

LARQ

LARQ Bottle Filter Performance Data

LARQ Bottle Filter Essential
LARQ Bottle Filter Advanced

Performance Summary

Our LARQ Bottle Filters are independently tested to NSF/ANSI 42, 53 & 40I standards to be effective against a wide range of pollutants.

Contaminants Filtered	LARQ Bottle Filtered	
	Essential Filter Initial filter life	Advanced Filter Initial filter life
Lead pH=6.5 (NSF / ANSI 53)	N/A	98.9%
Lead pH=8.5 (NSF / ANSI 53)	N/A	>99.9%
Chlorine (NSF / ANSI 42)	>98.9%	99.5%
HAA5 - Monochloroacetic acid (NSF / ANSI 53)	N/A	99.8%
HAA5 - Monobromoacetic acid (NSF / ANSI 53)	N/A	99.8%
HAA5 - Dichloroacetic acid (NSF / ANSI 53)	N/A	99.8%
HAA5 - Trichloroacetic acid (NSF / ANSI 53)	N/A	99.7%
HAA5 - Bromochloroacetic acid (NSF / ANSI 53)	N/A	99.8%
PFOA (NSF / ANSI 53)	>98.46%	97.0%
PFOS (NSF / ANSI 53)	>98.33%	98.9%
Atenolol (NSF / ANSI 40I)	N/A	99.5%
DEET (NSF / ANSI 40I)	N/A	99.5%
Meprobamate (NSF / ANSI 40I)	N/A	99.7%
Linuron (NSF / ANSI 40I)	N/A	99.4%
Carbamazepine (NSF / ANSI 40I)	N/A	99.2%
Metolachlor (NSF / ANSI 40I)	N/A	99.3%
Trimethoprim (NSF / ANSI 40I)	N/A	99.9%
TCEP (NSF / ANSI 40I)	N/A	99.8%
TCP (NSF / ANSI 40I)	N/A	99.7%
Phenytoin (NSF / ANSI 40I)	N/A	99.3%
Estrone (NSF / ANSI 40I)	N/A	99.4%
Ibuprofen (NSF / ANSI 40I)	N/A	97.9%
Bisphenol A (NSF / ANSI 40I)	N/A	99.5%
Naproxen (NSF / ANSI 40I)	N/A	99.5%
Nonylphenol (NSF / ANSI 40I)	N/A	99.3%

LARQ

Third-party Lab Reports

LARQ Bottle Filter

Advanced



Client: LARQ, Inc., 950 Tower Lane, STE 2100, Foster City, CA 94404

Test Number: No. SZ20213468

Study: Efficacy of LARQ Bottle Filter against Lead (pH6.5)

Date Received: Sep 22, 2021

Date Analyzed: Oct 18, 2021

Certificate of Analysis

Background:

The objective of this experiment was to test the efficacy of LARQ's Bottle 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 2 Bottle Filters for testing. For this study, the lead concentration was 0.15mg/L \pm 10%. The challenge water was passed through the Bottle Filter at a rate of 0.70-0.75 L/min. Each sample was taken at 0%, 20%, 40%, 60%, 80%, and 100% of the estimated filter life, ending at a net total of 250 liters of water filtered through.

Materials and methods:

Name of Sample	LARQ Bottle Filter	Source of Sample	Delivery
Applicant	LARQ, Inc.	Client	LARQ, Inc.
Producing Company	QJL NEW MATERIAL CO. LTD	Trademark	LARQ
Date and Batch Number of Production	20210821	Character of Sample	Solid filter
Quantity of Sample	2	Type and specification	BFRF050A
Items of Analysis	Efficacy of LARQ Bottle Filter Against Lead (pH=6.5)		
Testing standard	NSF/ANSI53-2019 (Drinking Water Treatment Units - Health Effects) and GB/T 5750-2006 (Standard examination methods for drinking water)		
Remarks	The test plan is as follows: 1. The challenge water was adjusted to pH 6.5 with the lead concentration at 0.15 mg/L \pm 10%. 2. Sampling test at 0%, 20%, 40%, 60%, 80%, and 100% of the rated filter life, The testflow rate was 0.7-0.75 L/min, and ending at a net total of 250 L of water filtered through.		

Results:

Water yield (L)	Before filtration (mg/L)	After filtration (mg/L)		Removal rate (%)	
		Sample 1	Sample 2	Sample 1	Sample 2
0	0.141	0.00154	0.00255	98.9	98.2
50	0.137	0.00159	0.00250	98.8	98.2
100	0.140	0.00114	0.00167	99.2	98.8
150	0.144	0.00130	0.00195	99.1	98.6
200	0.142	0.00142	0.00204	99.0	98.6
250	0.142	0.00152	0.00241	98.9	98.3

**Client:** LARQ, Inc., 950 Tower Lane, STE 2100, Foster City, CA 94404**Test Number:** No. SZ20213469**Study:** Efficacy of LARQ Bottle Filter against Lead (pH8.5)**Date Received:** Sep 22, 2021**Date Analyzed:** Oct 11, 2021

Certificate of Analysis

Background:

The objective of this experiment was to test the efficacy of LARQ's Bottle 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 2 Bottle Filters for testing. For this study, the lead concentration was 0.15mg/L \pm 10%. The challenge water was passed through the Bottle Filter at a rate of 0.70-0.75 L/min. Each sample was taken at 0%, 20%, 40%, 60%, 80%, and 100% of the estimated filter life, ending at a net total of 250 liters of water filtered through.

Materials and methods:

Name of Sample	LARQ Bottle Filter	Source of Sample	Delivery
Applicant	LARQ, Inc.	Client	LARQ, Inc.
Producing Company	QJL NEW NATERIAL CO. LTD	Trademark	LARQ
Date and Batch Number of Production	20210821	Character of Sample	Solid filter
Quantity of Sample	2	Type and specification	BFRF050A
Items of Analysis	Efficacy of LARQ Bottle Filter Against Lead (pH=8.5)		
Testing standard	NSF/ANSI53-2019 (Drinking Water Treatment Units - Health Effects) and GB/T 5750-2006 (Standard examination methods for drinking water)		
Remarks	<p>The test plan is as follows:</p> <ol style="list-style-type: none"> 1. The challenge water was adjusted to pH 8.5 with the lead concentration at 0.15 mg/L \pm 10%. 2. Sampling test at 0%, 20%, 40%, 60%, 80%, and 100% of the rated filter life, The test flow rate was 0.7-0.75 L/min, and ending at a net total of 250 L of water filtered through. 		

Results:

Water yield (L)	Before filtration (mg/L)	After filtration (mg/L)		Removal rate (%)	
		Sample 1	Sample 2	Sample 1	Sample 2
0	0.141	0.00164	<0.00007	98.8	>99.9
50	0.150	0.00181	0.00043	98.8	99.7
100	0.152	0.00196	0.00058	98.7	99.6
150	0.147	0.00307	0.00039	97.9	99.7
200	0.143	0.00286	<0.00007	98.0	>99.9
250	0.144	0.00218	0.00009	98.5	99.9



(MA):
202019005395

Test No. SZ20213470

Client: LARQ, Inc., 950 Tower Lane, STE 2100, Foster City, CA 94404

Test Number: No. SZ20213470

Study: Efficacy of LARQ Bottle Filter against Chlorine

Date Received: Sep 22, 2021

Date Analyzed: Sep 23, 2021

Certificate of Analysis

Background:

The objective of this experiment was to test the efficacy of LARQ's Bottle 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 Bottle Filters for testing. For this study, the chlorine concentration was 2.0 mg/L \pm 10%. The challenge water was passed through the Bottle Filter at a rate of 0.70-0.75 L/min. Each sample was taken at 0%, 10%, 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.

Materials and methods:

Name of Sample	LARQ Bottle Filter	Source of Sample	Delivery
Applicant	LARQ, Inc.	Client	LARQ, Inc.
Producing Company	QJL NEW MATERIAL CO. LTD	Trademark	LARQ
Date and Batch Number of Production	20210821	Character of Sample	Solid filter
Quantity of Sample	2	Type and specification	BFRF050A
Items of Analysis	Efficacy of LARQ Bottle Filter Against Chlorine		
Testing standard	NSF/ANSI42-2015 (Drinking Water Treatment Units - Aesthetic Effects) and GB/T 5750-2006 (Standard examination methods for drinking water)		
Remarks	The test plan is as follows: 1. The challenge water chlorine concentration was adjusted to 2.0 mg/L \pm 10%. 2. Sampling test at 0%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, and 100% of the rated filter life. The test flow rate was 0.7-0.75 L/min, and ending at a net total of 250 L of water filtered through.		

Results:

Water yield (L)	Before filtration (mg/L)	After filtration (mg/L)		Removal rate (%)	
		Sample 1	Sample 2	Sample 1	Sample 2
0	2.15	<0.01	0.01	>99.5	99.5
25	1.97	0.01	0.04	99.5	98.0
50	2.15	0.03	0.06	98.6	97.2
75	2.07	0.04	0.07	98.1	96.6
100	2.13	0.04	0.07	98.1	96.7
125	2.11	0.04	0.07	98.1	96.7
150	2.09	0.03	0.07	98.6	96.7
175	2.13	0.04	0.07	98.1	96.7
200	2.19	0.05	0.08	97.7	96.3
225	2.13	0.04	0.07	98.1	96.7
250	2.07	0.03	0.06	98.6	97.1



ENVIROTEK LABORATORY, LLC.

Test Report

1041 Glassboro Road Suite D-1, Williamstown NJ 08094
PHONE 856-533-0445 www.enviroteklab.com
EPA ID # NJ01298 IAPMO ID# 000102 ANAB Cert ID AT-2866

Send To:

Justin Wang

LARQ

Result: Passed

Date: 11/29/2021

Company Name: LARQ

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

Description: Sport Bottle

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

Jaime A. Young
Lab Director

Date: 11/29/2021



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EPA ID # NJ01298 IAPMO ID# 000102 ANAB Cert ID AT-2866

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

Company's Name: LARQ

Sample Type: R&D testing

Product: Sport Bottle Filter

Flow Rate: 800 ml/min

Filter Capacity: 200 Liters

Conditioning Procedure: Flush for 1 liter

Cycle: 30 Seconds on 60 seconds off

Physical Description of Sample: Mouth Drawn

Performance Indicator Device: No, test to 100% Capacity

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

Trade Designation/Model Number: sport bottle Filter

Unit Volume: 0.01 L

Performance Standard: NSF/ANSI Std 600 – 2020

Pass/Fail Criteria (Maximum Product Water Concentration):

Monochloroacetic acid: 6 µg/L Monobromoacetic acid: 6 µg/L

Dichloroacetic acid: 0.7 µg/L Bromochloroacetic acid: 6 µg/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 Filter 1

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)
Start	7.68	18.9	256	1.2	0.44
25%	7.71	19.3	281	1.2	0.45
50%	7.63	18.9	258	1.1	0.48
75%	7.81	19.4	299	1.3	0.45
100%	7.62	19.3	301	1.2	0.41
Average	7.69	19.16	279	1.2	0.45



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Filter Data Summary Tables

Monochloroacetic Acid			
Accumulated Volume(L)	Influent Concentration $\mu\text{g/L}$	Effluent Concentration $\mu\text{g/L}$	Pass/Failed
10 UV	90.4	<0.1	Pass
50 Liters	67.8	<0.1	Pass
100 liters	79.9	<0.1	Pass
150 liters	72	<0.1	Pass
200 liters	73.5	<0.1	Pass

Bromochloroacetic Acid			
Accumulated Volume(L)	Influent Concentration $\mu\text{g/L}$	Effluent Concentration $\mu\text{g/L}$	Pass/Failed
10 UV	64.9	0.4	Pass
50 Liters	57.9	0.4	Pass
100 liters	57.8	0.4	Pass
150 liters	60.7	0.2	Pass
200 liters	60.3	0.2	Pass

Monobromoacetic Acid			
Accumulated Volume(L)	Influent Concentration $\mu\text{g/L}$	Effluent Concentration $\mu\text{g/L}$	Pass/Failed
10 UV	73.7	<0.1	Pass
50 Liters	65.5	<0.1	Pass
100 liters	65.1	<0.1	Pass
150 liters	65.5	<0.1	Pass
200 liters	67.6	<0.1	Pass

Trichloroacetic Acid			
Accumulated Volume(L)	Influent Concentration $\mu\text{g/L}$	Effluent Concentration $\mu\text{g/L}$	Pass/Failed
10 UV	58.2	<0.1	Pass
50 Liters	56.4	<0.1	Pass
100 liters	55.9	<0.1	Pass
150 liters	58.9	<0.1	Pass
200 liters	58.8	<0.1	Pass

Dichloroacetic Acid			
Accumulated Volume(L)	Influent Concentration $\mu\text{g/L}$	Effluent Concentration $\mu\text{g/L}$	Pass/Failed
10 UV	67.2	<0.1	Pass
50 Liters	61.1	<0.1	Pass
100 liters	61.4	<0.1	Pass
150 liters	65.2	<0.1	Pass
200 liters	63.9	<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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PHONE 856-533-0445 www.enviroteklab.com
EPA ID # NJ01298 IAPMO ID# 000102 ANAB Cert ID AT-2866

Send To:
Justin Wang
LARQ

Result: Passed

Date: 11/29/2021

Customer Name: LARQ

Tested To: NSF/ANSI Standard 53- PFAS Reduction


Description: Sport Bottle

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
Lab Director

Date: 11/29/2021



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EPA ID # NJ01298 IAPMO ID# 000102 NJDEP ID # 08021 ANAB Cert ID AT-2866

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

Manufacturer's Name: LARQ

Sample Type: R&D Testing

Product: Sport Bottle Filter

Flow Rate: 800 mL/min

Filter Capacity: 200 Liters

Conditioning Procedure: Flush for 1 minute.

Cycle: 30 second on; 60 seconds off

Physical Description of Sample: Mouth Drawn

Performance Indicator Device: No, test to 100% Capacity

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

Trade Designation/Model Number: Sport Bottle Filter

Unit Volume: 0.01 L

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

Pass/Fail Criteria: $\leq 0.07 \mu\text{g/L}$

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

Water Characteristics

Sample Point	pH (7.5±0.5)	Temperature (20±2.5°C)	Turbidity (<1 NTU)	TOC (>1 mg/L)	TDS (200-500)
Start	7.62	18.9	0.41	1.2	258
25%	7.52	19.1	0.42	1.2	271
50%	7.31	18.9	0.44	1.3	298
75%	7.48	19.1	0.45	1.2	280
100%	7.62	19.3	0.43	1.3	299
Average	7.51	19.1	0.43	1.2	281

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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	0.47	<0.01
25%	50 Liters	0.29	<0.01
50%	100 liters	0.44	0.02
75%	150 liters	0.46	<0.01
100%	200 liters	0.41	<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	1.06	<0.01
25%	50 Liters	0.77	<0.01
50%	100 liters	0.95	<0.01
75%	150 liters	0.96	<0.01
100%	200 liters	1.02	<0.01

PFOS Reporting Limit: 0.01 µg/L

PFOA & PFOS Data Summary Filter

Sample Point	Accumulated Volume	Influent 1 Total PFOA + PFOS Concentration (µg/L)	Effluent 1 Total PFOA + PFOS Concentration (µg/L)	Passing Criteria
Start	10 UV	1.53	<0.01	Pass
25%	50 Liters	1.06	<0.01	Pass
50%	100 liters	1.39	0.02	Pass
75%	150 liters	1.42	<0.01	Pass
100%	200 liters	1.43	<0.01	Pass

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

1041 Glassboro Road Suite D-1, Williamstown NJ 08094
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EPA ID # NJ01298 IAPMO ID# 000102 ANAB Cert ID AT-2866

Send To:
Justin Wang
LARQ


Result: Passed

Date: 11/29/2021

Customer Name: LARQ.
Tested To: NSF/ANSI Std 401 Section 7, Group 1
Description: Sport Bottle 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
Lab Director

Date: 11/29/2021

QFT LABORATORY, LLC.

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EPA ID # NJ01298 IAPMO ID# 000102 ANAB Cert ID AT-2866

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

Manufacturer's Name: LARQ

Sample Type: R&D Testing

Product Type: Sport Bottle Filter

Flow Rate: 800 ml/min

Filter Capacity: 200 Liters

Conditioning Procedure: Flush for 1 liter

Cycle: 30 Seconds on 60 seconds off

Physical Description of Sample: Mouth Drawn

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: Sport Bottle Filter

Unit Volume: 0.01 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

Water Characteristics

Sample Point	pH (7.5±0.5)	Temperature (20±3°C)	TDS (200 to 500 mg/L)	Turbidity (<1 NTU)	TOC (>1 mg/L)
Start	7.89	18.9	288	0.42	1.3
25%	7.72	19.3	298	0.42	1.3
50%	7.31	19.2	310	0.44	1.2
75%	7.48	19.1	288	0.45	1.2
100%	7.61	19.3	320	0.48	1.3
Average	7.60	19.16	301	0.44	1.3

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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	146	<1	Pass
25%	50 Liters	148	<1	Pass
50%	100 liters	137	<1	Pass
75%	150 liters	160	<1	Pass
100%	200 liters	150	<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	1349	<10	Pass
25%	50 Liters	1320	61	Pass
50%	100 liters	1285	79	Pass
75%	150 liters	1112	60	Pass
100%	200 liters	1374	18	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	220	<1	Pass
25%	50 Liters	215	<1	Pass
50%	100 liters	200	<1	Pass
75%	150 liters	218	<1	Pass
100%	200 liters	232	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	411	7	Pass
25%	50 Liters	405	<1	Pass
50%	100 liters	408	<1	Pass
75%	150 liters	392	<1	Pass
100%	200 liters	397	14	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	1327	<10	Pass
25%	50 Liters	1393	<10	Pass
50%	100 liters	1586	<10	Pass
75%	150 liters	1422	<10	Pass
100%	200 liters	1424	<10	Pass

Metolachlor Reporting Limit: 10 ng/L

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 EPA ID # NJ01298 IAPMO ID# 000102 ANAB Cert ID AT-2866

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	2010	<10	Pass
25%	50 Liters	1417	<10	Pass
50%	100 liters	1417	<10	Pass
75%	150 liters	1304	<10	Pass
100%	200 liters	1430	20	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	167	<1	Pass
25%	50 Liters	155	<1	Pass
50%	100 liters	135	<1	Pass
75%	150 liters	148	<1	Pass
100%	200 liters	158	<1	Pass

Linuron Reporting Limit: 1 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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EPA ID # NJ01298 ANAB Cert ID AT-2866

Send To:
Justin Wang
LARQ

Result: Passed

Date: 11/29/2021

Customer Name: LARQ

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

Description: Sport Bottle 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
Lab Director

Date: 11/29/2021



QFT LABORATORY, LLC.

1041 Glassboro Road Suite D-1, Williamstown NJ 08094
PHONE 856-533-0445 www.enviroteklab.com
EPA ID # NJ01298 IAPMO ID# 000102

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

Manufacturer's Name: LARQ

Sample Type: Sport Bottle Filter

Flow Rate: 800 ml/min

Filter Capacity: 200 liters

Conditioning Procedure: Flush for 1 liter

Cycle: 30 seconds on 60 seconds off

Physical Description of Sample: Mouth Drawn

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: Spot bottle Filter

Unit Volume: 0.01 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

Water Characteristics

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	7.24	18.9	299	0.41	1.2
25%	7.48	19.1	281	0.41	1.2
50%	7.48	19.3	283	0.42	1.2
75%	7.88	19.4	298	0.44	1.2
100%	7.41	19.2	308	0.48	1.3
Average	7.50	19.18	294	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	4670	10	Pass
25%	50 Liters	4811	32	Pass
50%	100 liters	4403	17	Pass
75%	150 liters	5597	35	Pass
100%	200 liters	4491	105	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	4170	<10	Pass
25%	50 Liters	4427	42	Pass
50%	100 liters	5136	<10	Pass
75%	150 liters	4864	<10	Pass
100%	200 liters	4491	13	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

Jaime A. Young
Lab Director



QFT LABORATORY, LLC. Test Report

1041 Glassboro Road Suite D-1, Williamstown NJ 08094
PHONE 856-533-0445 www.enviroteklab.com
EPA ID # NJ01298 IAPMO ID# 000102 ANAB Cert ID AT-2866

Send To:

Justin Wang

LARQ

Result: Passed

Date: 11/29/2021

Customer Name: LARQ

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

Description: Sport Bottle 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: 11/29/2021



QFT LABORATORY, LLC.

1041 Glassboro Road Suite E-4, Williamstown NJ 08094

PHONE 856-533-0445 www.enviroteklab.com

EPA ID # NJ01298 IAPMO ID# 000102 ANAB Cert ID AT-2866

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

Manufacturer's Name: LARQ

Sample Type: R&D Testing

Product Type: Sport Bottle Filter

Flow Rate: 800 ml/min

Filter Capacity: 200 liters

Conditioning Procedure: Flushed for 1 liter

Cycle: 30 seconds on 60 seconds off

Physical Description of Sample: Mouth drawn

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: Sport Bottle Filter

Unit Volume: 0.01 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

Water Characteristics

Sample Point	pH (7.5±0.5)	Temperature (20±3°C)	TDS (200 to 500 mg/L)	Turbidity (<1 NTU)	TOC (>1)
Start	7.41	18.9	220	0.39	1.2
25%	7.48	18.9	248	0.41	1.2
50%	7.31	18.7	251	0.44	1.3
75%	7.48	19.1	288	0.41	1.2
100%	7.21	19.2	210	0.42	1.3
Average	7.38	19.0	243	0.41	1.2

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EPA ID # NJ01298 IAPMO ID# 000102 ANAB Cert ID AT-2866

Phenytoin Filter Data Summary Table

Sample Point	Accumulated Volume Effluent 1	Influent 1 Phenytoin (160-240 ng/L)	Effluent 1 Phenytoin (ng/L)	Passed/Failed ≤ 30ng/L
Start	10 UV	164	<1	Pass
25%	50 Liters	256	<1	Pass
50%	100 liters	211	<1	Pass
75%	150 liters	202	<1	Pass
100%	200 liters	200	19	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	236	3	Pass
25%	50 Liters	188	<1	Pass
50%	100 liters	148	<1	Pass
75%	150 liters	147	<1	Pass
100%	200 liters	170	8	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	1356	<10	Pass
25%	50 Liters	2248	<10	Pass
50%	100 liters	2222	<10	Pass
75%	150 liters	2196	<10	Pass
100%	200 liters	2398	<10	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	214	2	Pass
25%	50 Liters	167	<1	Pass
50%	100 liters	147	<1	Pass
75%	150 liters	143	<1	Pass
100%	200 liters	156	<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	348	<10	Pass
25%	50 Liters	465	<10	Pass
50%	100 liters	434	<10	Pass
75%	150 liters	408	<10	Pass
100%	200 liters	484	<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	1448	<10	Pass
25%	50 Liters	1621	<10	Pass
50%	100 liters	1524	<10	Pass
75%	150 liters	1502	<10	Pass
100%	200 liters	1703	<10	Pass

Nonylphenol 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

Jaime A. Young
Lab Director

LARQ

Third-party Lab Reports
LARQ Bottle Filter
Essential

Test Report

NBF24-0002688-02

Date: 2024-03-27

Client Name: LARQ, INC.

Client Address: 1900 South Norfolk Street, Suite 350 San Mateo, CA 94403, USA

Sample Name: Bottle Filter Essential
Sample Batch No.: 20231219
Production Date: 20231219
Manufacturer: QJL NEW MATERIAL CO. LTD

Above information and sample(s) was/were submitted and certified by the client, SGS quoted the information with no responsibility as to the accuracy, adequacy and/or completeness.

Date of Sample Received: 2024-02-29
Testing Period: 2024-02-29 ~ 2024-03-27
Test Requested: Select test(s) as requested by the client.
Test Method(s): Please refer to next page(s).
Test Result(s): Please refer to next page(s).



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NBF24-0002688-02

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Sample Description:

Sample No.	SGS Sample ID	Description
1	NBF24-0002688-0001	Bottle Filter Essential, Quantity: 2 sets

Test Requested:

Selected test(s) as requested by applicant:

Removal rates of Perfluorooctane Sulfonate (PFOS) at 0L, 50L, 100L, 150L and 200L of operating life.

Test Method:

Challenge Testing: Refer to NSF/ANSI 53-2022: Drinking Water Treatment Units - Health Effects

Perfluorooctane Sulfonate (PFOS): Refer to USEPA 537.1-2020 Determination of ed perfluorinated alkyl acids in drinking water by solid phase extraction and liquid chromatography/tandem mass spectrometry

Test Result(s):

Table1 Spiked substance

NO	Test item(s)	Spiked substance(s)
1	#Perfluorooctane Sulfonate (PFOS)	Perfluorooctane Sulfonate (PFOS)

Table 2

Detection point(s)	Test item(s)	Unit(s)	Test method(s)	Test result(s)		*Removal rate(s)%	Requirement(s)
				Influent spiked water	Effluent filtrated water		Maximum effluent concentration (µg/L) NSF/ANSI 53
0L	#Perfluorooctane Sulfonate (PFOS)	µg/L	EPA 537.1	0.60	<0.01	>98.33	0.02
50L	#Perfluorooctane Sulfonate (PFOS)	µg/L	EPA 537.1	0.60	<0.01	>98.33	0.02
100L	#Perfluorooctane Sulfonate (PFOS)	µg/L	EPA 537.1	0.60	<0.01	>98.33	0.02
150L	#Perfluorooctane Sulfonate (PFOS)	µg/L	EPA 537.1	0.63	<0.01	>98.41	0.02
200L	#Perfluorooctane Sulfonate (PFOS)	µg/L	EPA 537.1	0.63	<0.01	>98.41	0.02

Remark:

1. *Removal rate (%) = (test result of Influent spiked water - test result of Effluent filtrated water)/ test result of Influent spiked water × 100%

2. The flow rate was 0.8 L/min

3. The systems shall be operated on a 30 s-on / 60 s-off basis

4. # Test items were carried out by SGS-CSTC Standards Technical Services (Shanghai) Co.,Ltd.

SGS-CSTC Standards Technical Services Co., Ltd.Ningbo Branch

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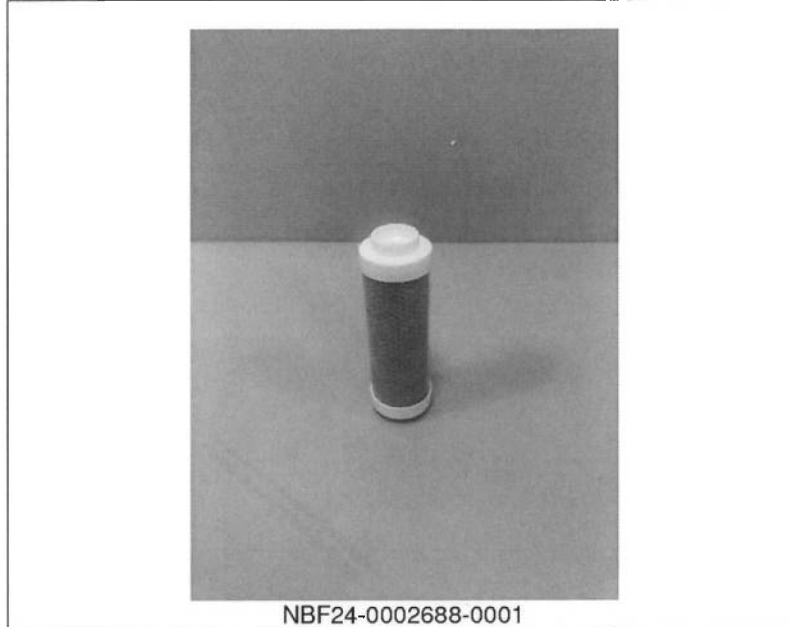
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Sample photo:



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Test Report

NBF24-0002688-01

Date: 2024-03-27

Client Name: LARQ, INC.

Client Address: 1900 South Norfolk Street, Suite 350 San Mateo, CA 94403, USA

Sample Name: Bottle Filter Essential
 Sample Batch No.: 20231219
 Production Date: 20231219
 Manufacturer: QJL NEW MATERIAL CO. LTD

Above information and sample(s) was/were submitted and certified by the client, SGS quoted the information with no responsibility as to the accuracy, adequacy and/or completeness.

Date of Sample Received: 2024-02-29
 Testing Period: 2024-02-29 ~ 2024-03-27
 Test Requested: Select test(s) as requested by the client.
 Test Method(s): Please refer to next page(s).
 Test Result(s): Please refer to next page(s).



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Member of the SGS Group (SGS SA)

Sample Description:

Sample No.	SGS Sample ID	Description
1	NBF24-0002688-0001	Bottle Filter Essential, Quantity: 2 sets

Test Requested:

Selected test(s) as requested by applicant:

Removal rates of Perfluorooctanoic acid (PFOA) at 0L, 50L, 100L, 150L and 200L of operating life.

Test Method:

Challenge Testing: Refer to NSF/ANSI 53-2022: Drinking Water Treatment Units - Health Effects

Perfluorooctanoic acid (PFOA): Refer to USEPA 537.1-2020 Determination of ed perfluorinated alkyl acids in drinking water by solid phase extraction and liquid chromatography/tandem mass spectrometry

Test Result(s):

Table1 Spiked substance

NO	Test item(s)	Spiked substance(s)
1	#Perfluorooctanoic acid (PFOA)	Perfluorooctanoic acid (PFOA)

Table 2

Detection point(s)	Test item(s)	Unit(s)	Test method(s)	Test result(s)		*Removal rate(s)%	Requirement(s)
				Influent spiked water	Effluent filtrated water		Maximum effluent concentration (µg/L) NSF/ANSI 53
0L	#Perfluorooctanoic acid (PFOA)	µg/L	EPA 537.1	0.65	<0.01	>98.46	0.02
50L	#Perfluorooctanoic acid (PFOA)	µg/L	EPA 537.1	0.65	<0.01	>98.46	0.02
100L	#Perfluorooctanoic acid (PFOA)	µg/L	EPA 537.1	0.65	<0.01	>98.46	0.02
150L	#Perfluorooctanoic acid (PFOA)	µg/L	EPA 537.1	0.80	<0.01	>98.75	0.02
200L	#Perfluorooctanoic acid (PFOA)	µg/L	EPA 537.1	0.80	<0.01	>98.75	0.02

Remark:

- *Removal rate (%) = (test result of Influent spiked water - test result of Effluent filtrated water) / test result of Influent spiked water ×100%
- The flow rate was 0.8 L/min
- The systems shall be operated on a 30 s-on / 60 s-off basis
- # Test items were carried out by SGS-CSTC Standards Technical Services (Shanghai) Co.,Ltd.

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Ningbo Branch Laboratory

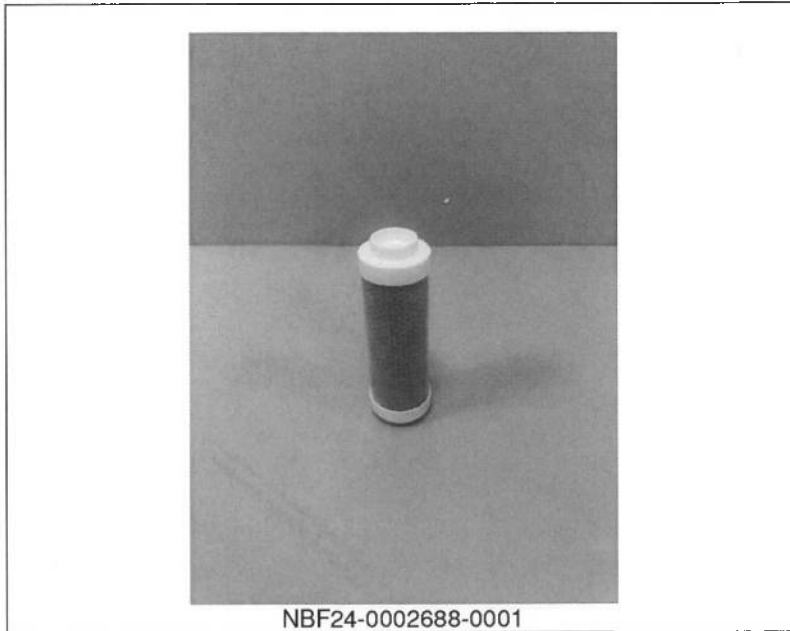
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Test Report

NBF24-0002688-01

Date: 2024-03-27

Sample photo:



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Test Report

XMF24-0004865-09

Date: 2024-07-09

Client Name: LARQ INC

Client Address: 1900 South Norfolk Street, Suite 350 San Mateo, CA 94403, USA

Sample Name: LARQ Bottle Filter Essential

Sample Batch No.: May 28, 2024

Production Date: May 28, 2024

Manufacturer: Xiamen Quanjiale New Materials Co., Ltd.

Above information and sample(s) was/were submitted and certified by the client, SGS quoted the information with no responsibility as to the accuracy, adequacy and/or completeness.

Date of Sample Received: 2024-06-18

Testing Period: 2024-06-18 ~ 2024-07-03

Test Requested: Select test(s) as requested by the client.

Test Method(s): Please refer to next page(s).

Test Results(s): Please refer to next page(s).



SGS Approved Signatory

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Scan to see the report



XMF24-0004865-09

Verification:
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Test Report

XMF24-0004865-09

Date: 2024-07-09

Sample Description:

Sample No.	SGS Sample ID	Description
1	XMF24-0004865-0001	LARQ Bottle Filter Essential

Test requested:

Selected test(s) as requested by applicant: Test the Removal rate of Free chlorine at the start-up, 20 L, 40 L, 60 L, 80 L, 100 L, 120 L, 140 L, 160 L, 180 L, 200 L, 220 L, 240 L, 260 L, 280 L, 300 L of the service life.

Test method(s):

Chlorine reduction testing: Refer to NSF/ANSI 42-2021 Drinking Water Treatment Units-Aesthetic Effects. Free Chlorine: GB/T 5750.11-2023 Standard examination methods for drinking water – Disinfectants parameters.

Test Result(s):

Test point	Test item(s)	Unit(s)	Test method(s)	Test Result(s)		*Removal Rate 1 (%)	*Removal Rate 2 (%)	
				Influent spiked water	Effluent filtrated water			
					Sample 1			Sample 2
Start-up	#Free Chlorine	mg/L	GB/T 5750.11-2023 4.3	1.98	<0.02	0.02	>98.9	99.0
20 L	#Free Chlorine	mg/L	GB/T 5750.11-2023 4.3	2.01	<0.02	0.02	>99.0	99.0
40 L	#Free Chlorine	mg/L	GB/T 5750.11-2023 4.3	2.00	0.03	0.04	98.5	98.0
60 L	#Free Chlorine	mg/L	GB/T 5750.11-2023 4.3	1.99	0.03	0.04	98.5	98.0
80 L	#Free Chlorine	mg/L	GB/T 5750.11-2023 4.3	2.00	0.04	0.05	98.0	97.5
100 L	#Free Chlorine	mg/L	GB/T 5750.11-2023 4.3	2.00	0.06	0.07	97.0	96.5
120 L	#Free Chlorine	mg/L	GB/T 5750.11-2023 4.3	2.01	0.07	0.07	96.5	96.5
140 L	#Free Chlorine	mg/L	GB/T 5750.11-2023 4.3	2.00	0.08	0.08	96.0	96.0
160 L	#Free Chlorine	mg/L	GB/T 5750.11-2023 4.3	2.01	0.09	0.10	95.5	95.0
180 L	#Free Chlorine	mg/L	GB/T 5750.11-2023 4.3	2.00	0.10	0.10	95.0	95.0
200 L	#Free Chlorine	mg/L	GB/T 5750.11-2023 4.3	2.01	0.11	0.12	94.5	94.0
220 L	Free Chlorine	mg/L	GB/T 5750.11-2023 4.3	2.02	0.12	0.12	94.1	94.1
240 L	Free Chlorine	mg/L	GB/T 5750.11-2023 4.3	2.00	0.13	0.13	93.5	93.5
260 L	Free Chlorine	mg/L	GB/T 5750.11-2023 4.3	2.02	0.14	0.15	93.1	92.6

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Test Report

XMF24-0004865-09

Date: 2024-07-09

Test point	Test item(s)	Unit(s)	Test method(s)	Test Result(s)		*Removal Rate 1 (%)	*Removal Rate 2 (%)	
				Influent spiked water	Effluent filtrated water			
					Sample 1			Sample 2
280 L	Free Chlorine	mg/L	GB/T 5750.11-2023 4.3	2.05	0.20	0.21	90.2	89.8
300 L	Free Chlorine	mg/L	GB/T 5750.11-2023 4.3	2.05	0.23	0.25	88.8	87.8

Remark:

- 1.*Removal Rate (%) = (The test result of Influent spiked water - The test result of Effluent filtrated water) / The test result of Influent water x100%
- 2.The flow rate is 0.8 L/min.
- 3.# The test result(s) was/were copied from test report No. XMF24-0004865-05.

Attention:

Chinese shall prevail in this report.

This Test Report supersedes the Test Report No. XMF24-0004865-07 issued by SGS-CSTC Standards Technical Services Co., Ltd.Xiamen Branch Original test report will be invalid from today.

Unless otherwise stated the results shown in this report refer only to the items tested.

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*** End***



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