is found naturally in some well water. Arsenic in water has no color, taste or odor. It must be measured by a lab test. Public water utilities must have their water tested for arsenic. You can get the results from your water utility. If you have your own well, you can have the water tested. Your local health department or state environmental health agency can provide a list of certified labs. The cost is typically \$15 to \$30. You can find information about arsenic in water on the Internet at the US Environmental Protection Agency website: www.epa.gov/safewater/arsenic.html.

There are two forms of arsenic: pentavalent arsenic (also called As(V), As(+5) and arsenate) and trivalent arsenic (also called As(III), As(+3) and arsenite). In well water, arsenic may be pentavalent, trivalent or a combination of both. Labs require special sampling procedures to determine what type and how much of each type of arsenic is in the water. Check with the labs in your area to see if they can provide this type of service.

Reverse osmosis (RO) water treatment systems do not remove trivalent arsenic from water very well. RO systems are very effective at removing pentavalent arsenic. A free chlorine residual will rapidly convert trivalent arsenic to pentavalent arsenic. Other water treatment chemicals such as ozone and potassium permanganate will also change trivalent arsenic to pentavalent arsenic. A combined chlorine residual (also called chloramine) may not convert all the trivalent arsenic. If you get your water from a public water utility, contact the utility to find out if free chlorine or combined chlorine is used in the water system.

The Kinetico K5 Drinking Water Station is designed to remove pentavalent arsenic. It will not convert trivalent arsenic to pentavalent arsenic. The system was tested in a lab. Under those conditions, the system reduced 0.30 mg/L (ppm) pentavalent arsenic to 0.010 mg/L (ppm) (the USEPA standard for drinking water) or less. The performance of the system may be different at your installation. Have the treated water tested for arsenic to check if the system is working properly.

You must periodically replace the RO component* of the Kinetico K5 Drinking Water Station to ensure the system will continue to remove pentavalent arsenic. The component identification and locations where you can purchase the component are listed in this Performance Data Sheet, the Owner's Manual and the installation instructions for your system.

In most drinking water sources, the inorganic form of arsenic tends to be more predominant than organic forms. Inorganic arsenic in drinking water can exert toxic effects after acute (short-term) or chronic (long-term) exposure. Although acute exposures to high doses of inorganic arsenic can cause adverse effects, such exposures do not occur from public water supplies in the U.S. at the current MCL of 50 µg/L. EPA's proposed drinking water regulation addresses the long-term, chronic effects of exposure to low concentrations of inorganic arsenic in drinking water. Chronic effects at low concentrations include:

- Cancer Effects: skin, bladder, lung and prostate cancer
- Non-cancer Effects: skin, pigmentation and keratosis, (callus-like skin growths seen earliest and most often), gastrointestinal, cardiovascular, hormonal (e.g. diabetes), hematological (e.g. anemia), pulmonary, neurological, immunological, reproductive/developmental functions.

The contamination of a drinking water source by arsenic can result from either natural or human activities. Arsenic is an element that occurs naturally in rocks and soil, water, air, plants and animals. Volcanic activity, the erosion of rocks and minerals and forest fires are natural sources that can release arsenic into the environment. Although about 90 percent of the arsenic used by industry in the United States is used for wood preservative purposes, arsenic is also used in paints, drugs, dyes, soaps, metals and semi-conductors. Burning fossil fuels and wastes, paper production, glass manufacturing, cement manufacturing, mining and smelting can also release arsenic. While arsenic can no longer be used in making pesticides, weed killers and embalming fluids, the Agency is aware that prior to this ban these substances have contributed to drinking water contamination.

* See Warranty coverage on page 2.