

EWP interim test results at Texas A&M University, College Station TX, USA

A test was initiated by Texas A&M University to validate the operation and performance of an Electronic Water Purifier (EWP)

A whole house water purifier rated at 500 to 1,000 gpd was installed in a greenhouse on the College Station campus of Texas A&M University. The only pretreatment used was a sediment filter. The device produced deionized water used to irrigate sensitive ornamental plants. The unit has been in continuous operation for the past 4 months (18 weeks). The device works as claimed.

The table below shows typical results for operation of an EWP water deionizing device.

General Specifications

Flow Size: WH-1 : 500 to 1,000 GPD
 Limits: TDS WH-1. 1,000 ppm
 Recovery: 80%
 Current: 2 amps max @110 VAC,
 Size: unit 16”d x 12”w x 18” h



Results

Parameter analyzed

Water source

	<u>RAW</u>	<u>FINISHED</u>	<u>WASTE</u>
Calcium (Ca) ppm	3	0	5
Sodium (Na) ppm	203	40	484
Potassium (K) ppm	2	0	5
Boron (B) ppm	0.32	0.24	0.45
Carbonate (CO3) ppm	9	0	22
Bicarbonate (HCO3) ppm	393	88	919
Sulfate (SO4) ppm	25	5	62
Chloride (Cl-) ppm	63	13	148
Nitrate-N (NO3-N) ppm	0.019	0	0.032
Phosphorus (P) ppm	0.32	0.08	0.066
pH	8.08	7.26	8.01
Conductivity umhos/cm	806	170	1764
Hardness (CaCO3)	11	0	17
Alkalinity (CaCO3)	337	72	789
Total Dissolved Salts (TDS)	700	149	1648
SAR	26.2	8.1	51

Table 1. Typical results for RAW, FINISHED AND WASTE water from the EWP water deionization unit. Water samples are being taken on a weekly basis. RAW water is the College Station, Texas USA tap water that is supplied as the source water to the device.



FINISHED water is the deionized water produced by the device. WASTE is the RAW (or tap) water that the device uses to rinse and regenerate the electrode.

Water Analysis Report

Soil, Water and Forage Testing Laboratory
 Department of Soil and Crop Sciences
 345 Heep Center, 2474 TAMU
 College Station, TX 77843-2474
 979-845-4816

Report generated for:
 James R Fajt
 604 Benchmark
 College Station, TX 77845

Visit our website:
<http://soiltesting.tamu.edu>

Laboratory #: 15838
 Customer Sample ID: **raw**
 Date Processed: 10/6/2009
 Sample from Brazos County
 Water Source =Other

Format based on publication SCS-2002-12

Water Use =Irrigation

Parameter analyzed	Results	Units	Method	V. Limiting	Limiting	Acceptable
Calcium (Ca)	3	ppm	ICP			*****
Magnesium (Mg)	< 1	ppm	ICP			*****
Sodium (Na)	203	ppm	ICP		*****	
Potassium (K)	2	ppm	ICP			*****
Boron (B)	0.32	ppm	ICP			*****
Carbonate (CO ₃)	9	ppm	Tit.			*****
Bicarbonate (HCO ₃)	393	ppm	Tit.			*****
Sulfate (SO ₄ ⁻ calculated from total S)	25	ppm	ICP			*****
Chloride (Cl ⁻)	63	ppm	Tit.			*****
Nitrate-N (NO ₃ -N)	0.19	ppm	Cd-red.			*****
Phosphorus (P)	0.32	ppm	ICP			*****
pH	8.08		ISE			*****
Conductivity	806	umhos/cm	Cond.		*****	
Hardness	1	grains CaCO ₃ /gallon	Calc.			*****
Hardness	11	ppm CaCO ₃	Calc.			*****
Alkalinity	337	ppm CaCO ₃	Calc.		*****	
Total Dissolved Salts (TDS)	700	ppm	Calc.		*****	
SAR	26.2		Calc.	*****		
Iron (Fe)	< 0.01	ppm	ICP			*****
Zinc (Zn)	< 0.01	ppm	ICP			*****
Copper (Cu)	0.04	ppm	ICP			*****
Manganese (Mn)	< 0.01	ppm	ICP			*****
Arsenic (As)						
Barium (Ba)						
Nickel (Ni)						
Cadmium (Cd)						
Lead (Pb)						
Chromium (Cr)						
Flouride (F)						
Charge Balance (cation/anion*100)	100		Calc.			

ppm=parts per million=milligrams per liter

N/A, not applicable for this water use

Descriptions of each water parameter, potential use issues and target levels are provided in publication SCS-2002-10, Description of Water Analysis Parameters.

ICP, Inductively coupled plasma; Tit., titration; ISE, ion selective electrode; Cd-red., cadmium reduction; cond., conductivity; calc., calculated

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James R Fajt
604 Benchmark
College Station, TX 77845

Visit our website:
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Laboratory #: 15839
Customer Sample ID: finished
Date Processed: 10/6/2009
Sample from Brazos County
Water Source =Other

15839
finished
10/6/2009

Format based on publication SCS-2002-12

Water Use =Irrigation

Parameter analyzed	Results	Units	Method	V. Limiting	Limiting	Acceptable
Calcium (Ca)	< 1	ppm	ICP			*****
Magnesium (Mg)	< 1	ppm	ICP			*****
Sodium (Na)	40	ppm	ICP			*****
Potassium (K)	< 1	ppm	ICP			*****
Boron (B)	0.24	ppm	ICP			*****
Carbonate (CO ₃)	0	ppm	Titr.			*****
Bicarbonate (HCO ₃)	88	ppm	Titr.			*****
Sulfate (SO ₄ ⁻ calculated from total S)	5	ppm	ICP			*****
Chloride (Cl ⁻)	13	ppm	Titr.			*****
Nitrate-N (NO ₃ -N)	< 0.01	ppm	Cd-red.			*****
Phosphorus (P)	0.08	ppm	ICP			*****
pH	7.26		ISE			*****
Conductivity	170	umhos/cm	Cond.			*****
Hardness	0	grains CaCO ₃ /gallon	Calc.			*****
Hardness	7	ppm CaCO ₃	Calc.			*****
Alkalinity	72	ppm CaCO ₃	Calc.			*****
Total Dissolved Salts (TDS)	149	ppm	Calc.			*****
SAR	8.1		Calc.			*****
Iron (Fe)	< 0.01	ppm	ICP			*****
Zinc (Zn)	< 0.01	ppm	ICP			*****
Copper (Cu)	0.04	ppm	ICP			*****
Manganese (Mn)	< 0.01	ppm	ICP			*****
Arsenic (As)						
Barium (Ba)						
Nickel (Ni)						
Cadmium (Cd)						
Lead (Pb)						
Chromium (Cr)						
Flouride (F)						
Charge Balance (cation/anion*100)	99		Calc.			

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N/A, not applicable for this water use

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Report generated for:
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College Station, TX 77845

Visit our website:
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Laboratory #: 15840
Customer Sample ID: waste
Date Processed: 10/6/2009
Sample from Brazos County
Water Source =Other

Format based on publication SCS-2002-12

Water Use =Other

Parameter analyzed	Results	Units	Method	V. Limiting	Limiting	Acceptable
Calcium (Ca)	5	ppm	ICP			*****
Magnesium (Mg)	< 1	ppm	ICP			*****
Sodium (Na)	484	ppm	ICP	*****		
Potassium (K)	5	ppm	ICP			*****
Boron (B)	0.45	ppm	ICP			*****
Carbonate (CO ₃)	22	ppm	Tit.			*****
Bicarbonate (HCO ₃)	919	ppm	Tit.		*****	
Sulfate (SO ₄ ²⁻ calculated from total S)	62	ppm	ICP			*****
Chloride (Cl ⁻)	148	ppm	Tit.		*****	
Nitrate-N (NO ₃ -N)	0.32	ppm	Cd-red.			*****
Phosphorus (P)	0.66	ppm	ICP			*****
pH	8.01		ISE			*****
Conductivity	1764	umhos/cm	Cond.		*****	
Hardness	1	grains CaCO ₃ /gallon	Calc.			*****
Hardness	17	ppm CaCO ₃	Calc.			*****
Alkalinity	789	ppm CaCO ₃	Calc.		*****	
Total Dissolved Salts (TDS)	1648	ppm	Calc.	*****		
SAR	51.0		Calc.	N/A		
Iron (Fe)	< 0.01	ppm	ICP			*****
Zinc (Zn)	< 0.01	ppm	ICP			*****
Copper (Cu)	0.05	ppm	ICP			*****
Manganese (Mn)	0.02	ppm	ICP			*****
Arsenic (As)						
Barium (Ba)						
Nickel (Ni)						
Cadmium (Cd)						
Lead (Pb)						
Chromium (Cr)						
Flouride (F)						
Charge Balance (cation/anion*100)	101		Calc.			

ppm=parts per million=milligrams per liter

N/A, not applicable for this water use

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