## **TEST RESULTS**

**FOR** 

ProOne Water Filters
1200 BENSTEIN ROAD
COMMERCE TWP. MICHIGAN, 48390

Filter Element ProOne® G2.0
NSF Standard 53, and NSF Standard 42
NSF Standard 401 NSF P-473
NSF P231

**Chemical Reduction Tests Results** 

EPA ID # DE00946 IAPMO ID # 000102

## FILTER ELEMENT PROONE® G2.0 WATER TEST REPORT

Report # 16-326 (Filter Element ProOne® G2.0)

Updated Report Date: 05/01/2020

Customer Name: ProOne Water Purification Systems

<b>Drinking Water Contaminant Tested</b>	Influent Water Concentration in µg/L	Filter Element ProOne® G2.0 Effluent	% Reduction				
V	Concentration in μg/L Concentration in μg/L  Colatile Organic Contaminants in μg/L		Reduction				
Dichlorodifluoromethane         80.5         <0.1         99.9+							
Chloromethane	80.2	<0.1	99.9+				
Vinylchloride	80.3	1.0	98.8				
Bromomethane	80.5	0.2	99.8				
Chloroethane	80.2	1.9	97.6				
Trichlorofluoromethane	81.1	3.49	95.7				
1,1-Dichloroethene	83.0	0.3	99.6				
Methylene Chloride	81.2	1.7	97.9				
trans-1,2-Dichloroehene	81.5	<0.1	99.9+				
MTBE	81.5	3.0	96.3				
1,1-Dichlorethane	82.2	<0.1	99.9+				
cis-1,2-Dichloroethene	170.1	<0.1	99.9+				
2,2-Dichloropropane	81.1	<0.1	99.9+				
Bromochloromethane	80.0	<0.1	99.9+				
Carbon Tetrachloride	81.0	<0.1	99.9+				
1,1,1-Trichloroethane	81.2	<0.1	99.9+				
1,1-Dichloropropene	81.2	<0.1	99.9+				
Benzene	81.4	<0.1	99.9+				
1,2-Dichloroethane	80.4	0.2	99.8				
Trichloroethene	180.3	0.2	99.9				
Dibromomethane	80.1	0.5	99.4				
1,2-Dichloropropane	80.3	0.8	99.0				
cis-1,3-Dichloropropene	50.2	0.2	99.6				
Toluene	80.2	0.2	99.8				
trans-1,3-Dichloropropene	81.0	<0.1	99.9+				
Tetrachloroethene	80.1	<0.1	99.9+				
1,1,2-Trichloroethane	150.3	<0.1	99.9+				
1,3-Dichloropropane	79.1	0.4	99.5				
Ethylbenzene	82.0	0.7	99.1				
Chlorobenzene	79.5	<0.1	99.9+				
1,1,1,2-Tetrachloroethane	79.8	<0.1	99.9+				
m-Xylene	70.1	<0.1	99.9+				
o-Xylene	70.1	<0.1	99.9+				
Styrene	80.0	<0.1	99.9+				
Isopropylbenzene	80.3	<0.1	99.9+				
n-Propylbenzene	80.2	<0.1	99.9+				
Bromobenzene	80.0	<0.1	99.9+				
1,1,2,2-Tetrachloroethane	81.0	<0.1	99.9+				
1,3,5-Trimethylbenzene	80.1	<0.1	99.9+				
2-Chlorotoluene	80.2	0.4	99.5				
1,2,3-Trichloropropane	80.2	0.3	99.6				
4-Chlorotoluene	80.2	0.4	99.5				
tert-Butylbenzene	80.2	<0.1	99.9+				
1,2,4-Trimethylbenzene	80.5	<0.1	99.9+				
sec-Butylbenzene	80.3	<0.1	99.9+				
4-Isopropyltoluene	80.2	0.2	99.8				
1,3-Dichlorobenzene	80.1	<0.1	99.9+				
1,4-Dichlorobenzene	40.3	<0.1	99.9+				
n-Butylbenzene	80.2	<0.1	99.9+				
1,2-Dichlorobenzene	80.3	<0.1	99.9+				
Hexachlorobutadiene	44.0	0.2	99.5				



Drinking Water Contaminant Tested	Influent Water	Filter Element ProOne® G2.0 Effluent	%			
Drinking water Contaminant Testeu	Concentration in µg/L	Concentration in µg/L	Reduction			
V		• • •	110000000			
Volatile Organic Contaminants in μg/L  1,2,4-Trichlorobenzene 160.2 <0.1 99.9+						
Naphthalene	80.4	0.9	98.9			
1,2,3-Trichlorobenzene	80.1	0.5	99.4			
1,2,3-1110110100001120110			22. <del>4</del>			
	Total Trihalome		1			
Chloroform	80.1	1.4	98.3			
Bromodichloromethane	80.2	1.1	98.6			
Chlorodibromomethane	80.4	<0.1	99.9+			
Bromoform	80.2	0.8	98.9			
Total Trihalomethanes (THMs)	320.9	3.3	99.4			
	<b>Heavy Metal Conta</b>	ıminants in μg/L				
Aluminum	220	4.3	98.0			
Antimony	6.2	<0.5	99.9+			
Arsenic (+3 and +5)	310	2.7	99.7			
Beryllium	50.3	<0.5	99.9+			
Bismuth	50.1	1.2	97.6			
Cadmium	30.2	<0.5	99.9+			
Chromium (+3 and +6)	302	3.9	98.7			
Copper	3050	310	89.8			
Iron	3030	31	99.0			
Lead	152	<0.5	99.9+			
Manganese	1020	2.9	99.7			
Mercury	6.1	<0.1	99.9+			
Nickel	102	0.7	99.3			
Selenium	106	<	99.9+			
Vanadium	102	<1	99.9+			
Zinc	102	<u> </u>	99.9+			
	Pesticide Contam	iinants in μg/L				
4,4'-DDD	50.2	<0.1	99.9+			
4,4'-DDE	50.3	<0.1	99.9+			
4,4'-DDT	50.4	<0.1	99.9+			
Alachlor	40.4	0.2	99.5			
Aldrin	50.2	<0.1	99.9+			
Alpha-BHC	49.8	<0.1	99.9+			
Ametryn	50.0	<0.1	99.9+			
Atraton	51.2	<0.1	99.9+			
Atrazine	9.9	<0.1	99.9+			
Beta-BHC	49.9	<0.1	99.9+			
Bromacil	51.2	<0.1	99.9+			
Carbofuran	80.2	<0.1	99.9+			
Chlordane	40.2	0.2	99.5			
Chlorneb	51.0	0.3	99.4			
Chlorobenzilate	49.9	0.3	99.4			
Chlorothalonil	50.2	0.2	99.6			
Chlorophane	51.2	0.2	99.6			
Chlorpyrifos	51.3	0.2	99.6			
Cyanizene Dalas DUC	51.1	0.3	99.4			
Delta-BHC	50.9 50.2	0.4	99.2			
Dichlorvos Dieldrin		0.3	99.4 99.0			
Dieldrin Diphenamid	50.9 51.2	0.5	99.0			
Disulfoton	50.4	0.8	98.2			
Endosulfan Sulfate	51.0	0.5	99.0			
Endrin Surrate	6.1	0.5	86.9			
Endrin Aldehide	51.5	0.8	98.6			
Endrin Aldenide Endrin Ketone	51.0	0.6	98.8			
Endusulfan I	49.8	0.6	99.2			
Endusulfan II	50.3	0.8	98.4			
Ethoprop	50.4	0.9	98.2			
ъшоргор	50.4	U.7	90.4			



Drinking Water Contaminant Tested	Influent Water Concentration in µg/L	Filter Element ProOne® G2.0 Effluent Concentration in µg/L	% Reduction
	Pesticide Contam		Reduction
Fenamiphos	51.2	0.6	98.8
Fenarimol	50.4	0.9	98.2
Fluoridone	51.4	0.3	99.4
Gamma-BHC (Lindane)	2.1	<0.1	99.9+
Glyphosate	798	0.2	100.0
Heptachlor	80.0	0.6	99.3
Heptachlor Epoxide	4.0	0.6	85.0
Methoxychlor	122	0.8	99.3
Molinate	50.4	0.6	98.8
PCB's	10.4	0.7	93.3
Prometron	50.1	0.2	99.6
Simazine	12.0	0.1	99.2
Toxaphene	15.3	0.1	99.3
	Semivolatile Conta	minants in ug/L	
Acenaphthylene	50.2	1.0	98.0
Anthracene	50.2	1.1	97.8
Benz[a]anthracene	51.8	1.1	97.9
Benzo[b]fluoranthene	50.4	1.2	97.6
Benzo[k]fluoranthene	50.4	1.3	97.4
Benzo[a]pyrene	51.9	1.2	97.7
Benzo[g,h,i]perylene	50.2	1	98.0
Butylbenzylphthalate	50.4	1.2	97.6
Carboxin	50.5	1.1	97.8
2-Chlorobiphenyl	50.4	1.2	97.6
Chrysene	50.5	1.3	97.4
Cycloate	49.8	0.5	99.0
Dacthal (DCPA)	49.6	0.5	99.0
Diazinon	50.2	0.6	98.8
Dibenz[a,h]anthracene	50.3	0.8	98.4
Di-n-Butylphthalate	51.4	0.9	98.2
2,3-Dichlorobiphenyl	52.3	0.9	98.3
Diethylphthalate	50.2	0.9	98.2
Di(2-ethylhexyl)adipate	51.2	0.2	99.6
Di(2-ethylhexyl)phthalate	50.3	0.8	98.4
Dimethylphthalate	51.8	0.2	99.6
EPTC	52.3	0.8	98.5
Fluorene	51.2	0.9	98.2
2,2', 3,3', 4,4', 6-Heptachlorobiphenyl	50.0	0.8	98.4
Hexachlorobenzene	49.9	0.9	98.2
2,2', 4,4', 5,6'-Hexachlorobiphenyl	51.2	0.6	98.8
Hexachlorocyclohexane, alpha	50.0	0.9	98.2
Hexachlorocyclohexane, beta	50.2	0.9	98.2
Hexachlorocyclohexane, delta	50.4	0.9	98.2
Hexachlorocyclopentadiene	51.9	0.9	98.3
Hexazinone	51.4	0.2	99.6
Indeno[1,2,3,c,d]pyrene	50.1	0.8	98.4
Isophorone	50.0	0.2	99.6
Merphos	50.5	0.2	99.6
Methyl Paraoxon	50.8	0.2	99.6
Norflurazon	50.4	0.2	99.6
2,2', 3,3', 4,5', 6,6'-Octachlorobiphenyl	51.2	0.2	99.6 99.6
Pebulate	50.8	0.2	
2,2', 3', 4,6'-Pentachlorobiphenyl	49.2	0.5	99.0
Pentachlorophenol	51.2	0.5	99.0
Phenanthrene	50.1	0.5	99.0
cis-Permethrin	50.2	0.2	99.6
trans-Permethrin Prometon	49.0	0.5	99.0
Prometon	51.0	0.5	99.0



Drinking Water Contaminant Tested	Influent Water	Filter Element ProOne® G2.0 Effluent	0/0					
Dimking water Contaminant Tested	Concentration in µg/L	Concentration in µg/L	Reduction					
Pronamide	49.0	0.3	99.4					
Propachlor	50.0	0.3	99.4					
Propazine	50.9	0.6	98.8					
Triademefon	49.2	0.9	98.2					
2,4,5-Trichlorobiphenyl	49.0	0.2	99.6					
Tricyclazole	49.4	0.5	99.0					
Trifluralin	50.5	0.2	99.6					
Vernolate	50.2	0.3	99.4					
	nd Inorganic Non-N	<b>Metallic Contaminants in mg/L</b>	•					
Chloramines	3.1	<0.1	99.9+					
Free Chlorine	2.1	<0.1	99.9+					
Chloride	250	<0.1	99.9+					
Perchlorate	0.100	<0.004	99.9+					
Cyanide	50	<0.1	99.9+					
Sodium Fluoride	8.0	0.2	97.5					
Hexafluorosilicate	8.3	0.4	94.0					
Fluorosilic Acid	8.1	0.3	96.3					
Nitrates	27.2	0.5	98.2					
Nitrites	2.9	<0.1	99.9+					
Turbidity		<0.5	99.9+					
D.1	Herbicide Contan							
Dalapon Dicamba	152 150	0.1	99.9 99.7					
Dinosep	20.2	0.9	95.5					
Dichlorporp	150	0.9	99.5					
2.4-D	210	0.7	99.7					
Pentachlorophenol	10.2	0.8	92.2					
Picoram	151	0.5	99.7					
2,4,5-T	152	0.9	99.4					
2,4,5-TP (Silvex)	151	0.8	99.5					
2,4-DB	150	1.2	99.2					
Bentazom	149	0.9	99.4					
DCPA	149	1.3	99.1					
Quinclorac	151	0.9	99.4					
Aciflurfen	149	0.7	99.5					
	rmaceutical Drugs C	Contaminants in μg/L						
Acetaminofen	20.2	0.8	96.0					
Caffeine	19.8 20.3	0.9	95.5 96.1					
Carbamazepine Ciprofloxacin HCl	20.3	0.8	95.6					
Erythromycin USP	20.5	0.7	96.6					
Sulfamethoxazole	20.6	0.5	97.6					
Trimethoprim	21.0	0.4	98.1					
Bisphenol A	20.9	0.9	95.7					
Diclofenac Sodium	19.6	0.9	95.4					
4-para-Nonylphenol	20.0	0.6	97.0					
4-tert-Octylphenol	20.4	0.8	96.1					
Primidone	20.9	0.9	95.7					
Progestrone	20.5	1.1	94.6					
Gemfibrozil	20.4	1.2	94.1					
Ibuprofen C. I'	20.3 20.2	0.9 0.9	95.6 95.5					
	20.2							
Naproxen Sodium		1 1	Triclosan 20.9 1.1 94.7  Microbilogical Contaminants in Colonies Forming Units/100mL (CFU/mL)					
Triclosan	20.9	1.1 os Forming Units/100mL (CFU/n						
Triclosan  Microbilogical Con	20.9 taminants in Coloni	es Forming Units/100mL (CFU/n	nL)					
Triclosan  Microbilogical Con  Total coliform	20.9 taminants in Coloni 108/L	es Forming Units/100mL (CFU/n	n <b>L)</b> 99.999+					
Triclosan  Microbilogical Con	20.9 taminants in Coloni	es Forming Units/100mL (CFU/n	nL)					

# ENVIROTEK LABORATORIES, INC. Wilmington Delaware 19804

Cryptosporidium, Giardia lamblia (polystyrene Microsphere)	106 microspheres/L	<10 oocysts/L	99.999+
1 2 2 1 /	Radiological Conta	minants (pCi/L)	
Gross Alpha:		( )	
Americum 241			
Plutonium 236			
Uranium 238	35.50 pCi/L	6.53 pCi/L	81.6%
Thorium 232			
Radium 226 and 228			
Polonium 210			
Drinking Water Contaminant Tested	Influent Water Concentration in µg/L	Filter Element ProOne® G2.0 Effluent Concentration in µg/L	% Reduction
Gross Beta:			
Tritium			
Cobalt 60			(R)
Strontium 70	24.91 pCi/L	3.95 pCi/L	84.1%
Technetium 99			
Iodine 129 and 131			
Cesium 137			
	Fluorinated Organ	ic Acids in μg/L	
Perfluorobutane Sulfonate (PFBS)	1.0	<0.002	99.9+
Perfluorodecanoic acid (PFDA)	1.0	< 0.002	99.9+
Perfluorohexanoic acid (PFHxA)	1.0	< 0.002	99.9+
Perfluorononanoic acid (PFNA)	1.0	<0.002	99.9+
Perfluorooctanoic Acid (PFOA)	1.0	<0.002	99.9+
Surrogate (C8)			•
Perfluorooctane Sulfonate (PFOS)	1.0	<0.002	99.9+
Perfluorohexane Sulfonate (PFSxS)	1.0	<0.002	99.9+
Polytetrafluoroethylene (PTFE)	1.0	<0.002	99.9+
Fluorotelomer alcohol 8:2 (PTOH)	1.0	<0.002	99.9+
	Copepods (Parasite	e) Contaminants	
Tigriopus californicus	$10^{4}/L$	0	99.999+
Tisbe biminiensis	$10^{4}/L$	0	99.999+
Apocyclops panamensis	$10^{4}/L$	0	99.999+
Blue	e-Green Algae (Para	asite) Contaminants	
Microspora amoena (green algae)	10 <sup>4</sup> /L	0	99.999+
Anabaena (blue-green algae)	$10^{4}/L$	0	99.999+
Eucapsis (blue-green algae)	10 <sup>4</sup> /L	0	99.999+
Fischerella (blue-green algae)	10 <sup>4</sup> /L	0	99.999+
Spirulina (blue-green algae)	$10^{4}/L$	0	99.999+
Merismopedia (blue-green algae)	$10^{4}/L$	0	99.999+
Tolypothrix (blue-green algae)	$10^{4}/L$	0	99.999+
	Micro-Plastic C	ontaminants	
Micro-plastic spheres (2 microns size)	10 <sup>6</sup> microspheres/L	<10 microspheres/L	99.999+
	1,4 – Dio	oxane	
1,4-Dioxane	20.1	<0.2	>99.9%
.,	20.1	· V.E	- 22.270

#### **CERTIFICATION OF RESULTS:**

I certify in writing that all analyses, and reporting performed herein, comply with all requirements set forth in N.J.A.C. 7:9E and N.J.A.C. 7:18, and hereby certify that this laboratory is in compliance with all laboratory certification and quality control procedures and requirements as set forth in N.J.A.C. 7:18; the NYCRR Subpart 55-2 and the National Environmental Laboratory Accreditation Conference (NELAC) Institute Standards.

**Disclaimer:** The test results are only related to the filter sample tested.

Jaime Young
Lab Director





33 Third Street, Bordentown, NJ 08505 PHONE 856-583-0445 www.enviroteklab.com EPA ID # NJ01298 NJ DEP ID # 03048 NY ELAP ID # 12044

#### PROONE FILTER EMERGING CONTAMINANTS TEST REPORT

Report # 17-01-Emerging Contaminants (ProOne G2.0 Filter)

Report Date: 05/01/2020 Customer Name: ProOne

#### **EXECUTIVE SUMMARY/INTRODUCTION**

One Hundred gallons of tap water was spiked with Emerging Contaminants Standard Solution to have a final concentration specified by the NSF Std. 401; the spiked tap water was filtered through the filter element and tested; the Emerging Contaminants drugs in the tap water were reduced by at least 86.3% after 100 gallons.

#### RESULTS

Table 1
Influent Challenge Water Properties

Parameter	Influent Challenge Water	Target
pH	7.65	7.00 to 8.00
Temperature	20.5 C	20 2.5 C
TDS	350 mg/L	200 to 500 mg/L
Turbidity	0.60 NTU	<1 Nephelometric Turbidity Units

Table 2
Filtered Water Emerging Contaminants Test Results

Filtered water Emerging Contaminants Test Results						
Drinking Water Contaminant Tested	Influent Water Results in µg/L	NSF Max. Limit	Filter Results 100 gallons	% Reduction at 100 gallons		
Bisphenol A	2.050	0.300	< 0.010	99.9+		
Trimethoprim	0.139	0.020	0.019	86.3%		
Estrone	0.141	0.020	0.019	86.5%		
Naproxen	0.141	0.020	< 0.010	99.9+		
Ibuprofen	0.401	0.060	< 0.010	99.9+		
Metolachlor	1.395	0.200	0.092	93.4%		
Carbamazepine	1.404	0.200	< 0.010	99.9+		
Meprobamate	0.399	0.060	0.035	91.2%		
Phenitoin	0.199	0.030	< 0.010	99.9+		
Atenolol	0.201	0.030	< 0.010	99.9+		
Linuron	0.139	0.020	< 0.010	99.9+		
Nonyl Phenol	1.394	0.200	0.130	90.7%		
DEET	1.389	0.200	< 0.010	99.9+		
TCPP	5.071	0.700	0.109	97.9%		
TCEP	4.962	0.700	0.142	97.1%		

#### **CONCLUSION:**

The ProOne G 2.0 Filter reduces the Emerging Contaminants concentration by at least 86.3% at 100 gallons tested following the NSF Std. 401.

#### **CERTIFICATION OF RESULTS:**

I certify in writing that all analyses, and reporting performed herein, comply with all requirements set forth in N.J.A.C. 7:9E and N.J.A.C. 7:18, and hereby certify that this laboratory is in compliance with all laboratory certification and quality control procedures and requirements as set forth in N.J.A.C. 7:18; the NYCRR Subpart 55-2 and the National Environmental Laboratory Accreditation Conference (NELAC) Institute Standards.

**Disclaimer:** The test results are only related to the filter sample tested.

Jaime A. Young
Jaime A. Young
Lab Director

120 White Owl Trail, Mullica Hill, NJ 08062 PHONE 856-478-0010 www.enviroteklab.com EPA ID # NJ01298 NJ DEP ID # 08012

#### MICROCYSTIN LR REDUCTION TEST REPORT

Report # 14-227-Microcystin LR Reduction Test (ProOne G2.0 Filter System)

Customer Name: ProOne Water Purification Systems

Report Date: 5/01/2020

#### **EXECUTIVE SUMMARY**

Five gallons of tap water were spiked with Microcystin LR to obtain a final concentration of  $10 \mu g/L$ , the spiked tap water was filtered through the ProOne G2.0 filter system and tested; the Microcystin in the tap water was reduced by at least 99.0%.

#### INTRODUCTION

Five gallons of tap water were spiked with Microcystin LR to obtain a final concentration of 10 μg/L, the spiked tap water was filtered through the ProOne G2.0 filter system; the spiked solution and the filtered solution were tested a HPLC/DAD method; the Microcystin in the tap water was reduced by at least 99.0%.

#### REAGENTS AND LAB EQUIPMENT

ProOne G2.0 Filter System

Microcystin ALX-350-012-C500 Enzo Life Sciences, Inc. lot 02211428. Standard Grade (99.99%)

Agilent HPLC 1200 DAD System with ChemStation data system.

Agilent Zorbax Eclipse XDB-C18 ODSR 993967-902 column 150 mm lengths, 4.6 mm diameter, 1.8 μm particle size.

Micro syringes and type A glassware necessary to perform the method for drinking water analysis.

#### **PROCEDURE**

Five gallons of tap water were spiked with 190  $\mu$ g of Microcystin to obtain a final concentration of 10  $\mu$ g/L. The solution was filtered through ProOne G2.0 filter system; the spiked solution and the filtered solution were tested using HPLC/DAD method. The results are summarized in Tables 1 and 2 below.

#### RESULTS

## Table 1 Spiked Tap Water Properties

Spinear Lap Water Lisperties				
Parameter	Spiked Tap Water	Target		
pН	7.55	7.00 to 8.00		
TDS	450 mg/L	200 to 500 mg/L		
Temperature	21.5 C	20 2.5 C		
Turbidity	0.75 NTU	< 1 Nephelometric Turbidity Units		
Free Chlorine	0.25 mg/L	0.25 to 2.0 mg/L		
Microcystin-LR	10.2 ug/L	10 ug/L		

## Table 2 Filtered Water Results

Parameter Tested	ProOne G2.0 Filtered Water Result	% Reduction	
Microcystin-LR	<0.1 µg/L	99.0 %	

120 White Owl Trail, Mullica Hill, NJ 08062 PHONE 856-478-0010 www.enviroteklab.com EPA ID # NJ01298 NJ DEP ID # 08012

#### **CONCLUSION**

The ProOne G2.0 filter reduced the Microcystin LR concentration in the tap water by at least 99.0 %.

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Lab Director



120 White Owl Trail Mullica Hill, NJ 08062 PHONE 856-478-0010 www.enviroteklab.com EPA ID # NJ01298 NJ DEP ID # 08012

#### PROONE-G2.0 NSF PROTOCOL P231 TEST REPORT

Report # 14-286 (ProOne-G2.0)

Report Date: 5/01/2020

Customer Name: ProOne Water Purification Systems

#### **EXECUTIVE SUMMARY**

The ProOne-G2.0 filter element was tested for Microbiological Reduction following the NSF protocol P231 for a total volume of 50 gallons. The ProOne-G2.0 filter qualifies as a microbiological water purifier set forth by the NSF protocol P231 for 50 gallons.

#### INTRODUCTION

The ProOne-G2.0 filter element was tested for Microbiological Reduction following the NSF protocol P231 for a total volume of 50 gallons. The filter was challenged with tap water adjusted and spiked with Bacteria (Klebsiella terrigena); virus (Poliovirus 1 and Rotavirus); and Cyst (Giardia lamblia) and tested using Standard Methods for the Examination of Water. The ProOne-G2.0 filter qualifies as a microbiological water purifier set forth by the NSF protocol P231 for 50 gallons.

#### REAGENTS, MATERIALS, AND LAB EQUIPMENT

Barnstead Lab-Line Incubator.

Klebsiella terrigena (produced by overnight growth in nutrient broth).

Poliovirus 1 (Virus)/Rotavirus (produced by the Smith and Gerba technique from bovine and porcine sources).

Giardia lamblia (Polybead 4-6 micron spheres Cat 17134 Lot 614641).

Sterile water, phosphate buffer.

Amscope Mircroscope Digital Model MD600.

ProOne-G2.0 Water Filter Element.

#### **PROCEDURE**

Flushed the filter with approximately 1 gallon of sterile water. Prepared 5 gallons of challenge influent water daily with Klebsiella terrigena at a concentration of 10<sup>8</sup>/L, Poliovirus at 10<sup>7</sup>/L, Rotavirus at 10<sup>7</sup>/L, and Giardia lamblia at 10<sup>6</sup>/L. Tables 2, 4, 6, and 8 summarize the Influent water properties for each micro-organism. Passed 5 gallons of Influent water through the filter per day, every day until a total volume of 50 gallons passed through the filter. Collected the effluent water and analyzed the filtered water every 5 gallons for micro-organisms following the Standard Methods of Analysis of Water 21<sup>st</sup> Edition, methods SM 9222-F (Klebsiella); SM 9510-B (virus); SM9711-B (cyst). The results are summarized in Tables 1, 3, 5, and 7 below.

#### RESULTS

Table 1 Klebsiella terrigena (Bacteria) Test Results

Accumulated volume	Influent Water Concentration	Filtered Water Concentration	% Reduction	Criteria: Minimum % Reduction 99.9999
Initial (1 gallon)	10 <sup>8</sup> /L	<10 CFU/L	>99.9999	Passed
5 gallons	$10^{8}/L$	<10 CFU/L	>99.9999	Passed
10 gallons	$10^{8}/L$	<10 CFU/L	>99.9999	Passed
15 gallons	$10^{8}/L$	<10 CFU/L	>99.9999	Passed
20 gallons	10 <sup>8</sup> /L	<10 CFU/L	>99.9999	Passed
25 gallons	$10^{8}/L$	<10 CFU/L	>99.9999	Passed
30 gallons	$10^{8}/L$	<10 CFU/L	>99.9999	Passed
35 gallons	$10^{8}/L$	<10 CFU/L	>99.9999	Passed
40 gallons	10 <sup>8</sup> /L	10 CFU/L	99.9999	Passed
45 gallons	$10^{8}/L$	20 CFU/L	99.9999	Passed
50 gallons	$10^{8}/L$	30 CFU/L	99.9999	Passed

Table 2
Influent Challenge Water Properties

	innacht Chancinge Water 110perties				
Parameter	Influent Challenge Water	Target			
pH	7.20 to 7.50	6.5 to 8.5			
Temperature	20.5 qC to 22.5 qC	20 r 5qC			
TDS	250 to 450 mg/L	50 - 500 mg/L			
Turbidity	2.5 to 4.5NTU	0.1 to 5 Nephelometric Turbidity Units			
TOC	2.7 to 3.5.mg/L	0.1 to 5.0 mg/L			

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# Table 3 Poliovirus 1 (Virus) Test Results

Accumulated volume	Influent Water	Filtered Water	% Reduction	Criteria:
	Concentration	Concentration		Minimum % Reduction 99.99
Initial (1 gallon)	$10^{7}/L$	<10 PFU/L	>99.99	Passed
5 gallons	$10^{7}/L$	<10 PFU/L	>99.99	Passed
10 gallons	$10^{7}/L$	<10 PFU/L	>99.99	Passed
15 gallons	$10^{7}/L$	<10 PFU/L	>99.99	Passed
20 gallons	$10^{7}/L$	<10 PFU/L	>99.99	Passed
25 gallons	$10^{7}/L$	<10 PFU/L	>99.99	Passed
30 gallons	$10^{7}/L$	<10 PFU/L	>99.99	Passed
35 gallons	$10^{7}/L$	<10 PFU/L	>99.99	Passed
40 gallons	$10^{7}/L$	10 PFU/L	99.99	Passed
45 gallons	$10^{7}/L$	10 PFU/L	99.99	Passed
50 gallons	$10^{7}/L$	10 PFU/L	99.99	Passed

#### Table 4

Influent Challenge Water Properties

Parameter	Influent Challenge Water	Target
pH	7.20 to 7.80	6.5 to 8.5
Temperature	18.5 qC to 20.5 qC	20 r 5qC
TDS	250 to 350 mg/L	50 - 500 mg/L
Turbidity	2.5 to 4.5NTU	0.1 to 5 Nephelometric Turbidity Units
TOC	2.6 to 3.8.mg/L	0.1 to 5.0 mg/L

# Table 5 Rotavirus (Virus)Test Results

Accumulated volume	Influent Water	Filtered Water	% Reduction	Criteria:
	Concentration	Concentration		Minimum % Reduction 99.99
Initial (1 gallon)	$10^{7}/L$	<10 PFU/L	>99.99	Passed
5 gallons	$10^{7}/L$	<10 PFU/L	>99.99	Passed
10 gallons	10 <sup>7</sup> /L	<10 PFU/L	>99.99	Passed
15 gallons	$10^{7}/L$	<10 PFU/L	>99.99	Passed
20 gallons	$10^{7}/L$	<10 PFU/L	>99.99	Passed
25 gallons	10 <sup>7</sup> /L	<10 PFU/L	>99.99	Passed
30 gallons	$10^{7}/L$	<10 PFU/L	>99.99	Passed
35 gallons	$10^{7}/L$	<10 PFU/L	>99.99	Passed
40 gallons	$10^{7}/L$	10 PFU/L	99.99	Passed
45 gallons	$10^{7}/L$	10 PFU/L	99.99	Passed
50 gallons	10 <sup>7</sup> /L	10 PFU/L	99.99	Passed

### Table 6

**Influent Challenge Water Properties** 

influent Chancinge Water Troperties				
Parameter	Influent Challenge Water	Target		
pН	7.20 to 7.80	6.5 to 8.5		
Temperature	18.5 qC to 20.5 qC	20 r 5qC		
TDS	250 to 350 mg/L	50 - 500 mg/L		
Turbidity	2.5 to 4.5NTU	0.1 to 5 Nephelometric Turbidity Units		
TOC	2.6 to 3.8.mg/L	0.1 to 5.0 mg/L		

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## Table 7 Giardia lamblia (Cyst)Test Results

Accumulated volume	Influent Water Concentration	Filtered Water Concentration	% Reduction	Criteria: Minimum % Reduction 99.99
Initial (1 gallon)	10 <sup>6</sup> /L	<10 oocysts/L	>99.9	Passed
5 gallons	10 <sup>6</sup> /L	<10 oocysts/L	>99.9	Passed
10 gallons	10 <sup>6</sup> /L	<10 oocysts/L	>99.9	Passed
15 gallons	10 <sup>6</sup> /L	<10 oocysts/L	>99.9	Passed
20 gallons	10 <sup>6</sup> /L	<10 oocysts/L	>99.9	Passed
25 gallons	10 <sup>6</sup> /L	<10 oocysts/L	>99.9	Passed
30 gallons	10 <sup>6</sup> /L	<10 oocysts/L	>99.9	Passed
35 gallons	10 <sup>6</sup> /L	<10 oocysts/L	>99.9	Passed
40 gallons	10 <sup>6</sup> /L	10 oocysts/L	99.9	Passed
45 gallons	10 <sup>6</sup> /L	10 oocysts/L	99.9	Passed
50 gallons	10 <sup>6</sup> /L	20 oocysts/L	99.9	Passed

Table 8
Influent Challenge Water Properties

Parameter	Influent Challenge Water	Target
pН	7.15 to 7.50	6.5 to 8.5
Temperature	18.0 qC to 20.5 qC	20 r 5qC
TDS	200 to 300 mg/L	50 - 500 mg/L
Turbidity	3.5 to 4.5NTU	0.1 to 5 Nephelometric Turbidity Units
TOC	3.0 to 4.5mg/L	0.1 to 5.0 mg/L

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CONCLUSION:

The ProOne-G2.0 Filter meets the requirements for the Microbiological Reduction NSF Protocol P231 for 50 gallons. Passed.

Jaime A. Young
Lab Director







## **TEST RESULTS**

**FOR** 

**ProOne Water Filters**1200 BENSTEIN ROAD
COMMERCE TWP. MICHIGAN, 48390

Filter Element ProOne® G2.0

NSF Standard 53 PFOAS

Chemical Reduction Tests Results







#### NSF/ANSI Standard 53 PFOAS Reduction PT 200%:

Date: 7/16/2020

**Product:** Gravity Filter **Flow Rate:** 10 gpd

Filter Capacity: 200 gallons

Cycle: N/A

Conditioning Procedure: Flush 1 gallon

Physical Description of Sample: Gravity Filter

Performance Indicator Device: No, test to 100% Capacity

**Test Description:** NSF/ANSI Standard 53 PFOAS Reduction Testing **Trade Designation/Model Number:** ProOne G 2.0 7" gravity filter

Unit Volume: 0.3 L

Performance Standard: NSF/ANSI Standard 53-2019

Pass/Fail Criteria (PFOA+PFOS Combined Maximum Product Water Concentration): 0.07 µg/L







#### **PFOA Filter #1 Data Summary Table**

Sample Point	Accumulated Volume Effluent 1	Influent 1 PFOA (μg/L)	Effluent 1 PFOA Concentration (μg/L)	% Reduction
10 UV	10 UV	0.49	0.02	95.92%
25%	50 gallons	0.49	0.01	97.96%
50%	100 gallons	0.49	0.01	97.96%
75%	150 gallons	0.49	0.01	97.96%
88%	175 gallons	0.49	< 0.01	>97.96%
100%	200 gallons	0.49	< 0.01	>97.96%

**PFOA** Reporting Limit: 0.01 μg/L

#### **PFOS Filter #1 Data Summary Table**

Sample Point	Accumulated Volume Effluent 1	Influent 1 PFOS (μg/L)	Effluent 1 PFOS Concentration (μg/L)	% Reduction
10 UV	10 UV	0.96	< 0.01	>98.96%
25%	50 gallons	0.96	< 0.01	>98.96%
50%	100 gallons	0.96	< 0.01	>98.96%
75%	150 gallons	0.96	< 0.01	>98.96%
88%	175 gallons	0.96	< 0.01	>98.96%
100%	200 gallons	0.96	< 0.01	>98.96%

PFOS Reporting Limit: 0.01 μg/L

#### **PFOA & PFOS Data Summary Filter 1**

Sample Point	Accumulated Volume		Effluent 1 Total PFOA + PFOS	Passing Criteria
	Effluent 1	Concentration (µg/L)	Concentration (µg/L)	
10 UV	10 UV	1.45	0.02	Passed
25%	50 gallons	1.45	0.01	Passed
50%	100 gallons	1.45	0.01	Passed
75%	150 gallons	1.45	0.01	Passed
88%	175 gallons	1.45	< 0.01	Passed
100%	200 gallons	1.45	< 0.01	Passed

#### PFBS Filter #1 Data Summary Table

Sample Point	Accumulated Volume Effluent 1	Influent 1 PFBS (μg/L)	Effluent 1 PFBS Concentration (µg/L)	% Reduction
10 UV	10 UV	0.1	< 0.01	>90.00%
25%	50 gallons	0.1	< 0.01	>90.00%
50%	100 gallons	0.1	< 0.01	>90.00%
75%	150 gallons	0.1	< 0.01	>90.00%
88%	175 gallons	0.1	0.01	90.00%
100%	200 gallons	0.1	< 0.01	>90.00%

PFBS Reporting Limit: 0.01 μg/L

#### PFBA Filter #1 Data Summary Table

Sample Point	Accumulated Volume Effluent 1	Influent 1 PFBA (μg/L)	Effluent 1 PFBA Concentration (μg/L)	% Reduction
10 UV	10 UV	0.1	< 0.01	>90.00%
25%	50 gallons	0.1	< 0.01	>90.00%
50%	100 gallons	0.1	< 0.01	>90.00%
75%	150 gallons	0.1	< 0.01	>90.00%
88%	175 gallons	0.1	< 0.01	>90.00%
100%	200 gallons	0.1	< 0.01	>90.00%

**PFBA** Reporting Limit: 0.01 μg/L







#### **EPFB Filter #1 Data Summary Table**

Sample Point	Accumulated Volume Effluent 1	Influent 1 EPFB (μg/L)	Effluent 1 EPFB Concentration (μg/L)	% Reduction
10 UV	10 UV	0.1	< 0.01	>90.00%
25%	50 gallons	0.1	< 0.01	>90.00%
50%	100 gallons	0.1	0.01	90.00%
75%	150 gallons	0.1	< 0.01	>90.00%
88%	175 gallons	0.1	< 0.01	>90.00%
100%	200 gallons	0.1	< 0.01	>90.00%

EPFB Reporting Limit: 0.01 μg/L

#### PFNA Filter #1 Data Summary Table

Sample Point	Accumulated Volume Effluent 1	Influent 1 PFNA (μg/L)	Effluent 1 PFNA Concentration (µg/L)	% Reduction
10 UV	10 UV	0.1	<0.01	>90.00%
25%	50 gallons	0.1	< 0.01	>90.00%
50%	100 gallons	0.1	< 0.01	>90.00%
75%	150 gallons	0.1	< 0.01	>90.00%
88%	175 gallons	0.1	0.02	80.00%
100%	200 gallons	0.1	< 0.01	>90.00%

PFNA Reporting Limit: 0.01 μg/L

#### PHHA Filter #1 Data Summary Table

Sample Point	Accumulated Volume Effluent 1	Influent 1 PHHA (µg/L)	Effluent 1 PHHA Concentration (μg/L)	% Reduction
10 UV	10 UV	0.09	< 0.01	>90.00%
25%	50 gallons	0.09	< 0.01	>90.00%
50%	100 gallons	0.09	< 0.01	>90.00%
75%	150 gallons	0.09	< 0.01	>90.00%
88%	175 gallons	0.09	0.01	90.00%
100%	200 gallons	0.09	< 0.01	>90.00%

PHHA Reporting Limit: 0.01 μg/L

#### **GenX Filter #1 Data Summary Table**

Sample Point	Accumulated Volume Effluent 1	Influent 1 GenX (μg/L)	Effluent 1 GenX Concentration (μg/L)	% Reduction
10 UV	10 UV	0.1	0.02	80.00%
25%	50 gallons	0.1	< 0.01	>90.00%
50%	100 gallons	0.1	0.03	70.00%
75%	150 gallons	0.1	0.04	60.00%
88%	175 gallons	0.1	< 0.01	>90.00%
100%	200 gallons	0.1	< 0.01	>90.00%

GenX Reporting Limit: 0.01 µg/L

#### NFBS Filter #1 Data Summary Table

Sample Point	Accumulated Volume Effluent 1	Influent 1 NFBS (μg/L)	Effluent 1 NFBS Concentration (μg/L)	% Reduction
10 UV	10 UV	0.1	0.01	90.00%
25%	50 gallons	0.1	< 0.01	>90.00%
50%	100 gallons	0.1	0.01	90.00%
75%	150 gallons	0.1	0.02	80.00%
88%	175 gallons	0.1	< 0.01	>90.00%
100%	200 gallons	0.1	< 0.01	>90.00%

NFBS Reporting Limit: 0.01 µg/L







#### **Water Characteristics**

Sample Point	pH (7.5±0.5)	Temperature (20±3°C)	Chloride (80-120) mg/L	Turbidity (<1 NTU)	Alkalinity (160-240) mg/L	Sulfate (160-240) mg/L
10 UV	7.1	20	92	0.3	188	165
50%	7.2	21	98	0.2	202	170
100%	7.1	20	105	0.2	169	160
150%	7.1	21	101	0.3	217	175
180%	7.1	21	99	0.3	209	180
200%	7.2	21	97	0.4	214	169
Average	7.1	21	99	0.3	200	170

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**Disclaimer:** The test results are only related to the filter cartridges tested, in the condition received at the laboratory.



Terms and Conditions.

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## PROONE® G2.0 MINERAL TEST REPORT

Report # 15-173-2 ProOne® G2.0 Filter

Report Date: 08/10/2015

While there is discussion in the scientific community as to what are "good" and "not so good" minerals as related to drinking water, some familiar minerals considered to be "good minerals" include calcium, magnesium and potassium, and "not so good" to include lead, arsenic, antimony, aluminum and barium.

Table 1
PROONE® G2.0 REDUCTION RESULTS

Test Parameter	Influent Water	Filter Element ProOne®	% Reduction
	Concentration	G2.0 Results	
Calcium	185 mg/L	35 mg/L	81.1
Magnesium	18.5 mg/L	19 mg/L	0.0
Potassium	40 mg/L	39 mg/L	2.5

Table 2
PROONE® G2.0 REDUCTION RESULTS

Drinking Water	Influent Water	Filter Element ProOne®	% Reduction
Contaminant Tested	Concentration in µg/L	G2.0 Effluent	
		Concentration in µg/L	
Aluminum	220	4.3	98.0
Antimony	6.2	0.0	100.0
Arsenic (+3 and +5)	310	2.7	99.7
Barium	250	2.5	90.0
Lead	152	0.0	100.0

Jamie Young

Samie Young