# LARQ Pitcher Filters Performance Data

LARQ

# LARQ Pitcher Filters Performance Data

For model #PEFR190A & model #PAFR190A.

Read this Performance Data report and compare the capabilities of this unit with your actual water treatment needs. All contaminants reduced by this water treatment device are not necessarily in your water supply. While testing was performance under standard laboratory conditions, actual performance may vary.

Maximum operating temperature 40°C (90°F).

Do not use with water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system.

Designed in California. Made in China.

Distributed by LARQ, Inc. 1900 S. Norfolk St., Suite 350 San Mateo, CA 94403, USA

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#drinkbrilliantly

## **PERFORMANCE SUMMARY**

Our LARQ Essential Pitcher Filter and LARQ Advanced Pitcher Filter are tested to NSF/ANSI 42, 53 & 401 standards to be effective against a wide range of contaminants.

CONTAMINANT LIST	ESSENTIAL FILTER	ADVANCED FILTER
NSF/ANSI 42, 53 & 401 standards	Initial Filter Life	Initial Filter Life
Chlorine (NSF/ANSI 42)*	99.5%	98.6%
Haloacetic Acids (HAA)		
Bromochloroacetic acid (NSF/ANSI 53)†	Not tested	99.4%
Dichloroacetic acid (NSF/ANSI 53)†	Not tested	99.8%
Monobromoacetic acid (NSF/ANSI 53)†	Not tested	99.8%
Monochloroacetic acid (NSF/ANSI 53)†	Not tested	99.5%
Trichloroacetic acid (NSF/ANSI 53)†	Not tested	99.8%
Heavy Metals		
Cadmium pH=6.5 (NSF/ANSI 53)†	99.8%	99.8%
Cadmium pH=8.5 (NSF/ANSI 53)†	99.6%	99.8%
Copper pH=6.5 (NSF/ANSI 53)†	98.6%	99.7%
Copper pH=8.5 (NSF/ANSI 53)†	99.5%	99.2%
Lead pH=6.5 (NSF/ANSI 53)†	Not tested	99.3%
Lead pH=8.5 (NSF/ANSI 53)†	Not tested	99.7%
Mercury pH=6.5 (NSF/ANSI 53)†	98.9%	98.6%
Mercury pH=8.5 (NSF/ANSI 53)†	98.5%	98.4%
PFAS		
PFOA (NSF/ANSI 53)†	Not tested	98.0%
PFOS (NSF/ANSI 53)†	Not tested	99.1%
Volatile Organic Compounds (VOCs)		
Benzene (NSF/ANSI 53)†	Not tested	95.3%
Chloroform (NSF/ANSI 53)††	96.5%	92.4%
1,1,1-Trichloroethane (NSF/ANSI 53)††	96.5%	92.4%
1,1,2-Trichloroethane (NSF/ANSI 53)††	96.5%	92.4%
1,1-Dichloroethylene (NSF/ANSI 53)††	96.5%	92.4%
1,2,4-Trichlorobenzene (NSF/ANSI 53)††	96.5%	92.4%
1,2-Dichlorobenzene (NSF/ANSI 53)††	96.5%	92.4%
1,2-Dichloropropa ne (NSF/ANSI 53)††	96.5%	92.4%
cis-1,2-Dichloroethylene (NSF/ANSI 53)††	96.5%	92.4%
Carbon Tetrachloride (NSF/ANSI 53)††	96.5%	92.4%
Chlorobenzene (NSF/ANSI 53)††	96.5%	92.4%
Ethylbenzene (NSF/ANSI 53)††	96.5%	92.4%
Ethylene Dibromide (NSF/ANSI 53)††	96.5%	92.4%
Methyl Tert-butyl Ether (MTBE) (NSF/ANSI 53)††	96.5%	92.4%
Styrene (NSF/ANSI 53)††	96.5%	92.4%
Tetrachloroethylene (PCE) (NSF/ANSI 53)††	96.5%	92.4%
Toluene (NSF/ANSI 53)††	96.5%	92.4%
Total Trihalomethanes (TTHMs) (NSF/ANSI 53)††	96.5%	92.4%
Trichloroethylene (TCE) (NSF/ANSI 53)††	96.5%	92.4%
Xylenes (NSF/ANSI 53)††	96.5%	92.4%

<sup>\*</sup> Independently tested to NSF/ANSI 42 standard for the reduction of chlorine.

<sup>†</sup> Independently tested to NSF/ANSI 53 standard for the reduction of lead and Volatile Organic Compounds (VOCs).

 $<sup>\ \, \</sup>dot{\tau}\dot{\tau}\,\text{Based on NSF/ANSI testing standards, Chloroform\,was\,used\,as\,a\,surrogate\,for\,claims\,of\,reduction\,of\,Volatile\,Organic\,Compounds\,(VOCs). }$ 

 $<sup>\ \ \, \ \, \ \, \</sup>ddagger \textit{Independently tested to NSF/ANSI\,401 standard for the reduction of pharmaceuticals, herbicides and pesticides.}$ 

## **PERFORMANCE SUMMARY**

Our LARQ Essential Pitcher Filter and LARQ Advanced Pitcher Filter are tested to NSF/ANSI 42, 53 & 401 standards to be effective against a wide range of contaminants.

2,4-D (2,4-Dichlorophenoxyacetic acid) (NSF/ANSI 53)††	96.5%	92.4%
Alachlor (NSF/ANSI 53)††	96.5%	92.4%
Atrazine (NSF/ANSI 53)††	96.5%	92.4%
Carbofuran (NSF/ANSI 53)††	96.5%	92.4%
Chlordane (NSF/ANSI 53)††	96.5%	92.4%
Dibromochloropropane (DBCP) (NSF/ANSI 53)††	96.5%	92.4%
Dinoseb (NSF/ANSI 53)††	96.5%	92.4%
Endrin (NSF/ANSI 53)††	96.5%	92.4%
Heptachlor (NSF/ANSI 53)††	96.5%	92.4%
Heptachlor epoxide (NSF/ANSI 53)††	96.5%	92.4%
Hexachlorocyclopentadiene (NSF/ANSI 53)††	96.5%	92.4%
Lindane (NSF/ANSI 53)††	96.5%	92.4%
Methoxychlor (NSF/ANSI 53)††	96.5%	92.4%
o-Dichlorobenzene (NSF/ANSI 53)††	96.5%	92.4%
p-Dichlorobenzene (NSF/ANSI 53)††	96.5%	92.4%
Pentachlorophenol (NSF/ANSI 53)††	96.5%	92.4%
Polychlorinated Biphenyls (PCBs) (NSF/ANSI 53)††	96.5%	92.4%
Silvex (2,4,5-TP) (NSF/ANSI 53)††	96.5%	92.4%
Simazine (NSF/ANSI 53)††	96.5%	92.4%
Toxaphen (NSF/ANSI 53)††	96.5%	92.4%
Pharmaceuticals		
Atenolol (NSF/ANSI 401)‡	Not tested	98.3%
Carbamazepine (NSF/ANSI 401)‡	Not tested	99.0%
Estrone (NSF/ANSI 401)‡	Not tested	98.8%
Ibuprofen (NSF/ANSI 401)‡	Not tested	96.0%
Meprobamate (NSF/ANSI 401)‡	Not tested	98.1%
Na proxen (NSF/ANSI 401)‡	Not tested	99.3%
Phenytoin (NSF/ANSI 401)‡	Not tested	99.4%
Trimethoprim (NSF/ANSI 401)‡	Not tested	96.4%
Emerging Contaminants (Herbicides, Pesticides & Chemical C	Compounds)	
Bisphenol A (BPA) (NSF/ANSI 401)‡	Not tested	99.5%
DEET (NSF/ANSI 401)‡	Not tested	99.3%
Linuron (NSF/ANSI 401)‡	Not tested	96.8%
Metolachlor (NSF/ANSI 401)‡	Not tested	99.2%
Nonylphenol (NSF/ANSI 401)‡	Not tested	99.4%
TCEP (NSF/ANSI 401)‡	Not tested	99.8%
TCPP (NSF/ANSI 401)‡	Not tested	99.8%

<sup>\*</sup> Independently tested to NSF/ANSI 42 standard for the reduction of chlorine.

<sup>†</sup> Independently tested to NSF/ANSI 53 standard for the reduction of lead and Volatile Organic Compounds (VOCs).

 $<sup>\</sup>label{thm:continuous} The Based on NSF/ANSI testing standards, Chloroform was used as a surrogate for claims of reduction of Volatile Organic Compounds (VOCs).$ 

 $<sup>\ \ \, \ \, \ \, \</sup>ddagger \textit{Independently tested to NSF/ANSI\,401 standard for the reduction of pharmaceuticals, herbicides and pesticides.}$ 

# NSF/ANSI 42, 53 & 401 Standards

# NSF/ANSI 42 STANDARD DRINKING WATER TREATMENT UNITS

This standard establishes minimum requirements for systems designed to reduce non-health-related contaminants.

The LARQ Essential Pitcher Filters and the LARQ Advanced Pitcher Filters are independently tested to NSF/ANSI 42 for the reduction of chlorine.

# NSF/ANSI 53 STANDARD DRINKING WATER TREATMENT UNITS

This standard establishes minimum requirements for systems designed to reduce specific health-related contaminants.

The LARQ Essential Pitcher Filter is independently tested to NSF/ANSI 53 for the reduction of HAAs, Heavy Metals, VOCs, and other health-related contaminants.

The LARQ Advanced Pitcher Filter is independently tested to NSF/ANSI 53 for the reduction of HAAs, PFOA/PFOS, Heavy Metals, VOCs, and other health-related contaminants.

# NSF/ANSI 401 STANDARD DRINKING WATER TREATMENT UNITS

This standard establishes minimum requirements for systems designed to reduce contaminants of emerging concern.

The LARQ Advanced Pitcher Filters is independently tested to NSF/ANSI 401 for the reduction of pharmaceuticals, and other emerging contaminants.

Filter capacity: 60 gallons (227L).

The LARQ Essential Pitcher Filter & the LARQ Advanced Pitcher Filter are compatible with the LARQ Pitcher & the LARQ Pitcher PureVis<sup>TM</sup>.

# LARQ Essential Pitcher Filter Lab Reports

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Test Number: SZ20210537

Study: Efficacy of LARQ Essential Filter Against Chlorine

Date Received: Feb 19, 2021 Date Analyzed: Apr 11, 2021

#### **Certificate of Analysis**

#### **Background:**

The objective of this experiment was to test the efficacy of LARQ's Essential Filter at removing chlorine based on NSF/ANSI42-2015 (Drinking Water Treatment Units – Aesthetic Effects) and GB/T 5750-2006 (Standard examination methods for drinking water) testing guidelines. LARQ provided 2 Essential Filters for testing. For this study, the chlorine concentration was  $2.0 \text{mg/L} \pm 10\%$ . The challenge water was passed through the Essential Filter at a rate of 1 liter with a 30-60-minute interval. Each sample was taken at 0%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, and 100% of the estimated filter life, ending at a net total of 250 liters of water filtered through.

LARQ Essential Filter	Source of Sample	Delivery	
LARQ, Inc.	Client	LARQ, Inc.	
SIP Topology Environmental Protection & Purification Co.,Ltd.	Trademark	LARQ	
2020/12/29	Sample Description	Solid filter	
2	Type and specification	PEFR190A	
NSF/ANSI42-2015 (Drinking Water Treatment Units - Aesthetic Effects) and GB/T 5750-2006 (Standard examination methods for drinking water)			
Spiking Test: Chlorine			
The test plan is as follows:  1. Rated total water volume of 250L, water flow rate of 0.25 L/min;  2. Test method: the LARQ Essential Filter was tested in individual fills of the hopper.  For each fill, 1 liter of the spiked water was used as the input. 10 liters of water per day were processed by the sample product. 30-60 min interval for each fill;  3. Sampling test at 0%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, and 100% of rated filter life;			
	LARQ, Inc.  SIP Topology Environmental Protection & Purification Co.,Ltd.  2020/12/29  2  NSF/ANSI42-2015 (Drinking Water 5750-2006 (Standard examination me Spiking Test: Chlorine  The test plan is as follows:  1. Rated total water volume of 250L,  2. Test method: the LARQ Essential For each fill, 1 liter of the spiked per day were processed by the sar 3. Sampling test at 0%, 20%, 30%, 46 filter life;	LARQ, Inc.  SIP Topology Environmental Protection & Purification Co.,Ltd.  2020/12/29  Sample Description  Type and specification  NSF/ANSI42-2015 (Drinking Water Treatment Units - Aest 5750-2006 (Standard examination methods for drinking water Spiking Test: Chlorine  The test plan is as follows:  1. Rated total water volume of 250L, water flow rate of 0.25 (2.7 Test method: the LARQ Essential Filter was tested in in For each fill, 1 liter of the spiked water was used as the per day were processed by the sample product. 30-60 m 3. Sampling test at 0%, 20%, 30%, 40%, 50%, 60%, 70%, 8	

Figure 1. Testing results for chlorine

Water yield (L)	before filtration after		entration iltration g/L)	Remova	l rate (%)
		Sample 1	Sample 2	Sample 1	Sample 2
0	2.13	0.01	0.01	99.5	99.5
25	2.07	0.01	0.01	99.5	99.5
50	1.97	0.02	0.01	99.0	99.5
75	1.99	0.03	0.03	98.5	98.5
100	2.01	0.04	0.04	98.0	98.0
125	2.07	0.05	0.05	97.6	97.6
150	2.03	0.05	0.06	97.5	97.0
175	2.11	0.07	0.07	96.7	96.7
200	2.07	0.08	0.08	96.1	96.1
225	2.11	0.08	0.09	96.2	95.7
250	2.03	0.11	0.12	94.6	94.1



Test Number: SZ20210530 and SZ20210531

Study: Efficacy of LARQ Essential Filter Against Cadmium

Date Received: Feb 19, 2021 Date Analyzed: Feb 22, 2021

#### **Certificate of Analysis**

#### **Background:**

The objective of this experiment was to test the efficacy of LARQ's Essential Filter at removing cadmium based on NSF/ANSI53-2019 (Drinking Water Treatment Units - Health Effects) and GB/T 5750-2006 (Standard examination methods for drinking water) testing guidelines. LARQ provided 4 Essential Filters for testing. For this study, the challenge water was adjusted to pH6.5 and pH8.5 with the cadmium concentration was 0.03mg/L  $\pm 10$ %. The challenge water was passed through the Essential Filter at a rate of 1 liter with a 30-60-minute interval. Each sample was taken at 0%, 25%. 50%, 75%, 100%, and 120% of the estimated filter life, ending at a net total of 300 liters of water filtered through.

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Name of Sample	LARQ Essential Filter	Source of Sample	Delivery		
Applicant	LARQ, Inc.	Client	LARQ, Inc.		
Producing Company	SIP Topology Environmental Protection & Purification Co.,Ltd.	Trademark	LARQ		
Date and Batch Number of Production	2020/12/29	Sample Description	Solid filter		
Quantity of Sample	4	Type and specification	PEFR190A		
Testing Standard	NSF/ANSI53-2019 (Drinking Water Treatment Units - Health Effects) and GB/T 5750-2006 (Standard examination methods for drinking water)				
Items of Analysis	Spiking Test: Cadmium (pH6.5 and pH8.5)				
Remarks	The test plan is as follows:  1. Rated total water volume of 300L, water flow rate of 0.25 L/min;  2. Test method: the LARQ Essential Filter was tested in individual fills of the hopper.  For each fill, 1 liter of the spiked water was used as the input. 10 liters of water per day were processed by the sample product. 30-60 min interval for each fill;  3. Sampling test at 0%, 25%, 50%, 75%, 100%, 120% of rated filter life;  4. The test water condition was tested at pH6.5 and pH8.5, and the cadmium concentration was 0.03 mg/L±10%.				

Figure 1. Testing results for cadmium at pH 6.5

Water yield (L)	Concentration before filtration (mg/L)	after f	Concentration after filtration (mg/L)		Removal rate (%)	
		Sample 1	Sample 2	Sample 1	Sample 2	
0	0.0305	0.00006	0.00008	99.8	99.7	
62.5	0.0314	0.00065	0.00122	97.9	96.1	
125	0.0299	0.00055	0.00071	98.2	97.6	
187.5	0.0322	0.00086	0.00082	97.3	97.5	
250	0.0312	0.00091	0.00136	97.1	96.0	
300	0.0326	0.00090	0.00115	97.2	96.5	

Figure 3. Testing results for cadmium at pH8.5

Water yield (L)	Concentration before filtration (mg/L)	Concentration after filtration (mg/L)		Removal rate (%)		
		Sample 1	Sample 2	Sample 1	Sample 2	
0	0.0302	0.00013	0.00014	99.6	99.5	
62.5	0.0321	0.00068	0.00104	97.9	96.8	
125	0.0297	0.00021	0.00045	99.3	98.5	
187.5	0.0318	0.00018	0.00045	99.4	98.6	
250	0.0318	0.00033	0.00052	99.0	98.4	
300	0.0316	0.00084	0.00120	97.3	96.2	



Test Number: SZ20210532 and SZ20210533

Study: Efficacy of LARQ Essential Filter Against Copper

Date Received: Feb 19, 2021 Date Analyzed: May 17, 2021

#### **Certificate of Analysis**

#### **Background:**

The objective of this experiment was to test the efficacy of LARQ's Essential Filter at removing copper based on NSF/ANSI53-2019 (Drinking Water Treatment Units - Health Effects) and GB/T 5750-2006 (Standard examination methods for drinking water) testing guidelines. LARQ provided 4 Essential Filters for testing. For this study, the challenge water was adjusted to pH6.5 and pH8.5 with the copper concentration was  $3.0 \text{mg/L} \pm 10\%$ . The challenge water was passed through the Essential Filter at a rate of 1 liter with a 30-60-minute interval. Each sample was taken at 0%, 25%. 50%, 75%, 100%, and 120% of the estimated filter life, ending at a net total of 300 liters of water filtered through.

Materials and meth	ous.			
Name of Sample	LARQ Essential Filter	Source of Sample	Delivery	
Applicant	LARQ, Inc.	Client	LARQ, Inc.	
Producing Company	SIP Topology Environmental Protection & Purification Co.,Ltd.	Trademark	LARQ	
Date and Batch Number of Production	2020/12/29	Sample Description	Solid filter	
Quantity of Sample	4	Type and specification	PEFR190A	
Testing Standard	NSF/ANSI53-2019 (Drinking Water Treatment Units - Health Effects) and GB/T 5750-2006 (Standard examination methods for drinking water)			
Items of Analysis	Spiking Test: Copper (pH6.5 and pH8.5)			
Remarks	The test plan is as follows:  1. Rated total water volume of 300L, water flow rate of 0.25 L/min;  2. Test method: the LARQ Essential Filter was tested in individual fills of the hopper.  For each fill, 1 liter of the spiked water was used as the input. 10 liters of water per day were processed by the sample product. 30-60 min interval for each fill;  3. Sampling test at 0%, 25%, 50%, 75%, 100%, 120% of rated filter life;  4. The test water condition was tested at pH6.5 and pH8.5, and the copper concentration was 3.0mg/L±10%.			

Figure 1. Testing results for copper at pH 6.5

Water yield (L)	Concentration before filtration (mg/L)	Concentration after filtration (mg/L)		Removal rate (%)	
		Sample 1	Sample 2	Sample 1	Sample 2
0	3.07	0.0416	0.0309	98.6	99.0
62.5	3.08	0.0671	0.0702	97.8	97.7
125	3.12	0.0723	0.0884	97.7	97.2
187.5	3.08	0.0814	0.0869	97.4	97.2
250	2.88	0.0861	0.0973	97.0	96.6
300	3.18	0.0946	0.119	97.0	96.3

Figure 3. Testing results for copper at pH8.5

Water yield (L)	Concentration before filtration (mg/L)			Removal rate (%)	
		Sample 1	Sample 2	Sample 1	Sample 2
0	3.04	0.0151	0.0181	99.5	99.4
62.5	3.25	0.111	0.176	96.6	94.6
125	3.05	0.0989	0.200	96.8	93.4
187.5	3.10	0.199	0.270	93.6	91.3
250	3.19	0.209	0.265	93.4	91.7
300	3.03	0.215	0.276	92.9	90.9



**Test Number:** SZ20210534 and SZ20210535

Study: Efficacy of LARQ Essential Filter Against Mercury

Date Received: Feb 19, 2021 Date Analyzed: Feb 24, 2021

#### **Certificate of Analysis**

#### **Background:**

The objective of this experiment was to test the efficacy of LARQ's Essential Filter at removing mercury based on NSF/ANSI53-2019 (Drinking Water Treatment Units - Health Effects) and GB/T 5750-2006 (Standard examination methods for drinking water) testing guidelines. LARQ provided 4 Essential Filters for testing. For this study, the challenge water was adjusted to pH6.5 and pH8.5 with the mercury concentration was 0.006mg/L  $\pm 10$ %. The challenge water was passed through the Essential Filter at a rate of 1 liter with a 30-60-minute interval. Each sample was taken at 0%, 25%. 50%, 75%, 100%, and 120% of the estimated filter life, ending at a net total of 300 liters of water filtered through.

Name of Sample	LARQ Essential Filter	Source of Sample	Delivery		
Applicant	LARQ, Inc.	Client	LARQ, Inc.		
Producing Company	SIP Topology Environmental Protection & Purification Co.,Ltd.	Trademark	LARQ		
Date and Batch Number of Production	2020/12/29	Sample Description	Solid filter		
Quantity of Sample	4	Type and specification	PEFR190A		
Testing Standard	NSF/ANSI53-2019 (Drinking Water Treatment Units - Health Effects) and GB/T 5750-2006 (Standard examination methods for drinking water)				
Items of Analysis	Spiking Test: Mercury (pH6.5 and pH	18.5)			

The test plan is as follows:  1. Rated total water volume of 300L, water flow rate of 0.25 L/min;
2. Test method: the LARQ Essential Filter was tested in individual fills of the hopper. For each fill, 1 liter of the spiked water was used as the input. 10 liters of water
per day were processed by the sample product. 30-60 min interval for each fill; 3. Sampling test at 0%, 25%, 50%, 75%, 100%, 120% of rated filter life;
4. The test water condition was tested at pH6.5 and pH8.5, and the mercury concentration was 0.006mg/L±10%.

Figure 1. Testing results for mercury at pH 6.5

Water yield (L)	Concentration before filtration (mg/L)		ntration ltration g/L)	Removal	rate (%)
		Sample 1	Sample 2	Sample 1	Sample 2
0	0.00633	<0.00007	<0.00007	>98.9	>98.9
62.5	0.00629	0.00008	<0.00007	98.7	>98.9
125	0.00633	0.00016	0.00008	97.5	98.7
187.5	0.00601	0.00019	0.00012	96.8	98.0
250	0.00640	0.00017	0.00010	97.3	98.4
300	0.00617	0.00033	0.00030	94.7	95.1

Figure 3. Testing results for mercury at pH8.5

Water yield (L)	Concentration before filtration (mg/L)	Concentration after filtration (mg/L)		Remova	l rate (%)
		Sample 1	Sample 2	Sample 1	Sample 2
0	0.00609	0.00009	<0.00007	98.5	>98.9
62.5	0.0065	<0.00007	<0.00007	>98.9	>98.9
125	0.0061	0.00007	<0.00007	98.9	>98.9
187.5	0.00595	0.00009	0.00008	98.5	98.7
250	0.00662	0.00024	0.00025	96.4	96.2
300	0.00618	0.00042	0.00035	93.2	94.3



Test Number: SZ20210536

Study: Efficacy of LARQ Essential Filter Against Chloroform

Date Received: Feb 19, 2021 Date Analyzed: Apr 15, 2021

#### **Certificate of Analysis**

#### **Background:**

The objective of this experiment was to test the efficacy of LARQ's Essential Filter at removing chloroform based on NSF/ANSI53-2019 (Drinking Water Treatment Units - Health Effects) and GB/T 5750-2006 (Standard examination methods for drinking water) testing guidelines. LARQ provided 2 Essential Filters for testing. For this study, the chloroform concentration was  $0.3 \text{mg/L} \pm 10\%$ . The challenge water was passed through the Essential Filter at a rate of 1 liter with a 30-60-minute interval. Each sample was taken at 0%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, 100%, 110%, and 120% of the estimated filter life, ending at a net total of 300 liters of water filtered through.

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Name of Sample	LARQ Essential Filter	Source of Sample	Delivery	
Applicant	LARQ, Inc.	Client	LARQ, Inc.	
Producing Company	SIP Topology Environmental Protection & Purification Co.,Ltd.	Trademark	LARQ	
Date andBatch Number of Production	2020/12/29	Sample Description	Solid filter	
Quantity of Sample	2	Type and specification	PEFR190A	
Testing Standard	NSF/ANSI53-2019 (Drinking Water Treatment Units - Health Effects) and GB/T 5750-2006 (Standard examination methods for drinking water)			
Items of Analysis	Spiking Test: Chloroform			
Remarks	The test plan is as follows:  1. Rated total water volume of 300L, water flow rate of 0.25 L/min;  2. Test method: the LARQ Essential Filter was tested in individual fills of the hopper.  For each fill, 1 liter of the spiked water was used as the input. 10 liters of water per day were processed by the sample product. 30-60 min interval for each fill;  3. Sampling test at 0%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, 100%, 110%, and 120% of rated filter life;  4. The chloroform concentration was 0.3 mg/L±10%.			

Figure 1. Testing results for chloroform

Water yield (L)	Concentration before filtration (mg/L)	Concentration after filtration (mg/L)		Remova	I rate (%)
		Sample 1	Sample 2	Sample 1	Sample 2
0	285	10.1	5.2	96.5	98.2
25	297	11.8	8.8	96.0	97.0
50	315	18.6	16.6	94.1	94.7
75	350	20.4	16.1	94.2	95.4
100	348	24.3	21.2	93.0	93.9
125	306	20.2	17.0	93.4	94.4
150	311	25.8	27.6	91.7	91.1
175	311	19.9	17.8	93.6	94.3
200	287	21.3	18.2	92.6	93.7
225	322	26.8	25.7	91.7	92.0
250	340	34.8	26.9	89.8	92.1
275	301	36.1	31.1	88.0	89.7
300	315	36.1	33.6	88.5	89.3

# LARQ Advanced Pitcher Filter Lab Reports

LλRQ



Test Number: SZ20210525 and SZ20210526

Study: Efficacy of LARQ Advanced Filter Against Lead

Date Received: Feb 19, 2021 Date Analyzed: Feb 28, 2021

#### **Certificate of Analysis**

#### **Background:**

The objective of this experiment was to test the efficacy of LARQ's Advanced Filter at removing lead based on NSF/ANSI53-2019 (Drinking Water Treatment Units - Health Effects) and GB/T 5750-2006 (Standard examination methods for drinking water) testing guidelines. LARQ provided 4 Advanced Filters for testing. For this study, the challenge water was adjusted to pH6.5 and pH8.5 with the lead concentration was  $0.15 \text{mg/L} \pm 10\%$ . The challenge water was passed through the Advanced Filter at a rate of 1 liter with a 30-60-minute interval. Each sample was taken at 0%, 25%. 50%, 75%, 100%, and 120% of the estimated filter life, ending at a net total of 300 liters of water filtered through.

Name of Sample	LARQ Advanced Filter	Source of Sample	Delivery
Applicant	LARQ, Inc.	Client	LARQ, Inc.
Producing Company	SIP Topology Environmental Protection & Purification Co.,Ltd.	Trademark	LARQ
Date and Batch Number of Production	2020/12/29	Sample Description	Solid filter
Quantity of Sample	4	Type and specification	PAFR190A
Testing Standard	NSF/ANSI53-2019 (Drinking Water Treatment Units - Health Effects) and GB/T 5750-2006 (Standard examination methods for drinking water)		
Items of Analysis	Spiking Test: Lead (pH6.5 and pH8.5)		

	The test plan is as follows:
	1. Rated total water volume of 300L, water flow rate of 0.25 L/min;
	2. Test method: the LARQ Advanced Filter was tested in individual fills of the hopper.
Remarks	For each fill, 1 liter of the spiked water was used as the input. 10 liters of water
	per day were processed by the sample product. 30-60 min interval for each fill;
	3. Sampling test at 0%, 25%, 50%, 75%, 100%, 120% of rated filter life;
	4. The test water condition was tested at pH6.5 and pH8.5, and the lead concentration
	was 0.15mg/L±10%.

Figure 1. Testing results for lead at pH 6.5

Water yield (L)	Concentration before filtration (mg/L)	Concentration after filtration (mg/L)		Remova	l rate (%)
		Sample 1	Sample 2	Sample 1	Sample 2
0	0.149	0.00102	0.00125	99.3	99.2
62.5	0.154	0.00251	0.00287	98.4	98.1
125	0.156	0.00136	0.00203	99.1	98.7
187.5	0.149	0.00147	0.00159	99.0	98.9
250	0.149	0.00107	0.00092	99.3	99.4
300	0.152	0.00129	0.00120	99.2	99.2

Figure 3. Testing results for lead at pH8.5

Water yield (L)	Concentration before filtration (mg/L)	Concentration after filtration (mg/L)		Remova	l rate (%)
		Sample 1	Sample 2	Sample 1	Sample 2
0	0.151	0.00038	0.00068	99.7	99.5
62.5	0.149	0.00117	0.00142	99.2	99.0
125	0.159	0.00083	0.00110	99.5	99.3
187.5	0.152	0.00222	0.00224	98.5	98.5
250	0.147	0.00127	0.00126	99.2	99.1
300	0.147	0.00135	0.00133	99.1	99.1



Test Number: SZ20210529

Study: Efficacy of LARQ Advanced Filter Against Chlorine

Date Received: Feb 19, 2021 Date Analyzed: Apr 11, 2021

#### **Certificate of Analysis**

#### **Background:**

The objective of this experiment was to test the efficacy of LARQ's Advanced Filter at removing chlorine based on NSF/ANSI42-2015 (Drinking Water Treatment Units – Aesthetic Effects) and GB/T 5750-2006 (Standard examination methods for drinking water) testing guidelines. LARQ provided 2 Advanced Filters for testing. For this study, the chlorine concentration was 2.0mg/L ±10%. The challenge water was passed through the Advanced Filter at a rate of 1 liter with a 30-60-minute interval. Each sample was taken at 0%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, and 100% of the estimated filter life, ending at a net total of 250 liters of water filtered through.

Name of Sample	LARQ Advanced Filter	Source of Sample	Delivery	
Applicant	LARQ, Inc.	Client	LARQ, Inc.	
Producing Company	SIP Topology Environmental Protection & Purification Co.,Ltd.  Trademark  LARQ			
Date andBatch Number of Production	2020/12/29	Sample Description	Solid filter	
Quantity of Sample	2	Type and specification	PAFR190A	
Testing Standard	NSF/ANSI42-2015 (Drinking Water Treatment Units - Aesthetic Effects) and GB/T 5750-2006 (Standard examination methods for drinking water)			
Items of Analysis	Spiking Test: Chlorine			
Remarks	The test plan is as follows:  1. Rated total water volume of 250L, water flow rate of 0.25 L/min;  2. Test method: the LARQ Advanced Filter was tested in individual fills of the hopper.  For each fill, 1 liter of the spiked water was used as the input. 10 liters of water per day were processed by the sample product. 30-60 min interval for each fill;  3. Sampling test at 0%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, and 100% of rated filter life;  4. The chlorine concentration was 2.0mg/L±10%.			

Figure 1. Testing results for chlorine

Water yield (L)	Concentration before filtration (mg/L)	Concentration after filtration (mg/L)		Remova	l rate (%)
		Sample 1	Sample 2	Sample 1	Sample 2
0	2.13	0.03	0.03	98.6	98.6
25	2.07	0.03	0.03	98.6	98.6
50	1.97	0.03	0.04	98.5	98.0
75	1.99	0.04	0.04	98.0	98.0
100	2.01	0.05	0.05	97.5	97.5
125	2.07	0.07	0.08	96.6	96.1
150	2.03	0.09	0.09	95.6	95.6
175	2.11	0.11	0.10	94.8	95.3
200	2.07	0.13	0.14	93.7	93.2
225	2.11	0.16	0.15	92.4	92.9
250	2.03	0.18	0.17	91.1	91.6



Test Number: SZ20210519 and SZ20210520

Study: Efficacy of LARQ Advanced Filter Against Cadmium

Date Received: Feb 19, 2021 Date Analyzed: Feb 22, 2021

#### **Certificate of Analysis**

#### **Background:**

The objective of this experiment was to test the efficacy of LARQ's Advanced Filter at removing cadmium based on NSF/ANSI53-2019 (Drinking Water Treatment Units - Health Effects) and GB/T 5750-2006 (Standard examination methods for drinking water) testing guidelines. LARQ provided 4 Advanced Filters for testing. For this study, the challenge water was adjusted to pH6.5 and pH8.5 with the cadmium concentration was  $0.03 \text{mg/L} \pm 10\%$ . The challenge water was passed through the Advanced Filter at a rate of 1 liter with a 30-60-minute interval. Each sample was taken at 0%, 25%. 50%, 75%, 100%, and 120% of the estimated filter life, ending at a net total of 300 liters of water filtered through.

Name of Sample	LARQ Advanced Filter	Source of Sample	Delivery
Applicant	LARQ, Inc.	Client	LARQ, Inc.
Producing Company	SIP Topology Environmental Protection & Purification Co.,Ltd.	Trademark	LARQ
Date and Batch Number of Production	2020/12/29	Sample Description	Solid filter
Quantity of Sample	4	Type and specification	PAFR190A
Testing Standard	NSF/ANSI53-2019 (Drinking Water Treatment Units - Health Effects) and GB/T 5750-2006 (Standard examination methods for drinking water)		
Items of Analysis	Spiking Test: Cadmium (pH6.5 and pH8.5)		

	The test plan is as follows:
	1. Rated total water volume of 300L, water flow rate of 0.25 L/min;
	2. Test method: the LARQ Advanced Filter was tested in individual fills of the hopper.
Remarks	For each fill, 1 liter of the spiked water was used as the input. 10 liters of water
	per day were processed by the sample product. 30-60 min interval for each fill;
	3. Sampling test at 0%, 25%, 50%, 75%, 100%, 120% of rated filter life;
	4. The test water condition was tested at pH6.5 and pH8.5, and the cadmium
	concentration was 0.03 mg/L±10%.

Figure 1. Testing results for cadmium at pH 6.5

Water yield (L)	Concentration before filtration (mg/L)	Concentration after filtration (mg/L)		Removal rate (%)	
		Sample 1	Sample 2	Sample 1	Sample 2
0	0.0305	<0.00006	<0.00006	>99.8	>99.8
62.5	0.0314	0.00023	0.00009	99.3	99.7
125	0.0299	0.00019	0.00014	99.4	99.5
187.5	0.0322	0.00030	0.00043	99.1	98.7
250	0.0312	0.00059	0.00049	98.1	98.4
300	0.0326	0.00094	0.00095	97.1	97.1

Figure 3. Testing results for cadmium at pH8.5

Water yield (L)	Concentration before filtration (mg/L)	Concentration after filtration (mg/L)		Remova	rate (%)
		Sample 1	Sample 2	Sample 1	Sample 2
0	0.0302	<0.00006	<0.00006	>99.8	>99.8
62.5	0.0321	0.00028	0.00034	99.1	98.9
125	0.0297	0.00018	0.00023	99.4	99.2
187.5	0.0318	0.00017	0.00023	99.5	99.3
250	0.0318	0.00033	0.00033	99.0	99.0
300	0.0316	0.00052	0.00046	98.4	98.5



Test Number: SZ20210521 and SZ20210522

Study: Efficacy of LARQ Advanced Filter Against Copper

Date Received: Feb 19, 2021

Date Analyzed: May 17, 2021

#### **Certificate of Analysis**

#### **Background:**

The objective of this experiment was to test the efficacy of LARQ's Advanced Filter at removing copper based on NSF/ANSI53-2019 (Drinking Water Treatment Units - Health Effects) and GB/T 5750-2006 (Standard examination methods for drinking water) testing guidelines. LARQ provided 4 Advanced Filters for testing. For this study, the challenge water was adjusted to pH6.5 and pH8.5 with the copper concentration was  $3.0 \text{mg/L} \pm 10\%$ . The challenge water was passed through the Advanced Filter at a rate of 1 liter with a 30-60-minute interval. Each sample was taken at 0%, 25%. 50%, 75%, 100%, and 120% of the estimated filter life, ending at a net total of 300 liters of water filtered through.

Name of Sample	LARQ Advanced Filter	Source of Sample	Delivery	
Applicant	LARQ, Inc.	Client	LARQ, Inc.	
Producing Company	SIP Topology Environmental Protection & Purification Co.,Ltd.	Trademark	LARQ	
Date and Batch Number of Production	2020/12/29	Sample Description	Solid filter	
Quantity of Sample	4	Type and specification	PAFR190A	
Testing Standard	NSF/ANSI53-2019 (Drinking Water Treatment Units - Health Effects) and GB/T 5750-2006 (Standard examination methods for drinking water)			
Items of Analysis	Spiking Test: Copper (pH6.5 and pH8.5)			

	The test plan is as follows:
	1. Rated total water volume of 300L, water flow rate of 0.25 L/min;
	2. Test method: the LARQ Advanced Filter was tested in individual fills of the hopper.
Remarks	For each fill, 1 liter of the spiked water was used as the input. 10 liters of water
	per day were processed by the sample product. 30-60 min interval for each fill;
	3. Sampling test at 0%, 25%, 50%, 75%, 100%, 120% of rated filter life;
	4. The test water condition was tested at pH6.5 and pH8.5, and the copper
	concentration was 3.0mg/L±10%.

Results: Figure 1. Testing results for copper at pH 6.5

Water yield (L)	Concentration before filtration (mg/L)	Concentration after filtration (mg/L)		Remova	l rate (%)
		Sample 1	Sample 2	Sample 1	Sample 2
0	3.07	0.00818	0.00457	99.7	99.9
62.5	3.08	0.0194	0.0212	99.4	99.3
125	3.12	0.0286	0.0330	99.1	98.9
187.5	3.08	0.0320	0.0465	99.0	98.5
250	2.88	0.0540	0.0652	98.1	97.7
300	3.18	0.0647	0.0734	98.0	97.7

Figure 2. Testing results for copper at pH8.5

Water yield (L)	Concentration before filtration (mg/L)	Concentration after filtration (mg/L)		Remova	I rate (%)
		Sample 1	Sample 2	Sample 1	Sample 2
0	3.04	0.0229	0.0231	99.2	99.2
62.5	3.25	0.165	0.0849	94.9	97.4
125	3.05	0.224	0.0937	92.7	96.9
187.5	3.10	0.299	0.139	92.6	95.5
250	3.19	0.229	0.140	92.8	95.6
300	3.03	0.237	0.157	92.2	94.8



Test Number: SZ20210523 and SZ20210524

Study: Efficacy of LARQ Advanced Filter Against Mercury

Date Received: Feb 19, 2021 Date Analyzed: Feb 24, 2021

#### **Certificate of Analysis**

#### **Background:**

The objective of this experiment was to test the efficacy of LARQ's Advanced Filter at removing mercury based on NSF/ANSI53-2019 (Drinking Water Treatment Units - Health Effects) and GB/T 5750-2006 (Standard examination methods for drinking water) testing guidelines. LARQ provided 4 Advanced Filters for testing. For this study, the challenge water was adjusted to pH6.5 and pH8.5 with the mercury concentration was 0.006mg/L  $\pm 10\%$ . The challenge water was passed through the Advanced Filter at a rate of 1 liter with a 30-60-minute interval. Each sample was taken at 0%, 25%. 50%, 75%, 100%, and 120% of the estimated filter life, ending at a net total of 300 liters of water filtered through.

Name of Sample	LARQ Advanced Filter	Source of Sample	Delivery	
Applicant	LARQ, Inc.	Client	LARQ, Inc.	
Producing Company	SIP Topology Environmental Protection & Purification Co.,Ltd.	Trademark	LARQ	
Date and Batch Number of Production	2020/12/29	Sample Description	Solid filter	
Quantity of Sample	4	Type and specification	PAFR190A	
Testing Standard	NSF/ANSI53-2019 (Drinking Water Treatment Units - Health Effects) and GB/T 5750-2006 (Standard examination methods for drinking water)			
Items of Analysis	Spiking Test: Mercury (pH6.5 and pH8.5)			

	The test plan is as follows:
	1. Rated total water volume of 300L, water flow rate of 0.25 L/min;
	2. Test method: the LARQ Advanced Filter was tested in individual fills of the hopper.
Remarks	For each fill, 1 liter of the spiked water was used as the input. 10 liters of water
	per day were processed by the sample product. 30-60 min interval for each fill;
	3.Sampling test at 0%, 25%, 50%, 75%, 100%, 120% of rated filter life;
	4. The test water condition was tested at pH6.5 and pH8.5, and the mercury
	concentration was 0.006mg/L±10%.

Figure 1. Testing results for mercury at pH 6.5

Water yield (L)	Concentration before filtration (mg/L)	Concentration after filtration (mg/L)		Removal rate (%)	
		Sample 1	Sample 2	Sample 1	Sample 2
0	0.00633	0.00009	0.00011	98.6	98.3
62.5	0.00629	<0.00007	<0.00007	>98.9	>98.9
125	0.00633	0.00014	0.00014	97.8	97.8
187.5	0.00601	0.00014	0.00012	97.7	98.0
250	0.00640	0.00015	0.00015	97.7	97.7
300	0.00617	0.00037	0.00032	94.0	94.8

Figure 3. Testing results for mercury at pH8.5

Water yield (L)	Concentration before filtration (mg/L)	Concentration after filtration (mg/L)		Removal rate (%)	
		Sample 1	Sample 2	Sample 1	Sample 2
0	0.00609	0.00010	0.00008	98.4	98.7
62.5	0.0065	0.00007	0.00008	98.9	98.8
125	0.0061	0.00012	0.00016	98.0	97.4
187.5	0.00595	0.00035	0.00021	94.1	96.5
250	0.00662	0.00051	0.00049	92.3	92.6
300	0.00618	0.00050	0.00056	91.9	90.9



Test Number: SZ20210528

Study: Efficacy of LARQ Advanced Filter Against Chloroform

Date Received: Feb 19, 2021 Date Analyzed: Apr 15, 2021

#### **Certificate of Analysis**

#### **Background:**

The objective of this experiment was to test the efficacy of LARQ's Advanced Filter at removing chloroform based on NSF/ANSI53-2019 (Drinking Water Treatment Units - Health Effects) and GB/T 5750-2006 (Standard examination methods for drinking water) testing guidelines. LARQ provided 2 Advanced Filters for testing. For this study, the chloroform concentration was  $0.3 \text{mg/L} \pm 10\%$ . The challenge water was passed through the Advanced Filter at a rate of 1 liter with a 30-60-minute interval. Each sample was taken at 0%, 25%. 50%, 75%, 100%, and 120% of the estimated filter life, ending at a net total of 300 liters of water filtered through.

Name of Sample	LARQ Advanced Filter	Source of Sample	Delivery	
Applicant	LARQ, Inc.	Client	LARQ, Inc.	
Producing Company	SIP Topology Environmental Protection & Purification Co.,Ltd.	Trademark	LARQ	
Date andBatch Number of Production	2020/12/29	Sample Description	Solid filter	
Quantity of Sample	2	Type and specification	PAFR190A	
Testing Standard	NSF/ANSI53-2019 (Drinking Water Treatment Units - Health Effects) and GB/T 5750-2006 (Standard examination methods for drinking water)			
Items of Analysis	Spiking Test: Chloroform			
Remarks	The test plan is as follows:  1. Rated total water volume of 300L, water flow rate of 0.25 L/min;  2. Test method: the LARQ Advanced Filter was tested in individual fills of the hopper.  For each fill, 1 liter of the spiked water was used as the input. 10 liters of water per day were processed by the sample product. 30-60 min interval for each fill;  3. Sampling test at 0%, 25%, 50%, 75%, 100%, 120% of rated filter life;  4. The chloroform concentration was 0.3 mg/L±10%.			

Figure 1. Testing results for chloroform

Water yield (L)	Concentration before filtration (ug/L)	Concentration after filtration (ug/L)		Remova	l rate (%)
		Sample 1	Sample 2	Sample 1	Sample 2
0	285	20.4	21.8	92.8	92.4
25	297	29.9	24.5	89.9	91.8
50	315	57.9	41.0	81.6	87.0
75	350	61.0	52.9	82.6	84.9
100	348	69.3	66.2	80.1	81.0
125	306	75.2	70.9	75.4	76.8
150	311	85.6	81.5	72.5	73.8
175	311	93.1	96.2	70.1	69.1
200	287	91.3	92.4	68.2	67.8
225	322	119	118	63.0	63.4
250	340	127	128	62.6	62.4
275	301	143	119	52.5	60.5
300	315	160	158	49.2	49.8



Test Number: SZ20210527

Study: Efficacy of LARQ Advanced Filter Against Benzene

Date Received: Feb 19, 2021 Date Analyzed: Apr 15, 2021

#### **Certificate of Analysis**

#### **Background:**

The objective of this experiment was to test the efficacy of LARQ's Advanced Filter at removing benzene based on NSF/ANSI53-2019 (Drinking Water Treatment Units - Health Effects) and GB/T 5750-2006 (Standard examination methods for drinking water) testing guidelines. LARQ provided 2 Advanced Filters for testing. For this study, the benzene concentration was  $0.015 \text{mg/L} \pm 10\%$ . The challenge water was passed through the Advanced Filter at a rate of 1 liter with a 30-60-minute interval. Each sample was taken at 0%, 25%. 50%, 75%, 100%, and 120% of the estimated filter life, ending at a net total of 300 liters of water filtered through.

Name of Sample	LARQ Advanced Filter	Source of Sample	Delivery		
Applicant	LARQ, Inc.	Client	LARQ, Inc.		
Producing Company	SIP Topology Environmental Protection & Purification Co.,Ltd.	Trademark	LARQ		
Date and Batch Number of Production	2020/12/29	Sample Description	Solid filter		
Quantity of Sample	2	Type and specification	PAFR190A		
Testing Standard	NSF/ANSI53-2019 (Drinking Water Treatment Units - Health Effects) and GB/T 5750-2006 (Standard examination methods for drinking water)				
Items of Analysis	Spiking Test: Benzene				
Remarks	The test plan is as follows:  1. Rated total water volume of 300L, water flow rate of 0.25 L/min;  2. Test method: the LARQ Advanced Filter was tested in individual fills of the hopper.  For each fill, 1 liter of the spiked water was used as the input. 10 liters of water per day were processed by the sample product. 30-60 min interval for each fill;  3. Sampling test at 0%, 25%, 50%, 75%, 100%, 120% of rated filter life;  4. The benzene concentration was 0.015mg/L±10%.				

Figure 1. Testing results for benzene

Water yield (L)	Concentration before filtration (mg/L)	after f	Concentration after filtration (mg/L)		Removal rate (%)	
		Sample 1	Sample 2	Sample 1	Sample 2	
0	15.0	<0.7	<0.7	>95.3	>95.3	
62.5	15.1	0.9	0.7	94.0	95.3	
125	14.7	<0.7	<0.7	>95.3	>95.2	
187.5	14.1	<0.7	<0.7	>95.0	>95.0	
250	13.5	1.1	1.5	91.8	88.8	
300	14.0	1.6	2.2	88.5	84.2	



## QFT LABORATORY, LLC. Test Report

1041 Glassboro Road Suite D-1, Williamstown NJ 08094 PHONE 856-583-0445 www.enviroteklab.com EPA ID # NJ01298 IAPMO ID# 000102 ANAB Cert ID AT-2866

Send To:

Justin Wang

LARQ

Result: Passed Date: 12/06/2021

Company Name: LARQ

Tested To: NSF/ANSI Std. 53 - Haloacetic Acids Reduction Testing

Description: LARQ Pitcher PureVis with Advanced Filter

Test Type: R&D testing

Project Manager: Jaime Young

Thank you for having your product tested by Envirotek Laboratory, LLC. Please contact your Project Manager if you have any questions or concerns pertaining to this report.

Report Authorization

Jaime A. Young
Lab Director

Date: 12/06/2021



### QFT LABORATORY, LLC.

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NSF/ANSI Std. 53 - Haloacetic Acids Reduction Testing: Passed

Company's Name: LARQ Sample Type: R&D testing

Product: LARO Pitcher PureVis with Advanced Filter

Flow Rate: 10 LPD

Filter Capacity: 270 Liters

Conditioning Procedure: Soak in tap water for 10 minutes. Flush with 1 liter or 1 reservoir of water and discard.

Cycle: 40-60 minutes between loads

Physical Description of Sample: Pour Through

Performance Indicator Device: No, test to 100% Capacity

Test Description: NSF/ANSI Std. 53 – Haloacetic Acids Reduction Testing

Trade Designation/Model Number: Gravity Pitcher Filter

Unit Volume: 0.1 L

Performance Standard: NSF/ANSI Std 600 - 2020

Pass/Fail Criteria (Maximum Product Water Concentration):

Monochloroacetic acid:  $6 \mu g/L$  Monobromoacetic acid:  $6 \mu g/L$  Dichloroacetic acid:  $0.7 \mu g/L$  Bromochloroacetic acid:  $6 \mu g/L$ 

Trichloroacetic acid: 6 μg/L

As per NSF/ANSI Std 600/EPA primary drinking water standard

Decision Rule: Simple Acceptance based on the NSF/ANSI/EPA drinking water limits

#### **Water Characteristics**

Sample Point	pH (7.5±0.5)	Temperature (20±3°C)	TDS (200 to 500 mg/L)	TOC (≥1.0 mg/L)	Turbidity (<1 NTU)
10 UV	7.42	19.1	288	1.3	0.42
20%	7.38	19.9	251	1.2	0.44
40%	7.5	20.0	260	1.1	0.45
60%	7.62	20.3	260	1.2	0.41
80%	7.71	20.9	280	1.3	0.44
100%	7.51	20.4	210	1.2	0.42
Average	7.52	20.1	258	1.2	0.43



### QFT LABORATORY, LLC.

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#### Filter Data Summary Tables

Monochloroacteic Acid					
Influent   Effluent   Concentration   Concentration   Pass/Failed   Volume(L)   μg/L   μg/L					
10 UV	57.9	0.3	Pass		
54 Liters	57.9	0.3	Pass		
108 liters	74.4	<0.1	Pass		
162 liters	75.5	<0.1	Pass		
216 liters	47.7	0.4	Pass		
270 liters	55.5	0.1	Pass		

Bromochloroacetic Acid				
Accumulated Volume(L)	Influent Concentration µg/L	Effluent Concentration μg/L	Pass/Faile	
10 UV	48.9	0.3	Pass	
54 Liters	48.9	0.3	Pass	
108 liters	58.9	0.2	Pass	
162 liters	59.1	0.1	Pass	
216 liters	46.8	<0.1	Pass	
270 liters	47.7	0.1	Pass	

Monobromoacteic Acid				
Accumulated Volume(L)	Influent Concentration µg/L	Effluent Concentration μg/L	Pass/Failed	
10 UV	56.6	<0.1	Pass	
54 Liters	56.6	<0.1	Pass	
108 liters	67.6	<0.1	Pass	
162 liters	61.9	<0.1	Pass	
216 liters	58.9	<0.1	Pass	
270 liters	51.5	<0.1	Pass	

Trichloroacetic Acid				
Accumulated Volume(L)	Influent Concentration µg/L	Effluent Concentration µg/L	Pass/Failed	
10 UV	46.2	<0.1	Pass	
54 Liters	46.2	<0.1	Pass	
108 liters	56.7	<0.1	Pass	
162 liters	57.8	<0.1	Pass	
216 liters	49.9	<0.1	Pass	
270 liters	47.8	<0.1	Pass	

Dichloroacetic Acid				
Accumulated Volume(L)	Influent Concentration µg/L	Effluent Concentration µg/L	Pass/Failed	
10 UV	52.8	<0.1	Pass	
54 Liters	52.8	<0.1	Pass	
108 liters	63.4	<0.1	Pass	
162 liters	63.3	<0.1	Pass	
216 liters	47.3	0.3	Pass	
270 liters	49.2	<0.1	Pass	

Haloacetic acids minimum reporting limit  $0.1~\mu\text{g/L}$ 



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#### Filter System Tested



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

Jaime A. Young
Jaime A. Young
Lab Director



## QFT LABORATORY, LLC. Test Report

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Send To:

Justin Wang

LARQ

Result: Passed Date: 12/06/2021

Customer Name: LARQ

Tested To: NSF/ANSI Standard 53- PFAS Reduction
Description: LARQ Pitcher PureVis with Advanced Filter

Test Type: R&D Testing

Project Manager: Jaime Young

Thank you for having your product tested by QFT Laboratory, LLC. Please contact your Project Manager if you have any questions or concerns pertaining to this report.

Jaime A. Young Lab Director

Report Authorization

Jaime A. Young Date: 12/06/2021



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#### NSF/ANSI Standard 53 PFAS Reduction PT 100%: Passed

Manufacturer's Name: LARQ

Sample Type: R&D Testing

Product: LARQ Pitcher PureVis with Advanced Filter

Flow Rate: 10 LPD

Filter Capacity: 270 Liters

Conditioning Procedure: Soak filter in tap water for 10 minutes. Run 1 liter or 1 reservoir full of water and discard.

Cycle: 40-60 minutes between loads.

Physical Description of Sample: Pour Through

Performance Indicator Device: No, test to 100% Capacity

**Test Description:** Modified NSF/ANSI STD 53 – 2020 PFOA/PFOS

Trade Designation/Model Number: Gravity Pitcher Filter

Unit Volume: 0.1 L

Performance Standard: Modified NSF/ANSI STD 53 – 2020 PFOA/PFOS

Pass/Fail Criteria: ≤ 0.07 μg/L

Decision Rule: Pass/Fail based on simple acceptance of the analytical results above the NSF/ANSI Std limit

Sample Point	pH (7.5±0.5)	Temperature (20±2.5°C)	Turbidity (<1 NTU)	TOC (>1 mg/L)	TDS (200-500)
Start	7.58	19.4	0.43	1.2	268
20%	7.62	19.5	0.42	1.2	271
40%	7.65	19.4	0.45	1.1	270
60%	7.72	20.1	0.5	1.2	288
80%	7.81	21.2	0.48	1.3	298
100%	7.78	20.1	0.44	1.2	299
Average	7.69	20.0	0.45	1.2	282



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

Sample Point	Accumulated Volume	Influent 1 PFOA (μg/L)	Effluent A PFOA Concentration (µg/L)
Start	10 UV	0.50	< 0.01
20%	54 Liters	0.47	< 0.01
40%	108 liters	0.64	< 0.01
60%	162 liters	0.40	< 0.01
80%	216 liters	0.47	< 0.01
100%	270 liters	0.64	< 0.01

PFOA Reporting Limit: 0.01 μg/L

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

Sample Point	Accumulated Volume	Influent 1 PFOS (μg/L)	Effluent 1 PFOS Concentration (μg/L)
Start	10 UV	1.07	< 0.01
20%	54 Liters	0.97	< 0.01
40%	108 liters	1.04	< 0.01
60%	162 liters	1.04	< 0.01
80%	216 liters	1.14	0.03
100%	270 liters	0.96	< 0.01

PFOS Reporting Limit: 0.01 µg/L

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

Sample Point	Accumulated Volume	Influent 1 Total PFOA + PFOS	Effluent 1 Total PFOA + PFOS	Passing Criteria
		Concentration (µg/L)	Concentration (µg/L)	
Start	10 UV	1.57	<0.01	Pass
20%	54 Liters	1.44	<0.01	Pass
40%	108 liters	1.68	<0.01	Pass
60%	162 liters	1.44	<0.01	Pass
80%	216 liters	1.61	0.03	Pass
100%	270 liters	1.60	<0.01	Pass

### Filter System Tested



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Jaime A. Young
Jaime A. Young
Lab Director



# QFT LABORATORY, LLC. Test Report

1041 Glassboro Road Suite D-1, Williamstown NJ 08094 PHONE 856-583-0445 www.enviroteklab.com EPA ID # NJ01298 IAPMO ID# 000102 ANAB Cert ID AT-2866

Send To:

Justin Wang

LARQ

Result: Passed Date: 12/06/2021

Customer Name: LARQ.

Tested To: NSF/ANSI Std 401 Section 7, Group 1

Description: LARQ Pitcher PureVis with Advanced Filter

Test Type: R&D Testing

Project Manager: Jaime Young

Thank you for having your product tested by QFT Laboratory, LLC. Please contact your Project Manager if you have any questions or concerns pertaining to this report.

Report Authorization

Jaime A. Young
Jaime A. Young
Lab Director

Date: 12/06/2021



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### Standard 401 Emerging Compounds Group 1 Reduction PT 100%: Passed

Manufacturer's Name: LARQ Sample Type: R&D Testing

Product Type: LARQ Pitcher PureVis with Advanced Filter

Flow Rate: 10 LPD

Filter Capacity: 270 Liters

Conditioning Procedure: Soak for 10 minutes in tap water. Run 1 liter or 1 reservoir through and discard.

Cycle: 40-60 minutes between loads.

Physical Description of Sample: Pour Through

Performance Indicator Device: No, test to 100% of Capacity

Test Description: NSF/ANSI Std 401 Section 7, Group 1- Emerging Compound Reduction Testing Group 1

Trade Designation/Model Number: Gravity Pitcher Filter

Unit Volume: 0.1 L

Performance Standard: NSF/ANSI Std 401 Section 7 - 2020

Pass/Fail Criteria (Emerging Compound Maximum Product Water Concentration):

Atenolol Passing criteria: 30 ng/L; Carbamazepine Passing criteria: 200 ng/L

**DEET** passing criteria: 200 ng/L; **Metolachlor** passing criteria: 200 ng/L

Meprobamate passing criteria: 60 ng/L; Trimethoprim passing criteria: 20 ng/L

**Linuron** passing criteria: 20 ng/L

Decision Rule: Pass/Fail based on simple acceptance of the analytical results above the NSF/ANSI Std limit

Sample Point	pH (7.5±0.5)	Temperatur e (20±3°C)	TDS (200 to 500 mg/L)	Turbidity (<1 NTU)	TOC (>1 mg/L)
Start	7.58	19.4	268	0.44	1.2
20%	7.31	19.6	281	0.45	1.2
40%	7.5	20.1	280	0.44	1.1
60%	7.62	20.1	240	0.48	1.3
80%	7.78	20.8	250	0.44	1.3
100%	7.62	20.3	248	0.45	1.2
Average	7.57	20.1	261	0.45	1.2



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### **Trimethoprim Filter Data Summary Table**

Sample Point	Accumulated Volume Effluent 1	Influent 1 Trimethoprim (112-168 ng/L)	Effluent 1 Trimethoprim (ng/L)	Passed/Failed ≤20 ng/L
Start	10 UV	137	5	Pass
20%	54 Liters	157	<1	Pass
40%	108 liters	151	<1	Pass
60%	162 liters	142	2	Pass
80%	216 liters	149	<1	Pass
100%	270 liters	153	<1	Pass

Trimethoprim Reporting Limit: 1 ng/L

### Carbamazepine Filter Data Summary Table

Sample Point	Accumulated Volume Effluent 1	Influent 1 Carbamazepine (1120-1680 ng/L)	Effluent 1 Concentration (ng/L)	Passed/Failed ≤200 ng/L
Start	10 UV	982	10	Pass
20%	54 Liters	1141	<10	Pass
40%	108 liters	1426	55	Pass
60%	162 liters	1495	6	Pass
80%	216 liters	1343	170	Pass
100%	270 liters	1379	124	Pass

Carbamazepine Reporting Limit: 10 ng/L

### **Atenolol Filter Data Summary Table**

Sample Point	Accumulated Volume Effluent 1	Influent 1 Atenolol (160-240 ng/L)	Effluent 1 Atenolol (ng/L)	Passed/Failed ≤30 ng/L
Start	10 UV	239	4	Pass
20%	54 Liters	239	<1	Pass
40%	108 liters	200	<1	Pass
60%	162 liters	204	19	Pass
80%	216 liters	206	1	Pass
100%	270 liters	214	1	Pass

Atenolol Detecting Limit: 1 ng/L

### Meprobamate Filter Data Summary Table

Sample Point	Accumulated Volume Effluent 1	Influent 1 Meprobamate (320-480 ng/L)	Effluent 1 Meprobamate (ng/L)	Passed/Failed ≤60 ng/L
Start	10 UV	465	9	Pass
20%	54 Liters	239	10	Pass
40%	108 liters	408	<1	Pass
60%	162 liters	409	38	Pass
80%	216 liters	353	44	Pass
100%	270 liters	474	48	Pass

Meprobamate Reporting Limit: 1 ng/L

### **Metolachlor Filter Data Summary Table**

Sample Point	Accumulated Volume Effluent 1	Influent 1 Metolachlor (1120-1680 ng/L)	Effluent 1 Metolachlor (ng/L)	Passed/Failed ≤200 ng/L
Start	10 UV	1279	<10	Pass
20%	54 Liters	1349	<10	Pass
40%	108 liters	1586	<10	Pass
60%	162 liters	1477	112	Pass
80%	216 liters	1452	38	Pass
100%	270 liters	1535	48	Pass

Metolachlor Reporting Limit: 10 ng/L



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### **DEET Filter Data Summary Table**

Sample Point	Accumulated Volume Effluent 1	Influent 1 DEET (1120-1680 ng/L)	Effluent 1 DEET (ng/L)	Passed/Failed ≤200 ng/L
Start	10 UV	1394	<10	Pass
20%	54 Liters	2186	<10	Pass
40%	108 liters	1220	<10	Pass
60%	162 liters	1337	<10	Pass
80%	216 liters	1136	55	Pass
100%	270 liters	1279	85	Pass

DEET Reporting Limit: 10 ng/L

### **Linuron Filter Data Summary Table**

Sample Point	Accumulated Volume Effluent 1	Influent 1 Linuron (112-184 ng/L)	Effluent 1 (ng/L)	Passed/Failed ≤20 ng/L
Start	10 UV	93	3	Pass
20%	54 Liters	83	<1	Pass
40%	108 liters	135	<1	Pass
60%	162 liters	141	<1	Pass
80%	216 liters	160	<1	Pass
100%	270 liters	133	<1	Pass

Linuron Reporting Limit: 1 ng/L

### Filter System Tested



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Jaime A. Young Lab Director



# QFT LABORATORY, LLC. Test Report

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Send To:

Justin Wang

LARQ

Result: Passed Date: 12/06/2021

Jaime A. Young

Jaime A. Young Lab Director

Customer Name: LARQ

Tested To: NSF/ANSI Std 401 Section 7, Group 2

Description: LARQ Pitcher PureVis with Advanced Filter

Test Type: R&D Testing

Project Manager: Jaime Young

Thank you for having your product tested by QFT Laboratory, LLC. Please contact your Project Manager if you have any questions or concerns pertaining to this report.

Report Authorization

Date: 12/06/2021



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### NSF/ANSI Standard 401 Emerging Compounds Group 2 Reduction PT 100%: Passed

Manufacturer's Name: LARQ

Sample Type: LARQ Pitcher PureVis with Advanced Filter

Flow Rate: 10 LPD

Filter Capacity: 270 liters

Conditioning Procedure: Soak in tap water for 10 minutes. Run 1 liter or 1 reservoir and discard.

Cycle: 40-60 minutes between loads

Physical Description of Sample: Pour Through

Performance Indicator Device: No, test to 100% of Capacity

Test Description: NSF/ANSI Std. 401, Section7, Group 2 - Emerging Compound Group 2 Reduction Testing

Trade Designation/Model Number: Gravity Pitcher Filter

Unit Volume: 0.1 L

Performance Standard: NSF/ANSI 401, Section 7 – 2020

Pass/Fail Criteria (Emerging compound Maximum Product Water Concentration):

TCEP passing criteria: 700 ng/L TCPP passing criteria: 700 ng/L

Decision Rule: Pass/Fail based on simple acceptance of the analytical results above the NSF/ANSI Std limit

Sample Point	pH (7.5±0.5)	Temperature (20±3°C)	TDS (200 to 500 mg/L)	Turbidity (<1 NTU)	TOC (≥1.0 mg/L)
Start	7.58	19.3	238	0.43	1.2
20%	7.42	19.5	251	0.41	1.2
40%	7.43	19.9	288	0.41	1.1
60%	7.72	20.1	310	0.44	1.1
80%	7.81	22.1	310	0.45	1.2
100%	7.68	20.3	300	0.44	1.2
Average	7.61	20.2	283	0.43	1.2



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### **TCEP Filter Data Summary Table**

Sample Point	Accumulated Volume Effluent 1	Influent 1 TCEP (ng/L)	Effluent 1 TCEP Concentration (ng/L)	Passed/Failed
Start	10 UV	5854	<10	Pass
20%	54 Liters	5854	25	Pass
40%	108 liters	5062	30	Pass
60%	162 liters	5178	32	Pass
80%	216 liters	5622	78	Pass
100%	270 liters	5344	104	Pass

TCEP Reporting Limit: 10 ng/L

**TCPP Filter Data Summary Table** 

Sample Point	Accumulated Volume Effluent 1	Influent 1 TCPP (ng/L)	Effluent 1 TCPP Concentration (ng/L)	Passed/Failed
Start	10 UV	4975	<10	Pass
20%	54 Liters	4975	<10	Pass
40%	108 liters	4271	34	Pass
60%	162 liters	4849	<10	Pass
80%	216 liters	5286	688	Pass
100%	270 liters	5001	422	Pass

TCPP Reporting Limit: 10 ng/L

**Filter System Tested** 



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

Jaime A. Young
Lab Director



# QFT LABORATORY, LLC. Test Report

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Send To:

Justin Wang

LARQ

Result: Passed Date: 12/06/2021

Customer Name: LARQ

Tested To: NSF/ANSI Standard 401 Emerging Compounds Group 3 Reduction PT 100%

Description: LARQ Pitcher PureVis with Advanced Filter

Test Type: R&D Testing

Project Manager: Jaime Young

Thank you for having your product tested by QFT Laboratory, LLC. Please contact your Project Manager if you have any questions or concerns pertaining to this report.

Date: 12/06/2021

Report Authorization

Jaime A. Young
Jaime A. Young
Lab Director



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### NSF/ANSI Standard 401 Emerging Compound Group 3 Reduction PT 100%: Passed

Manufacturer's Name: LARQ

Sample Type: R&D Testing

Product Type: LARQ Pitcher PureVis with Advanced Filter

Flow Rate: 10 LPD

Filter Capacity: 270 liters

Conditioning Procedure: Soak in tap water for 10 minutes. Flush with 1 liter or 1 reservoir and discard.

Cycle: 40-60 minutes between loads

Physical Description of Sample: Pour through

Performance Indicator Device: NA, test to 100% of Capacity

Test Description: NSF/ANSI Std. 401, Section 7, Group 3 - Emerging Compound Group 3 Reduction Testing

Trade Designation/Model Number: Gravity pitcher Filter

Unit Volume: 0.1 L

Performance Standard: NSF/ANSI 401 - 2020

Pass/Fail Criteria (Emerging Compound Maximum Product Water Concentration):

Phenytoin passing criteria: 30 ng/L Ibuprofen passing criteria: 60 ng/L Naproxen passing criteria: 20 ng/L

Estrone passing criteria: 20 ng/L Bisphenol A passing criteria: 300 ng/L Nonylphenol passing criteria: 200 ng/L

Decision Rule: Pass/Fail based on simple acceptance of the analytical results above the NSF/ANSI Std limit

Sample Point	pH (7.5±0.5)	Temperature (20±3°C)	TDS (200 to 500 mg/L)	Turbidity (<1 NTU)	TOC (>1)
Start	7.48	19.3	256	0.43	1.2
20%	7.21	19.8	288	0.44	1.1
40%	7.51	20.1	290	0.45	1.2
60%	7.31	20.2	280	0.41	1.2
80%	7.58	20.9	320	0.45	1.3
100%	7.62	20.4	308	0.45	1.2
Average	7.45	20.1	290	0.44	1.2



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### Phenytoin Filter Data Summary Table

Sample Point	Accumulated Volume Effluent 1	Influent 1 Phenytoin (160-240 ng/L)	Effluent 1 Phenytoin (ng/L)	Passed/Faile d≤30ng/L
Start	10 UV	166	1	Pass
20%	54 Liters	200	<1	Pass
40%	108 liters	211	<1	Pass
60%	162 liters	175	16	Pass
80%	216 liters	118	8	Pass
100%	270 liters	229	20	Pass

Phenytoin Reporting Limit: 1 ng/L

### Naproxen Filter Data Summary Table

Sample Point	Accumulated Volume Effluent 1	Influent 1 Naproxen (112-168 ng/L)	Effluent 1 Naproxen (ng/L)	Passed/Failed ≤20 ng/L
Start	10 UV	135	<1	Pass
20%	54 Liters	200	<1	Pass
40%	108 liters	148	<1	Pass
60%	162 liters	141	<1	Pass
80%	216 liters	181	6	Pass
100%	270 liters	178	<1	Pass

Naproxen Reporting Limit: 1 ng/L

### **Bisphenol A Filter Data Summary Table**

Sample Point	Accumulated Volume Effluent 1	Influent 1 Bisphenol A (1600-2400 ng/L)	Effluent 1 Bisphenol A (ng/L)	Passed/Failed ≤300 ng/L
Start	10 UV	2221	12	Pass
20%	54 Liters	1959	<10	Pass
40%	108 liters	2222	<10	Pass
60%	162 liters	1980	<10	Pass
80%	216 liters	2605	<10	Pass
100%	270 liters	2480	23	Pass

Bisphenol A Reporting Limit: 10 ng/L

### **Estrone Filter Data Summary Table**

Sample Point	Accumulated Volume Effluent 1	Influent 1 Estrone (112-168 ng/L)	Effluent 1 Estrone (ng/L)	Passed/Failed ≤20 ng/L
Start	10 UV	163	2	Pass
20%	54 Liters	229	<1	Pass
40%	108 liters	147	<1	Pass
60%	162 liters	140	<1	Pass
80%	216 liters	159	<1	Pass
100%	270 liters	152	<1	Pass

Estrone Reporting Limit: 1 ng/L

### **Ibuprofen Filter Data Summary Table**

Sample Point	Accumulated Volume Effluent 1	Influent 1 Ibuprofen (320-480 ng/L)	Effluent 1 Ibuprofen (ng/L)	Passed/Failed ≤ 60 ng/L
Start	10 UV	247	<10	Pass
20%	54 Liters	435	<10	Pass
40%	108 liters	434	<10	Pass
60%	162 liters	400	<10	Pass
80%	216 liters	541	<10	Pass
100%	270 liters	491	<10	Pass

Ibuprofen Reporting Limit: 10 ng/L



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### Nonylphenol Filter Data Summary Table

Sample Point	Accumulated Volume Effluent 1	Influent 1 Nonylphenol (1120-1680 ng/L)	Effluent 1 Nonylphenol (ng/L)	Passed/Failed ≤ 200 ng/L
Start	10 UV	2140	13	Pass
20%	54 Liters	1281	<10	Pass
40%	108 liters	1524	<10	Pass
60%	162 liters	1362	<10	Pass
80%	216 liters	1931	<10	Pass
100%	270 liters	1760	<10	Pass

Nonylphenol Reporting Limit: 10 ng/L

### Filter System Tested



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Jaime A. Young
Jaime A. Young
Lab Director