

# DISTILLATION TEST RESULTS

BY INDEPENDENT LABORATORIES

Over the years we have had many of our systems checked by independent labs, and are always impressed by the natural distillation process.

Table 1 indicates the results of removal of microbiological contaminants from feed-water.

**Table 1: Reduction of Microbiological contaminants utilizing Pure & Secure distiller**

Organism	Raw Water Concentration	Product Water Concentration	Removal Efficiency	Action Level	Test Method
Bacillus subtilis	1 X 10 <sup>8</sup> CFU/ML	None Detected	99.99%	10 CFU/ML	NSF Std 62 Annex C

Pure & Secure Distillation System eliminated Bacillus. Bacillus Subtilis is used as a surrogate indicator. The removal of Bacillus Subtilis spores is generally recognized as an indicator of removal of the following biological contaminants from water: K. terrigena (bacteria), the Polio and Rota viruses, and Giardia and Cryptosporidium Protozoa

Table 2 lists the results of contaminant reduction for inorganic contaminants from a spiked feed water sample.

**Table 2: Reduction of Inorganic Compounds utilizing Pure & Secure distiller**

Inorganic Chemical	Feed water Conc. Mg/L Parts/million	Product Water After Treatment Mg/L (ppm)	% Reduction
aluminum	0.935	0.14	85.0%
antimony	0.195	0	>99.9%
arsenic	0.25	0	>99.9%
barium	0.07	0	>99.9%
beryllium	0.19	0	>99.9%
boron	0.285	0	>99.9%
cadmium	0.168	0	>99.9%
calcium	44.65	0.48	98.9%
chloride	84	0	>99.9%
chromium	0.185	0	>99.9%
cobalt	0.18	0	>99.9%
copper	0.19	0	>99.9%
fluoride	3.7	0	>99.9%
hardness	147.15	1.3	99.12%
iron	0.21	0	>99.9%
lead	0.165	0	>99.9%
magnesium	15.1	0.25	98.8%
manganese	0.175	0	>99.9%
mercury	0.0222	0	>99.9%
nickel	0.18	0	>99.9%
nitrate	31.65	0	>99.9%
phosphorous	0.2	0	>99.9%

Inorganic Chemical	Feed water Conc. Mg/L Parts/million	Product Water After Treatment Mg/L (ppm)	% Reduction
potassium	8.185	0	>99.9%
selenium	0.27	0	>99.9%
sodium	82.8	0.02	99.9%
thallium	0.19	0	>99.9%
vanadium	0.195	0	>99.9%
zinc	0.09	0	>99.9%

The Pure & Secure Water Distillation system effectively remove dissolved inorganic compounds from water and produced a drinking water essentially free of such contaminants. Some inorganic contaminants in this category. Including lead, selenium, mercury and arsenic are regulated by the EPA since they can cause medical disorders. The combination of a distiller with its recommended VOC filter effectively reduces number of such Contaminants.

## Distillation Test Results

Removal of Organic Contaminants from Water

**Table 3: Reduction of Organic Contaminants utilizing Pure & Secure distiller**

Organic Chemical	Feedwater µg/L(PPb)	Product µg/L(PPb)	% Reduction	Organic Chemical	Feedwater µg/L(PPb)	Product µg/L(PPb)	% Reduction
Phenol	18	0	>99.9%	1,2-Dichloroethane	11.15	0	> 99.9%
2-chlorophenol	14.5	0	>99.9%	1, 1 - Dichloroethene	4	0	> 99.9%
2-nitrophenol	11	0	>99.9%	cis-1,2-Dichloroethene	6.5	0	> 99.9%
2,4-dichlorophenol	12.5	0	>99.9%	trans- 1,2-Dichloroethene	10	0	> 99.9%
4-chloro-3-methylphenol	57.5	0	>99.9%	1,2-Dichloropropane	8	0	> 99.9%
2,4,6-trichlorophenol	32	0	>99.9%	1,3-Dichloropropane	11	0	> 99.9%
2,4-dinitrophenol	135.5	0	>99.9%	1,1-Dichloropropene	7.5	0	> 99.9%
Pentachlorophenol	72	0	>99.9%	cis-1,3-Dichloropropane	8.5	0	> 99.9%
Naphthalene	13	0	>99.9%	trans- 1,3-dichloropropene	9.5	0	> 99.9%
4-nitrophenol	82.5	0	>99.9%	Ethylbenzene	8.5	0	> 99.9%
Benzene	9	0	>99.9%	Hexachlorobutadiene	12.5	0	> 99.9%
Bromobenzene	9	0	>99.9%	Isopropylbenzene	7.5	0	> 99.9%
Bromochloromethane	10.5	0	>99.9%	p-Isopropyltoluene	9	0	> 99.9%
Bromodichloromethane	31.5	0	>99.9%	Methylene chloride	60000	5.5	> 99.9%
Bromoform	12.5	0	>99.9%	Naphthalene	15.5	0	> 99.9%
n-Butylbenzene	6.5	0	>99.9%	n-Propylbenzene	6.5	0	> 99.9%
sec-Butylbenzene	6.5	0	>99.9%	Styrene	1.95	0	> 99.9%
tert-Butylbenzene	7.5	0	>99.9%	1,1,2,2-Tetrachloroethane	10.5	0	> 99.9%
Carbon tetrachloride	6.5	0	>99.9%	1,1,1,2-Tetrachloroethane	9.5	0	> 99.9%
Chlorobenzene	9	0	>99.9%	Tetrachloroethene	7	0	> 99.9%
Chlorodibromomethane	25.5	0	>99.9%	Toluene	8.5	0	> 99.9%
Chloroform	575	0	>99.9%	1,2,3-Trichlorobenzene	7.5	0	> 99.9%
2-Chlorotoluene	8.5	0	>99.9%	1,2,4Trichlorobenzene	13.5	0	> 99.9%
4-Chlorotoluene	8.5	0	>99.9%	1,1,1-Trichloroethane	10.3	0	> 99.9%
1,2-Dibromo-3-chloropropane	71.5	0	>99.9%	1,1,2-Trichloroethane	11	0	> 99.9%
1,2-Dibromomethane	11.5	0	> 99.9%	Trichloroethene	7.5	0	> 99.9%
Dibromomethane	6.5	0	> 99.9%	1,2,3-Trichloropropane	11.5	0	> 99.9%
1,2-Dichlorobenzene	17.5	0	> 99.9%	1,2,4-Trimethylbenzene	8	0	> 99.9%
1,3-Dichlorobenzene	16.5	0	> 99.9%	1,3,5-Trimethylbenzene	7.5	0	> 99.9%
1,4-Dichlorobenzene	16.5	0	> 99.9%	o-Xylene	26.5	0	> 99.9%
1,1-Dichloroethane	10	0	> 99.9%				

**Table 4: Reduction of herbicides and pesticides Contaminants utilizing Pure & Secure distiller**

Organic Chemical	Feedwater µg/L(PPb)	Product µg/L(PPb)	% Reduction	Organic Chemical	Feedwater µg/L(PPb)	Product µg/L(PPb)	% Reduction
Acetachlor	1.95	0	> 99.9%	Prometryn	1.9	0	> 99.9%
Alachlor	1.85	0	> 99.9%	Propazine	1.9	0	> 99.9%
Ametryn	1.9	0	> 99.9%	Simazine	1.85	0	> 99.9%
Atrazine	2.05	0	> 99.9%	Triallate	1.8	0	> 99.9%
Butylate	1.7	0	> 99.9%	Trifluralin	1.95	0	> 99.9%
Cyanazine	1.95	0	> 99.9%	2,4-D	11	0	> 99.9%
Deethylatrazine	1.55	0	> 99.9%	2,4-DB	10.5	0	> 99.9%
Deisopropylatrazine	0.7	0	> 99.9%	2,4,5-T	10.5	0	> 99.9%
EPTC	1.9	0	> 99.9%	2,4,5-TP	10	0	> 99.9%
Ethalfuralin	1.7	0	> 99.9%	Dicamba	10.5	0	> 99.9%
Fonofos	0.7	0	> 99.9%	Pentachlorophenol	60.3	0	> 99.9%
Metolachlor	1.95	0	> 99.9%	MCPA	10	0	> 99.9%
Metribuzin	1.85	0	> 99.9%	MCPB	11.5	0	> 99.9%
Pendimethalin	1.85	0	> 99.9%	MCPP	10.5	0	> 99.9%
Propachlor	1.65	0	> 99.9%	Picloram	11	0	> 99.9%
Prometon	1.8	0	> 99.9%	Trichlopyr	11	0	> 99.9%