

LifeStraw<sup>®</sup> 

HOME WATER FILTER DISPENSER

Performance &  
Test Reports

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LifeStraw products have a history of use in some of the harshest conditions around the world, from refugee camps to natural disasters to extreme back-country, our products have to work because lives depend on them. Now we use the same technology in our home line. Our testing and transparency is unparalleled, as is our commitment to social impact and environmental sustainability.

## WHAT SETS LIFESTRAW APART

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1. Tough and Minimalist: Advanced technology used in the toughest conditions around the world, but designed for your kitchen.
2. LifeStraw is the only water filter brand that owns and operates its own fully equipped ISO certified water laboratory
3. 4-step quality control including microbiological testing over every single batch of filters.
4. We give back: We provide a year of safe water to a child in need for every LifeStraw product sold.
5. Transparent testing: We share all internal and external lab reports publicly, on our website.
6. Unique advanced two stage filtration. Ensures better performance against emerging contaminants like microplastics and PFAs.
7. Sustainable. Certified climate neutral company offsets the need to use single use plastics
8. Enhanced microbiological performance. It's all about the 9s. For example, we report bacteria log removal (99.999999%) for all of our products.



## HOW WE TEST OUR PRODUCTS

LifeStraw's testing and transparency is unparalleled and we use the most trusted performance criteria based on protocols established by the World Health Organization, the US EPA, NSF International and the Water Quality Association.

### ALL LIFESTRAW PRODUCTS REMOVE:

- LOG 8 (99.999999%) for Bacteria
- LOG 5 (99.999%) for parasites/amoebas/cysts
- LOG 5 (99.999%) for microplastics
- BPA FREE
- FDA Food Grade Materials

### 4 STEP QUALITY CONTROL

LifeStraw puts 100% of its filters through a rigorous quality control process.

**STEP 1:** Resistance test at high pressure.

**STEP 2:** Bubble test to confirm pore size.

**STEP 3:** Particle test to ensure nothing the size of bacteria or larger can pass through the filters.

**STEP 4:** We send a sample from every batch for full Bacteria and Protozoa log removal tests.

### MICROBIOLOGICAL TESTING - HOW ITS DONE

The only accepted scientific evaluation of microbiological filtration performance is log values (the number of 9s in 99.999999%). PERIOD. All internationally accepted protocols from ANSI, WQA, NSF International, the US EPA, and the World Health Organization evaluate performance through log removal testing. None of these bodies will certify anyone based on pore size; it is ACTUAL PERFORMANCE that matters. LifeStraw products exceed all log-based performance standards.

**LifeStraw is the only water filter brand that owns and operates its own fully equipped ISO certified water laboratory capable of performing cutting edge tests on microbiological performance longevity, turbidity and other performance indicators. LifeStraw also tests all products through external internationally recognized labs.**



# LIFESTRAW HOME WATER FILTER DISPENSER PERFORMANCE DATA



LifeStraw Home water filter pitchers and dispenser utilize a unique dual filtration process that includes an advanced membrane microfilter with a pore size of 0.2 microns that removes bacteria, parasites, microplastics combined with an activated carbon and ion exchange filter which reduces chemicals, heavy metals, and other emerging contaminants. This unique combination of filtration enhances performance and also helps to reduce clogging.

FEATURES + PERFORMANCE	NSF/USEPA REMOVAL REQUIREMENT	LS HOME REMOVAL PERFORMANCE	EXTERNAL LAB CERTIFICATION
<p><b>Bacteria</b> NSF P231/US EPA</p> <ul style="list-style-type: none"> <li>Brucella melitensis</li> <li>Campylobacter jejuni</li> <li>Francisella tularensis</li> <li>Pseudomonas aeruginosa</li> <li>Shigella</li> <li>Staphylococcus aureus</li> <li>Vibrio cholerae (Cholera)</li> <li>Vibrio parahaemolyticus</li> <li>Yersinia enterocolitica</li> <li>Yersinia pestis</li> <li>Enteropathogenic Escherichia coli (E. coli)</li> <li>Haemophilus influenzae</li> <li>Klebsiella pneumoniae</li> <li>Legionella pneumophila</li> <li>Mycobacterium tuberculosis</li> <li>Mycoplasma pneumoniae</li> <li>Burkholderia pseudomallei</li> <li>Salmonella enterica</li> <li>Salmonella typhi (Typhoid)</li> <li>Streptococcus pneumoniae</li> <li>Streptococcus pyogenes</li> <li>Leptospira</li> </ul>	<p><b>min. 99.9999% reduction</b></p>	<p><b>min. 99.999999% reduction</b></p>	<p><b>Aquadiagnostics/IAPMO India</b> (WQA Accredited)</p>
<p><b>Parasites</b> NSF P231/NSF 53</p> <ul style="list-style-type: none"> <li>Ascaris lumbricoides</li> <li>Cryptosporidium spp.</li> <li>Entamoeba histolytica</li> <li>Giardia intestinalis</li> <li>Naegleria gruberi</li> <li>Schistosoma mansoni</li> <li>Taenia saginata</li> </ul>	<p><b>min. 99.9% reduction</b></p>	<p><b>min. 99.9999% reduction</b></p>	<p><b>Aquadiagnostics/IAPMO India</b> (WQA Accredited)</p>
<p><b>Microplastics</b> (as small as 1um)</p>	<p><b>NSF standard under development</b></p>	<p><b>min. 99.9999% reduction</b></p>	<p><b>Aquadiagnostics/IAPMO India</b> (WQA Accredited)</p>
<p><b>Asbestos</b></p>	<p><b>min. 99.9% reduction</b></p>	<p><b>min. 99.9999% reduction</b></p>	<p><b>IAPMO US</b> (ANSI accredited)</p>

# PERFORMANCE DATA CONTINUED

FEATURES + PERFORMANCE	NSF/USEPA REMOVAL REQUIREMENT	LS HOME REMOVAL PERFORMANCE	EXTERNAL LAB CERTIFICATION
<b>Chlorine</b> NSF/ANSI 42 standard	<b>min. 50% reduction</b>	<b>min. 97% reduction</b>	<b>Aquadiagnostics/IAPMO India</b> (WQA Accredited)
<b>Pesticides and herbicides:</b> NSF/ANSI 53 standards			
Atrazine	<b>max output 3 µg/L</b> (equal to minimum 66.6% reduction)	<b>max output 0.35 µg/L</b> (equal to minimum 96.1% reduction)	<b>Aquadiagnostics/IAPMO India</b> (WQA Accredited)
Lindane	<b>max output 0.2 µg/L</b> (equal to minimum 90% reduction)	<b>maximum output &lt; 0.1 µg/L</b> (equal to minimum 95% reduction)	<b>Aquadiagnostics/IAPMO India</b> (WQA Accredited)
<b>No standard</b> Glyphosate	<b>Standard not available yet.</b> following the NSF/ANSI 53 test protocol for pesticide reduction with influent glyphosate concentration of 2mg/L ±10%. Reference: Max output: 700 µg/L requirements for pesticide and herbicide	<b>maximum output 1.12 µg/L</b> (equal to minimum 99.94% reduction)	<b>IAPMO US</b> (ANSI accredited)
<b>PFOA + PFOS</b> NSF 473 standard	<b>max output 0.07 µg/L</b>	<b>max output &lt;0.01 µg/L</b>	<b>IAPMO US</b> (ANSI accredited)
<b>Lead</b> NSF/ANSI 53 standards	<b>maximum output 5 µg/L</b> (equal to minimum 96.7% reduction)	<b>maximum output 1.7 µg/L</b> (equal to minimum 98.9% reduction)	<b>IAPMO US</b> (ANSI accredited)
<b>Mercury</b> NSF/ANSI 53 standards	<b>maximum output 2 µg/L</b> (equal to minimum 66.6% reduction)	<b>maximum output &lt; 1 µg/L</b> (equal to minimum 83.3% reduction)	<b>Aquadiagnostics/IAPMO India</b> (WQA Accredited)
<b>Chromium III</b> NSF/ANSI 53 standards	<b>maximum output 100 µg/L</b> (equal to minimum 66.6% reduction)	<b>maximum output 100 µg/L</b> (equal to minimum 84.7% reduction)	<b>Aquadiagnostics/IAPMO India</b> (WQA Accredited)
<b>Cadmium</b> NSF/ANSI 53 standards	<b>maximum output 5 µg/L</b> (equal to minimum 83.3% reduction)	<b>maximum output &lt;2 µg/L</b> (equal to minimum 93.3% reduction)	<b>Aquadiagnostics/IAPMO India</b> (WQA Accredited)
<b>Copper</b> NSF/ANSI 53 standards	<b>maximum output 1.3 mg/L</b> (equal to minimum 56.6% reduction)	<b>maximum output 0.008 mg/L</b> (equal to minimum 99.7% reduction)	<b>Aquadiagnostics/IAPMO India</b> (WQA Accredited)
<b>Barium</b> NSF/ANSI 53 standards	<b>maximum output 2 mg/L</b> (equal to minimum 80% reduction)	<b>maximum output 1.6 mg/L</b> (equal to minimum 84% reduction)	<b>Aquadiagnostics/IAPMO India</b> (WQA Accredited)
<b>Atenolol</b> NSF/ANSI 401 - Grp1	<b>max permissible product water concentration 60ng/L</b>	<b>maximum output &lt;0.1 ng/L</b> (equal to minimum 99.21% reduction)	<b>Aquadiagnostics/IAPMO India</b> (WQA Accredited)
<b>Carbamazepine</b> NSF/ANSI 401 - Grp1	<b>max permissible product water concentration 200ng/L</b>	<b>maximum output 80 ng/L</b> (equal to minimum 94.27% reduction)	<b>IAPMO US</b> (ANSI accredited)
<b>DEET</b> NSF/ANSI 401 - Grp1	<b>max permissible product water concentration 200ng/L</b>	<b>maximum output 21.5 ng/L</b> (equal to minimum 98.29% reduction)	<b>IAPMO US</b> (ANSI accredited)
<b>Metolachlor</b> NSF/ANSI 401 - Grp1	<b>max permissible product water concentration 200ng/L</b>	<b>maximum output 48.5 ng/L</b> (equal to minimum 96.41% reduction)	<b>IAPMO US</b> (ANSI accredited)
<b>Meprobamate</b> NSF/ANSI 401 - Grp1	<b>maximum permissible product water concentration 60ng/L</b>	<b>maximum output 3.4 ng/L</b> (equal to minimum 99.29% reduction)	<b>IAPMO US</b> (ANSI accredited)
<b>Trimethoprim</b> NSF/ANSI 401 - Grp1	<b>maximum permissible product water concentration 20ng/L</b>	<b>maximum output &lt;1 ng/L</b> (equal to minimum 99.09% reduction)	<b>IAPMO US</b> (ANSI accredited)
<b>Linuron</b> NSF/ANSI 401 - Grp1	<b>maximum permissible product water concentration 20ng/L</b>	<b>maximum output &lt;1 ng/L</b> (equal to minimum 99.28% reduction)	<b>IAPMO US</b> (ANSI accredited)
<b>TCEP</b> NSF/ANSI 401 - Grp 2	<b>maximum permissible product water concentration 700ng/L</b>	<b>maximum output 236.2 ng/L</b> (equal to minimum 95.94% reduction)	<b>IAPMO US</b> (ANSI accredited)
<b>TCPP</b> NSF/ANSI 401 - Grp 2	<b>maximum permissible product water concentration 700ng/L</b>	<b>maximum output 410.3 ng/L</b> (equal to minimum 91.68% reduction)	<b>IAPMO US</b> (ANSI accredited)
<b>Phenytoin</b> NSF/ANSI 401 - Grp 3	<b>maximum permissible product water concentration 30ng/L</b>	<b>maximum output &lt;1 ng/L</b> (equal to minimum 99.45% reduction)	<b>IAPMO US</b> (ANSI accredited)
<b>Ibuprofen</b> NSF/ANSI 401 - Grp 3	<b>maximum permissible product water concentration 60ng/L</b>	<b>maximum output 43.1 ng/L</b> (equal to minimum 89.12% reduction)	<b>IAPMO US</b> (ANSI accredited)
<b>Estrone</b> NSF/ANSI 401 - Grp 3	<b>maximum permissible product water concentration 20ng/L</b>	<b>maximum output 8.5 ng/L</b> (equal to minimum 93.93% reduction)	<b>IAPMO US</b> (ANSI accredited)

# PERFORMANCE DATA CONTINUED

FEATURES + PERFORMANCE	NSF/USEPA REMOVAL REQUIREMENT	LS HOME REMOVAL PERFORMANCE	EXTERNAL LAB CERTIFICATION
<b>Bisphenol A</b> NSF/ANSI 401 - Group 3	<b>max permissible product water concentration 300ng/L</b>	<b>maximum output 91.3 ng/L</b> (equal to minimum 95.45% reduction)	<b>IAPMO US</b> (ANSI accredited)
<b>Naproxen</b> NSF/ANSI 401 - Group 3	<b>max permissible product water concentration 20ng/L</b>	<b>maximum output 13 ng/L</b> (equal to minimum 91.1% reduction)	<b>IAPMO US</b> (ANSI accredited)
<b>Nonylphenol</b> NSF/ANSI 401 - Group 3	<b>max permissible product water concentration 200ng/L</b>	<b>maximum output 138.4 ng/L</b> (equal to minimum 88.85% reduction)	<b>IAPMO US</b> (ANSI accredited)



This performance data represents testing of the dual filtration of LifeStraw Home’s membrane microfilter and activated carbon and ion exchange filter. These filters are compatible with all products in the LifeStraw home collection.



## HOME WATER FILTER TESTS

The following lab reports represent testing for both LifeStraw Home pitcher and dispenser products, as both versions utilize the same filtration technology.



# HOME PITCHER

## ASBESTOS REDUCTION TEST FOLLOWING NSF 53 STANDARDS



## TEST REPORT

5001 East Philadelphia Street  
Ontario, California – USA 91761-2816  
Ph: 909.472.4100 | Fax: 909.472.4243  
<http://www.iapmorfl.org>

**Report Number:** 2585-21001 **Project No.:** 37135

**Report Issued:** November 5, 2021

**Report To:** Vestergaard Frandsen Inc

**Source of Samples:** Tested by QFT Laboratory Inc. Williamstown NJ

**Location of Testing:** 1041 Glassboro Rd. Suite D-1 Williamstown NJ 08094

**Dates of Evaluation:** October 21, 2021

**Product Description:** LifeStraw Home Pitcher – Pour through

**Reference Standard:** NSF/ANSI 53-2020

**Scope of Evaluation:** Qualification of the sample for Asbestos Reduction per NSF/ANSI 53-2020.

**Conclusion:** **The samples described in the “Product Description” were evaluated according to the referenced standard, results are below.**

**Report Status:** **IN COMPLIANCE**

Reviewed By,

A handwritten signature in black ink, appearing to read "Sal Aridi", written over a horizontal line.

Sal Aridi, Director

*All testing and sample preparation for this report was performed under the continuous, direct supervision of IAPMO R&T Lab, unless otherwise stated. The statement of compliance is based on the test results compared to the standard specifications without considering measurement uncertainty. The observations, test results and conclusions in this report apply only to the specific samples tested and are not indicative of the quality or performance of similar or identical products. Only the Client shown above is authorized to copy or distribute the report, and then only in its entirety. Any use of the IAPMO R&T Lab name for the sale or advertisement of the tested material, product or service must first be approved in writing by IAPMO R&T Lab.*

# HOME PITCHER

## ASBESTOS REDUCTION TEST FOLLOWING NSF 53 STANDARDS

### Requirements for Compliance:

The system shall reduce the influent asbestos fiber concentration in the range of  $10^7$  to  $10^8$  fibers per liter by at least 99%

**Table One:** Specifications of testing

<b>Number of Units</b>	Two
<b>Conditioning</b>	Run for 1 minute
<b>Sampling</b>	Per NSF 53
<b>Flow Rate</b>	2 GPD (7.57 LPD)
<b>Filter Capacity</b>	10 L
<b>Unit Volume</b>	0.1 L
<b>Cycle</b>	Continuous
<b>PID</b>	None
<b>Deviations from Standard</b>	none

### Influent water characteristics:

Sample Point	pH (7.5±0.5)	Temperature (20±2.5°C)	TDS (200 to 500 mg/L)	Turbidity: Test Water (<1NTU)	Hardness (<170 mg/L)	TOC (>1 mg/L)	Turbidity: Dust Loading Water (>10NTU)
10 L	7.40	20.1	252	0.42	108	1.1	11.4
Average	7.40	20.1	252	0.42	108	1.1	11.4

**Filter #1 Data Summary Table**

Sample Point	Influent 1 (fibers/L)	Effluent 1 Concentration (fibers/L)	% Reduction
10 L	$5.1842 \times 10^7$	10	99.99998%

Asbestos Reporting Limit: 10 fibers/L

**Filter #2 Data Summary Table**

Sample Point	Influent 1 (fibers/L)	Effluent 1 Concentration (fibers/L)	% Reduction
10 L	$5.1842 \times 10^7$	12	99.99997%

Asbestos Reporting Limit: 10 fibers/L

# HOME PITCHER

## ASBESTOS REDUCTION TEST FOLLOWING NSF 53 STANDARDS

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Figure 1- Filter System Tested



Figure 2- Filter System tested



## TEST REPORT

5001 East Philadelphia Street  
Ontario, California – USA 91761-2816  
Ph: 909.472.4100 | Fax: 909.472.4243  
<http://www.iapmortl.org>

**Report Number:** QFT 401 **Lab Project No. VesQFT002**

**Report Issued:** June 26, 2019

**Client:** Life straw  
Vietnam **Contact:** Le Thu Cao

**Source of Sample:** The samples were shipped to subcontract laboratory QFT Laboratory, LLC and received in good condition.

**Testing Location:** QFT Laboratory, LLC  
41 D Germay Drive  
Wilmington, DE 19804

**Date of Testing:** June 1 – June 19, 2019

**Sample Description:** LS Home Pitcher, Gravity Filter – without warning indicator

**Scope of Testing:** NSF/ANSI 401-2017a, Section 7, non-plumbed pour-through-type batch treatment system with a manufacturer specified use pattern. Testing subcontracted to QFT Laboratory, LLC.

**Conclusion:** **The samples passed the requirements of NSF/ANSI 401-2017a for section 7.2 contaminant reduction claims only.**

Reviewed by,  
Thomas P. Palkon

A handwritten signature in black ink, appearing to read "T. Palkon", positioned above a horizontal line.

**Primary Standards:** NSF/ANSI 401a, Section 7 Performance Claims

### **7.1 General requirements**

**7.1.1 Aesthetic effects claims** – N/A

**7.1.2 Health effects claims** – N/A

**7.1.3 Apparatus** – N/A for gravity type products

### **7.2 Chemical reduction claims**

#### **7.2.1 Chemical reduction testing-active media**

**7.2.1.1 Apparatus** – N/A

**7.2.1.2 Analytical methods** – Sample analysis was conducted in accordance with methods referenced in the standard.

**7.2.1.3 Premature filter plugging** – N/A

**7.2.1.4 General test water** – Test water used for the challenge tanks complies with the all general test water requirements.

**7.2.1.5 Cycle time** – N/A

#### **7.2.1.6 Methods**

**7.2.1.6.1 plumbed-in system without reservoirs and all faucet-mounted systems** – N/A

**7.2.1.6.1.1 Refrigerator filters without integral flow control** – N/A

**7.2.1.6.1.2 Refrigerators filters without integral flow control, with water dispenser and ice maker** – N/A

**7.2.1.6.2 Plumbed-in systems with reservoirs** – N/A

**7.2.1.6.3 Non plumbed pour-through-type batch treatment systems** – N/A

**7.2.1.6.3.1 Systems with a manufacturer's recommended use patter** – Use Pattern: Four 500 ml fills followed by a 20-minute rest, process 40 liters of influent water per day. Leave water in the pitcher overnight so that the filter does not dry out.

**7.2.1.6.3.2 Systems without a manufacturer's recommended use pattern** – N/A

**7.2.1.6.3.3 Mouth drawn drinking water treatment units** – N/A

**7.2.1.6.3.4 Squeeze bottle drinking water treatment units** – N/A

**7.2.1.7 Sampling** – System does not have a performance indication device. Samples were collected after start up, 50%, 100%, 180% and 200% of the estimated capacity of 150 liters.

**7.2.2 Chemical reduction claims – RO device with carbon media** – N/A

### Executive Summary

LS Home Pitcher filters reduced the emerging chemical contaminants listed in NSF/ANSI 401 below the allowable levels. The filtered water did not contain the contaminants above the allowable effluent levels throughout the tested volume of 300Liters. The tested LS Home Pitcher products complied with NSF/ANSI 401 – 2017a standard in reducing the emerging chemical contaminants throughout its claimed lifetime of 150L.

### Test Conditions

- Manufacturer’s Name: Vestergaard
- Sample Type: Qualification
- Product: Batch Filter
- Flow Rate: 40 liters/ day
- Filter Capacity: 150 liters
- Cycle: Pour 500 mL fills four times followed by 20-minute rest. Leave Filtered water in the pitcher to prevent drying of the cartridge during overnight stagnation.
- Conditioning Procedure: Remove and rinse housing, remove filter housing cap and install active carbon and ion exchange filter, fill housing with water, cover and shake for 30 seconds to remove air bubbles, discard water, place housing in pitcher and ensure water spouts align, fill with water again and discard filtered water
- Physical Description of Sample: Gravity Filter
- Performance Indicator Device: No, test to 200% Capacity
- Test Description: NSF/ANSI 401 chemical Reduction Testing
- Trade Designation/Model Number: LS Home Pitcher
- Unit Volume: 0.1 L
- Performance Standard: NSF/ANSI 401 – 2017a
- Pass/Fail Criteria (Emerging Compound Maximum Product Water Concentration):
  - Group 1**
    - 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
  - Group 2**
    - TCEP passing criteria: 700 ng/L
    - TCPP passing criteria: 700 ng/L
  - Group 3**
    - Phenytoin passing criteria: 30 ng/L
    - Ibuprofen passing criteria: 60 ng/L
    - Estrone passing criteria: 20 ng/L
    - Bisphenol A passing criteria: 300 ng/L
    - Naproxen passing criteria: 20 ng/L
    - Nonylphenol passing criteria: 200 ng/L

## Test Results Group 1

### Meprobamate Filter #1 Data Summary Table

Sample Point	Accumulated Volume	Influent (ng/L)	Effluent (ng/L)	Reduction
10 UV	10 UV	390	<0.1	>99.74%
50%	75 Liters	532	<0.1	>99.81%
100%	150 liters	481	3.4	>99.29%
150%	225 liters	333	<0.1	>99.70%
180%	270 liters	381	<0.1	>99.74%
200%	300 liters	468	<0.1	>99.79%

### Meprobamate Filter #2 Data Summary Table

Sample Point	Accumulated Volume	Influent (ng/L)	Effluent (ng/L)	Reduction
10 UV	10 UV	390	<0.1	>99.74%
50%	75 Liters	532	<0.1	>99.81%
100%	150 liters	481	<0.1	>99.79%
150%	225 liters	333	<0.1	>99.70%
180%	270 liters	381	<0.1	>99.74%
200%	300 liters	468	<0.1	>99.74%

Meprobamate Detection Limit: 0.1 ng/L

### Atenolol Filter #1 Data Summary Table

Sample Point	Accumulated Volume	Influent (ng/L)	Effluent (ng/L)	Reduction
10 UV	10 UV	199	<0.1	>99.50%
50%	75 Liters	138	<0.1	>99.28%
100%	150 liters	222	<0.1	>99.55%
150%	225 liters	127	<0.1	>99.21%
180%	270 liters	255	<0.1	>99.61%
200%	300 liters	194	<0.1	>99.48%

### Atenolol Filter #2 Data Summary Table

Sample Point	Accumulated Volume	Influent (ng/L)	Effluent (ng/L)	Reduction
10 UV	10 UV	199	<0.1	>99.50%
50%	75 Liters	138	<0.1	>99.28%
100%	150 liters	222	<0.1	>99.55%
150%	225 liters	127	<0.1	>99.21%
180%	270 liters	255	<0.1	>99.61%
200%	300 liters	194	<0.1	>99.48%

Atenolol Detection Limit: 0.1 ng/L

### Carbamazepine Filter #1 Data Summary Table

Sample Point	Accumulated Volume	Influent (ng/L)	Effluent (ng/L)	Reduction
10 UV	10 UV	1396	80.0	94.27%
50%	75 Liters	1324	<10	>99.24%
100%	150 liters	1594	<10	>99.37%
150%	225 liters	1347	<10	>99.26%
180%	270 liters	1731	<10	>99.42%
200%	300 liters	1389	<10	>99.28%

### Carbamazepine Filter #2 Data Summary Table

Sample Point	Accumulated Volume	Influent (ng/L)	Effluent (ng/L)	Reduction
10 UV	10 UV	1396	14.5	98.96%
50%	75 Liters	1324	61.3	95.37%
100%	150 liters	1594	<10	>99.37%
150%	225 liters	1347	<10	>99.26%
180%	270 liters	1731	<10	>99.42%
200%	300 liters	1389	<10	>99.28%

Carbamazepine Detection Limit: 10 ng/L

# HOME PITCHER

## PERFORMANCE TESTING FOLLOWING NSF/ANSI 401 STANDARD

**DEET Filter #1 Data Summary Table**

Sample Point	Accumulated Volume	Influent (ng/L)	Effluent (ng/L)	Reduction
10 UV	10 UV	1399	<10	>99.29%
50%	75 Liters	1240	<10	>99.19%
100%	150 liters	1389	<10	>99.28%
150%	225 liters	1222	<10	>99.18%
180%	270 liters	1643	<10	>99.39%
200%	300 liters	1621	<10	>99.38%

**DEET Filter #2 Data Summary Table**

Sample Point	Accumulated Volume	Influent (ng/L)	Effluent 1 (ng/L)	Reduction
10 UV	10 UV	1399	11.2	99.20%
50%	75 Liters	1240	<10	>99.19%
100%	150 liters	1389	<10	>99.28%
150%	225 liters	1222	<10	>99.18%
180%	270 liters	1643	<10	>99.39%
200%	300 liters	1621	<10	>99.38%

DEET Detection Limit: 10 ng/L

**Metolachlor Filter #1 Data Summary Table**

Sample Point	Accumulated Volume	Influent (ng/L)	Effluent (ng/L)	Reduction
10 UV	10 UV	1356	<10	>99.26%
50%	75 Liters	871	<10	>98.85%
100%	150 liters	956	<10	>99.95%
150%	225 liters	1352	11.7	99.13%
180%	270 liters	1254	21.5	98.29%
200%	300 liters	1309	<10	>99.24%

**Metolachlor Filter #2 Data Summary Table**

Sample Point	Accumulated Volume	Influent (ng/L)	Effluent (ng/L)	Reduction
10 UV	10 UV	1356	<10	>99.26%
50%	75 Liters	871	<10	>98.85%
100%	150 liters	956	14.3	98.50%
150%	225 liters	1352	48.5	96.41%
180%	270 liters	1254	10.9	99.13%
200%	300 liters	1309	10.7	99.18%

Metolachlor Detection Limit: 10 ng/L

**Trimethoprim Filter #1 Data Summary Table**

Sample Point	Accumulated Volume	Influent (ng/L)	Effluent (ng/L)	Reduction
10 UV	10 UV	139	<1	>99.28%
50%	75 Liters	88	<1	>98.86%
100%	150 liters	128	<1	>92.22%
150%	225 liters	134	<1	>99.25%
180%	270 liters	153	<1	>99.35%
200%	300 liters	110	<1	>99.09%

**Trimethoprim Filter #2 Data Summary Table**

Sample Point	Accumulated Volume	Influent ng/L)	Effluent (ng/L)	Reduction
10 UV	10 UV	139	<1	>99.28%
50%	75 Liters	88	<1	>98.86%
100%	150 liters	128	<1	>92.22%
150%	225 liters	134	<1	>99.25%
180%	270 liters	153	<1	>99.35%
200%	300 liters	110	<1	>99.09%

Trimethoprim Detection Limit: 1 ng/L



# HOME PITCHER

## PERFORMANCE TESTING FOLLOWING NSF/ANSI 401 STANDARD

**Linuron Filter #1 Data Summary Table**

Sample Point	Accumulated Volume	Influent (ng/L)	Effluent (ng/L)	Reduction
10 UV	10 UV	139	<1	>99.28%
50%	75 Liters	167	<1	>98.40%
100%	150 liters	195	<1	>92.49%
150%	225 liters	149	<1	>99.33%
180%	270 liters	171	<1	>99.42%
200%	300 liters	157	<1	>99.36%

**Linuron Filter #2 Data Summary Table**

Sample Point	Accumulated Volume	Influent (ng/L)	Effluent (ng/L)	Reduction
10 UV	10 UV	139	<1	>99.28%
50%	75 Liters	167	<1	>98.40%
100%	150 liters	195	<1	>92.49%
150%	225 liters	149	<1	>99.33%
180%	270 liters	171	<1	>99.42%
200%	300 liters	157	<1	>99.36%

Linuron Detection Limit: 1 ng/L

**Influent Water Characteristics**

Sample Point	pH (7.5±0.5)	Temperature (20±3°C)	TDS (200 to 500 mg/L)	Turbidity (<1 NTU)	TOC (>1)
10 UV	7.3	22.1	291	0.6	1.4
50%	7.2	22.3	293	0.7	1.4
100%	7.2	22.5	295	0.6	1.4
150%	7.3	22.1	291	0.6	1.7
180%	7.2	22.5	297	0.7	1.5
200%	7.3	22.4	295	0.6	1.4
<b>Average</b>	<b>7.3</b>	<b>22.3</b>	<b>294</b>	<b>0.6</b>	<b>1.5</b>

### Group 1 Product Picture



# HOME PITCHER

## PERFORMANCE TESTING FOLLOWING NSF/ANSI 401 STANDARD

### Test Results Group 2

#### TCEP Filter #1 Data Summary Table

Sample Point	Accumulated Volume	Influent (ng/L)	Effluent (ng/L)	Reduction
10 UV	10 UV	5089	<100	>98.03%
50%	75 Liters	4824	<100	>97.93%
100%	150 liters	5198	<100	>98.08%
150%	225 liters	5814	<100	>98.28%
180%	270 liters	4768	<100	>97.90%
200%	300 liters	4438	<100	>97.75%

#### TCEP Filter #2 Data Summary Table

Sample Point	Accumulated Volume	Influent (ng/L)	Effluent (ng/L)	Reduction
10 UV	10 UV	5089	<100	>98.03%
50%	75 Liters	4824	145.8	96.98%
100%	150 liters	5198	<100	>98.08%
150%	225 liters	5814	236.2	95.94%
180%	270 liters	4768	<100	>97.90%
200%	300 liters	4438	142.0	96.80%

TCEP Detection Limit: 100 ng/L

#### TCP P Filter #1 Data Summary Table

Sample Point	Accumulated Volume	Influent (ng/L)	Effluent (ng/L)	Reduction
10 UV	10 UV	5518	201.2	96.35%
50%	75 Liters	4929	<100	>97.97%
100%	150 liters	4517	<100	>97.79%
150%	225 liters	4805	<100	>97.92%
180%	270 liters	4358	<100	>97.71%
200%	300 liters	4693	124.6	97.34%

#### TCP P Filter #2 Data Summary Table

Sample Point	Accumulated Volume	Influent (ng/L)	Effluent (ng/L)	Reduction
10 UV	10 UV	5518	<100	>99.19%
50%	75 Liters	4929	410.3	91.68%
100%	150 liters	4517	344.4	92.38%
150%	225 liters	4805	116.4	97.58%
180%	270 liters	4358	111.1	97.45%
200%	300 liters	4693	146.8	96.87%

TCP P Detection Limit: 100 ng/L

#### Influent Water Characteristics

Sample Point	pH (7.5±0.5)	Temperature (20±3°C)	TDS (200 to 500 mg/L)	Turbidity (<1 NTU)	TOC (>1)
10 UV	7.2	22.2	296	0.6	1.5
50%	7.3	22.1	294	0.7	1.4
100%	7.2	22.4	295	0.6	1.7
150%	7.2	22.3	291	0.7	1.4
180%	7.3	22.4	297	0.6	1.5
200%	7.3	22.1	294	0.6	1.4
<b>Average</b>	<b>7.3</b>	<b>22.3</b>	<b>295</b>	<b>0.6</b>	<b>1.5</b>

Group 2 Product Picture



Test Results Group 3

Phenytoin Filter #1 Data Summary Table

Sample Point	Accumulated Volume	Influent (ng/L)	Effluent (ng/L)	Reduction
10 UV	10 UV	202	<1	>99.50%
50%	75 Liters	260	<1	>99.62%
100%	150 liters	212	<1	>99.53%
150%	225 liters	219	<1	>99.54%
180%	270 liters	250	<1	>99.60%
200%	300 liters	182	<1	>99.45%

Phenytoin Filter #2 Data Summary Table

Sample Point	Accumulated Volume	Influent (ng/L)	Effluent (ng/L)	Reduction
10 UV	10 UV	202	<1	>99.50%
50%	75 Liters	260	<1	>99.62%
100%	150 liters	212	<1	>99.53%
150%	225 liters	219	<1	>99.54%
180%	270 liters	250	<1	>99.60%
200%	300 liters	182	<1	>99.45%

Phenytoin Detection Limit: 1 ng/L

**Ibuprofen Filter #1 Data Summary Table**

Sample Point	Accumulated Volume	Influent (ng/L)	Effluent (ng/L)	Reduction
10 UV	10 UV	396	<10	>97.47%
50%	75 Liters	325	<10	>96.92%
100%	150 liters	445	28	93.71%
150%	225 liters	386	17	95.60%
180%	270 liters	417	22.8	94.53%
200%	300 liters	392	<10	>97.45%

**Ibuprofen Filter #2 Data Summary Table**

Sample Point	Accumulated Volume	Influent (ng/L)	Effluent (ng/L)	Reduction
10 UV	10 UV	396	43.1	89.12%
50%	75 Liters	325	21.5	93.38%
100%	150 liters	445	13.0	97.08%
150%	225 liters	386	<10	>97.41%
180%	270 liters	417	12.9	96.91%
200%	300 liters	392	<10	>97.45%

Ibuprofen Detection Limit: 10 ng/L

**Naproxen Filter #1 Data Summary Table**

Sample Point	Accumulated Volume	Influent (ng/L)	Effluent (ng/L)	Reduction
10 UV	10 UV	139	7.4	94.68%
50%	75 Liters	109	<1	>99.08%
100%	150 liters	111	9.0	91.89%
150%	225 liters	151	1.6	98.94%
180%	270 liters	146	2.2	98.49%
200%	300 liters	158	<1	>99.37%

**Naproxen Filter #2 Data Summary Table**

Sample Point	Accumulated Volume	Influent (ng/L)	Effluent (ng/L)	% Reduction
10 UV	10 UV	139	11.0	92.09%
50%	75 Liters	109	<1	>99.08%
100%	150 liters	111	2.1	98.11%
150%	225 liters	151	3.0	98.01%
180%	270 liters	146	13.0	91.10%
200%	300 liters	158	<1	>99.37%

Naproxen Detection Limit: 1 ng/L

**Estrone Filter #1 Data Summary Table**

Sample Point	Accumulated Volume	Influent (ng/L)	Effluent (ng/L)	Reduction
10 UV	10 UV	140	<1	>99.29%
50%	75 Liters	196	<1	>99.49%
100%	150 liters	178	<1	>99.44%
150%	225 liters	191	<1	>99.48%
180%	270 liters	164	<1	>99.39%
200%	300 liters	115	<1	>99.13%

**Estrone Filter #2 Data Summary Table**

Sample Point	Accumulated Volume	Influent (ng/L)	Effluent (ng/L)	Reduction
10 UV	10 UV	140	8.5	93.93%
50%	75 Liters	196	<1	>99.49%
100%	150 liters	178	<1	>99.44%
150%	225 liters	191	<1	>99.48%
180%	270 liters	164	<1	>99.39%
200%	300 liters	115	<1	>99.13%

Estrone Detection Limit: 1 ng/L

**Bisphenol A Filter #1 Data Summary Table**

Sample Point	Accumulated Volume	Influent (ng/L)	Effluent (ng/L)	Reduction
10 UV	10 UV	2008	<10	>99.95%
50%	75 Liters	1707	<10	>99.41%
100%	150 liters	2228	<10	>99.55%
150%	225 liters	2060	<10	>99.51%
180%	270 liters	2249	<10	>99.56%
200%	300 liters	1806	25.5	98.59%

**Bisphenol A Filter #2 Data Summary Table**

Sample Point	Accumulated Volume	Influent (ng/L)	Effluent (ng/L)	Reduction
10 UV	10 UV	2008	91.3	95.45%
50%	75 Liters	1707	<10	>99.41%
100%	150 liters	2228	38.5	98.27%
150%	225 liters	2060	82.9	95.98%
180%	270 liters	2249	24.8	98.90%
200%	300 liters	1806	65.0	96.40%

Bisphenol A Detection Limit: 10 ng/L

**Nonylphenol Filter #1 Data Summary Table**

Sample Point	Accumulated Volume	Influent (ng/L)	Effluent (ng/L)	Reduction
10 UV	10 UV	1408	<10	>99.29%
50%	75 Liters	1622	<10	>99.38%
100%	150 liters	1654	<10	>99.40%
150%	225 liters	1856	<10	>99.46%
180%	270 liters	1461	<10	>99.32%
200%	300 liters	1241	114.2	90.80%

**Nonylphenol Filter #2 Data Summary Table**

Sample Point	Accumulated Volume	Influent (ng/L)	Effluent (ng/L)	Reduction
10 UV	10 UV	1408	<10	>99.29%
50%	75 Liters	1622	<10	>99.38%
100%	150 liters	1654	<10	>99.40%
150%	225 liters	1856	<10	>99.46%
180%	270 liters	1461	<10	>99.32%
200%	300 liters	1241	138.4	88.85%

Nonylphenol Detection Limit: 10 ng/L

**Influent Water Characteristics**

Sample Point	pH (7.5±0.5)	Temperature (20±3°C)	TDS (200 to 500 mg/L)	Turbidity (<1 NTU)	TOC (>1)
10 UV	7.2	22.3	289	0.6	1.4
50%	7.3	22.5	294	0.7	1.5
100%	7.3	22.1	291	0.5	1.4
150%	7.2	22.3	297	0.4	1.4
180%	7.3	22.2	293	0.6	1.6
200%	7.3	22.5	295	0.7	1.4
<b>Average</b>	<b>7.3</b>	<b>22.3</b>	<b>293</b>	<b>0.6</b>	<b>1.5</b>

## Group 3 Product Picture





## TEST REPORT

5001 East Philadelphia Street  
Ontario, California – USA 91761-2816  
Ph: 909.472.4100 | Fax: 909.472.4243  
<http://www.iapmortl.org>

**Report Number:** QFT 402 **Lab Project No. VesQFT003**

**Report Issued:** June 27, 2019

**Client:** Life straw  
Vietnam **Contact:** Le Thu Cao

**Source of Sample:** The samples were shipped to subcontract laboratory QFT Laboratory, LLC and received in good condition.

**Testing Location:** QFT Laboratory, LLC  
41 D Germay Drive  
Wilmington, DE 19804

**Date of Testing:** June 19 – June 24, 2019

**Sample Description:** LS Home Pitcher, Gravity Filter – without warning indicator

**Scope of Testing:** Custom test protocol for Glyphosate Reduction for a non-plumbed pour-through-type batch treatment system with a manufacturer specified use pattern following the NSF/ANSI 53 test protocol for pesticide reduction with influent glyphosate concentration of 2mg/L  $\pm$ 10%. Testing subcontracted to QFT Laboratory, LLC.

**Conclusion:** The samples complied with the test protocol.

Reviewed by,  
Thomas P. Palkon

A handwritten signature in black ink, appearing to read "TP Palkon", is written over a horizontal line.

### Executive Summary

LS Home Pitcher filters reduced a minimum 99.94% glyphosate in the water throughout the tested volume of 300 Liters when tested with 2000ug/L influent. The filtered water did not contain Glyphosate above the allowable effluent levels. The tested LS Home Pitcher products complied with the test protocol throughout its claimed lifetime of 150L.

### Test Conditions

- **Manufacturer's Name:** Vestergaard
- **Sample Type:** Qualification
- **Product:** Gravity Filter
- **Flow Rate:** 40 Liters/Day
- **Filter Capacity:** 150 Liters
- **Conditioning Procedure:** Fill 4 times with RO water then rest
- **Cycle:** Fill 4 times with 500 mL then 20 minutes rest
- **Physical Description of Sample:** Gravity Pitcher
- **Performance Indicator Device:** No, test to 200% Capacity
- **Test Description:** Glyphosate Reduction Test
- **Trade Designation/Model Number:** LS Home Pitcher
- **Unit Volume:** 0.5 L
- **Performance Standard:** N/A
- **Pass/Fail Criteria (Glyphosate Maximum Product Water Concentration):** 700 ug/L

**Filter #1 Data Summary Table**

Accumulated Volume Effluent 1	Influent 1 Glyphosate (µg/L)	Effluent 1 Glyphosate Concentration (µg/L)	% Reduction
4 Liters	2264	<0.1	100.00%
25 Liters	2073	<0.1	100.00%
50 Liters	2106	<0.1	100.00%
100 Liters	1932	<0.1	99.99%
150 Liters	1970	<0.1	99.99%
200 Liters	2084	<0.1	100.00%
250 Liters	2012	0.47	99.98%
300 Liters	2004	1.07	99.95%

**Filter #2 Data Summary Table**

Accumulated Volume Effluent 2	Influent 2 Glyphosate (µg/L)	Effluent 2 Glyphosate Concentration (µg/L)	% Reduction
4 Liters	2264	<0.1	100.00%
25 Liters	2073	<0.1	100.00%
50 Liters	2106	<0.1	100.00%
100 Liters	1932	<0.1	99.99%
150 Liters	1970	<0.1	99.99%
200 Liters	2084	1.12	99.95%
250 Liters	2012	0.34	99.98%
300 Liters	2004	1.11	99.94%

**Glyphosate Detection Limit: 0.1 µg/L**



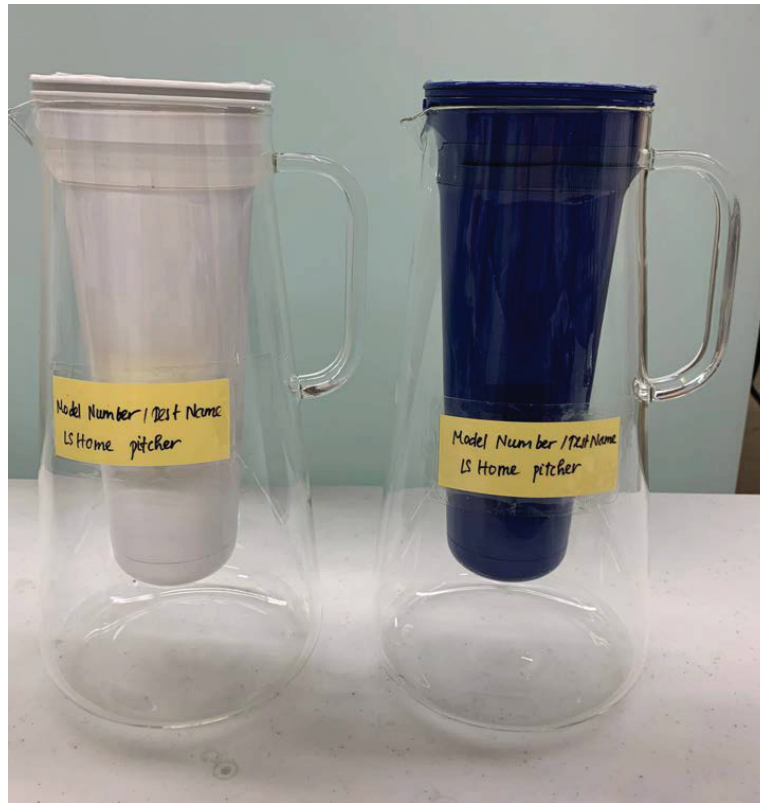
# HOME PITCHER

## GLYPHOSATE REDUCTION FOLLOWING NSF/ANSI 53

### Influent Water Characteristics

Sample Point	pH (7.5±0.5)	Temperature (20±3°C)	TDS (200 to 500 mg/L)	Hardness (≥170)	Turbidity (<1 NTU)
4 Liters	7.4	22.4	297	150	0.6
25 Liters	7.3	22.3	295	145	0.7
50 Liters	7.4	22.4	297	150	0.7
100 Liters	7.3	22.1	381	162	0.8
150 Liters	7.4	20.9	363	154	0.6
200 Liters	7.4	21.8	374	163	0.7
250 Liters	7.2	22.3	297	150	0.6
300 Liters	7.2	22.5	281	145	0.6
Average	7.3	22.1	323	152	0.7

### Filter System Tested





### AQUADIAGNOSTICS WATER RESEARCH & TECHNOLOGY CENTRE LIMITED

CIN:U73100KA2008PLC045994 | An IAPMO Group – USA Company

No. 43, PMR Towers, 3rd Floor, Above State Bank of India, Beretena Agrahara, Near Hosa Road Junction, Hosur Main Road, Bangalore – 560 100

Ph: +080 25743042 | www.aquadiagnostics.com | E: askme@IAPMOAquadiagnostics.org

## TEST REPORT

Report No: AWR TCL/PRTR/ 14967G /18-19

Date: 21.11.2018

CUSTOMER DETAILS	SAMPLE DETAILS	TEST DETAILS
<b>Name &amp; Address :</b>  <b>Le Thu Cao</b> <b>Laboratory</b> <b>manager</b> <b>Life Straw -</b> <b>Vietnam</b>	Sample received: 05.11.2018	<b>Method:</b> <b>Chlorine</b> <b>reduction</b> <b>following</b> <b>NSF/ANSI 42</b> <b>standard</b>
	Sample code no:- AWR TCL/14967G/18-19	
	Sample Description: LIFE STRAW HOME water filter	
	Sample Quantity for Testing: 1 No.	
	Submitted by : LIFE STRAW – VIETNAM	
	Date of Analysis started : 16.11.2018	
	Date of Analysis Completed: 20.11.2018	
	Subcontract : Not Applicable	
Sample condition when received : Intact		

### TEST DATA: CHLORINE REDUCTION FOR 150 Lit Filtration

Volume of filtration Liters	Influent water Chlorine mg/L	Effluent water Chlorine mg/L	Time taken for filtration Min – Sec	% Reduction
4	2.05	<0.05	3-25	97.56
25	2.2	<0.05	4-09	97.72
50	2.1	<0.05	3-30	97.61
75	2.2	<0.05	3-20	97.72
100	2.2	<0.05	3-21	97.72
125	2.2	<0.05	3-53	97.72
150	2.2	<0.05	4-08	97.72

FILTRATION CYCLE USED FOR TESTING: Four pourings ( 2 Litres) and 20 Minutes rest. Total Filtration per day:40Lit

### TEST WATER CHARACTERISTICS

Test Characteristics	NSF/ANSI 42 Recommendation	Concentration maintained by the Laboratory			
		Tank-1	Tank-2	Tank-3	Tank – 4
pH	7.5 ± 0.5	7.91	7.86	7.38	7.50
Turbidity NTU	<1.0	<1.0	<1.0	<1.0	<1.0
TDS mg/L	200 - 500	426	355	368	333
TOC mg/L	≥ 1.0	1.1	1.1	1.1	1.1
Temperature	20 ± 3	22	23	23	22

<0.05 – Not detected

**INFERENCE:** Tested LS Home product performs well meeting the specification of NSF/ANSI 42 for Chlorine reduction from 2mg/L±10% to at least 50% (1.0 mg/L). Reduction percentage was exceeding 97% throughout the tested volume of 150L.

Page 1 of 2

**NABL ACCREDITED LABORATORY | RECOGNIZED BY IAPMO R&T – USA**

Registered Office: No. 143 C-4, Bommassandra Layout Area, Hosur Road, Anekal Taluk, Bangalore – 560 099 Karnataka

We under take analytical job for water, food, biocidal resins, detergents & sanitizers and soil. We carry out performance evaluation of drinking water treatment units as per NSF/ANSI specifications. Based on performance we can arrange for certification from IAPMO – USA

Note:

- The results pertain only to the tested samples and applicable parameters.
- Samples will be disposed after 15 days from the issue of test certificate unless otherwise specified, in case of bacteriological tests, the samples will be disposed after 7 days itself from the date of issuing the certificate.
- This report is not to be reproduced either wholly or in parts and cannot be used as evidence in the court of Law and should not be used in any advertising media without prior written permission.
- In case, any recommendation of contents of this certificate is required please contact our office.

# HOME PITCHER

## CHLORINE REDUCTION FOLLOWING NSF/ANSI 42 STANDARD



### AQUADIAGNOSTICS WATER RESEARCH & TECHNOLOGY CENTRE LIMITED

CIN:U73100KA2008PLC045994 | An IAPMO Group – USA Company

No. 43, PMR Towers, 3rd Floor, Above State Bank of India, Beretena Agrahara,  
Near Hosur Road Junction, Hosur Main Road, Bangalore – 560 100

Ph: +080 25743042 | www.aquadiagnostics.com | E: askme@IAPMOAquadiagnostics.org

#### PRODUCT PICTURE



Page 2 of 2

Dr S.MURALIDHARA RAO  
Head - Laboratory

#### NABL ACCREDITED LABORATORY | RECOGNIZED BY IAPMO R&T – USA

Registered Office: No. 143 C-4, Bommassandra Layout Area, Hosur Road, Anekal Taluk, Bangalore – 560 099 Karnataka

We undertake analytical job for water, food, biocidal resins, detergents & sanitizers and soil. We carry out performance evaluation of drinking water treatment units as per NSF/ANSI specifications. Based on performance we can arrange for certification from IAPMO – USA

#### Note:

1. The results pertain only to the tested samples and applicable parameters.
2. Samples will be disposed after 15 days from the issue of test certificate unless otherwise specified, in case of bacteriological tests, the samples will be disposed after 7 days itself from the date of issuing the certificate.
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# HOME PITCHER

## LEAD REDUCTION FOLLOWING NSF/ANSI 53 STANDARD



### AQUADIAGNOSTICS WATER RESEARCH & TECHNOLOGY CENTRE LIMITED

CIN:U73100KA2008PLC045994 | An IAPMO Group – USA Company

No. 43, PMR Towers, 3rd Floor, Above State Bank of India, Beretena Agrahara,  
Near Hosur Road Junction, Hosur Main Road, Bangalore – 560 100

Ph: +080 25743042 | www.aquadiagnostics.com | E: askme@IAPMOAquadiagnostics.org

## TEST REPORT

Report No: AWRTEL/PRTR/ 14967A-14967B/18-19

Date:16.11.2018

CUSTOMER DETAILS	SAMPLE DETAILS	TEST DETAILS
<b>Name &amp; Address :</b>  <b>Le Thu Cao</b> <b>Laboratory</b> <b>manager</b> <b>Life Straw -</b> <b>Vietnam</b>	Sample received: 05.11.2018	<b>Method:</b> <b>Lead reduction</b> <b>following</b> <b>NSF/ANSI 53</b> <b>Standard</b>
	Sample code no:- AWRTEL/14967A-14967B/18-19	
	Sample Description: LIFE STRAW HOME water filters	
	Sample Quantity for Testing: 2 Nos	
	Submitted by : LIFE STRAW – VIETNAM	
	Date of Analysis started : 06.11.2018	
	Date of Analysis Completed: 16.11.2018	
Subcontract : Not Applicable		
	Sample condition when received : Intact	

### TEST DATA: LEAD REDUCTION at pH 8.5 and 6.5

Volume of Filtration Liters	LEAD REDUCTION AT pH 8.5 AWRTEL/14967A/18-19					LEAD REDUCTION At pH 6.5 AWRTEL/14967B/18-19				
	LEAD CONCENTRATION µg/L					Unit 1	Time taken for filtration Min-sec	LEAD CONCENTRATION µg/L		Time taken for filtration Min-sec
	INPUT WATER Total Lead	Lead after filtration through 1.2 Micron filter	Lead after filtration through 0.1 Micron filter	% Particulates	% Fines	OUTPUT WATER Lead		INPUT WATER Total Lead	OUTPUT WATER Lead	
4 Lit	151.02	129.17	113.85	24.61	41.22	6.76	05 - 15	143.07	5.47	03 - 34
75 Lit (50%)	150.47	128.68	114.08	25.28	42.70	<5.0	05 - 10	157.76	<5.0	05 - 08
150Lit (100%)	156.68	134.01	106.05	32.31	55.24	<5.0	04 - 09	153.35	<5.0	04 - 40
225 Lit (150%)	158.63	139.12	105.90	33.24	63.0	<5.0	04 - 40	156.06	<5.0	04 - 37
270Lit (180%)	154.25	120.66	109.48	29.03	24.97	<5.0	04 - 15	168.57	<5.0	04 - 55
300 Lit (200%)	148.67	126.23	108.33	27.13	44.39	<5.0	03 - 49	151.62	<5.0	04 - 05
<b>Average</b>	153.28			28.60	45.25	5.29	04-39	155.07	5.07	4 - 29
<b>NSF/ANSI53 Requirement Average</b>	135- 165	---	---	20-40%	≥20%	Maximum allowable Product water Lead concentration :10 µg/L				<b>STATUS</b> <b>PASS</b>

Averages of Lead was maintained at 150µg/L ± 10% level ( 135– 165µg/L )

Page 1 of 3

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# HOME PITCHER

## LEAD REDUCTION FOLLOWING NSF/ANSI 53 STANDARD



### AQUADIAGNOSTICS WATER RESEARCH & TECHNOLOGY CENTRE LIMITED

CIN:U73100KA2008PLC045994 | An IAPMO Group – USA Company

No. 43, PMR Towers, 3rd Floor, Above State Bank of India, Beretena Agrahara,  
Near Hosa Road Junction, Hosur Main Road, Bangalore – 560 100

Ph: +080 25743042 | www.aquadiagnostics.com | E: askme@IAPMOAquadiagnostics.org

**INFERENCE:** Tested LS Home products perform well meeting the specification of NSF/ANSI 53 for lead reduction at both pH 8.5 and pH 6.5 throughout the tested volume of 300L.

#### TEST WATER COMPOSITION : Lead reduction at pH 8.5

CHARACTERISTICS	NSF/ANSI-53	Tank 1	Tank 2	Tank 3	Tank 4	Tank 5	Tank 6	Tank 7	Tank 8
pH:	8.5±2.5	8.35	8.68	8.71	8.55	8.69	8.59	8.63	8.61
Hardness as CaCO <sub>3</sub>	100 ± 10%	111.08	88.87	111.08	116.64	116.64	88.87	116.64	116.64
Alkalinity as CaCO <sub>3</sub>	100 ± 10%	90.0	90.0	100.0	100.0	100.0	80.0	100.0	90.0
Free Available chlorine	0.25 to 0.75	0.7	0.6	0.75	0.55	0.70	0.65	0.70	0.50
Temperature	22±2.5	20	21	21	21	21	21	21	20

#### TEST WATER COMPOSITION : Lead reduction at pH 6.5

CHARACTERISTICS	NSF/ANSI-53	Tank 1	Tank 2	Tank 3	Tank 4	Tank 5	Tank 6	Tank 7	Tank 8
pH:	6.5±0.25	6.52	6.66	6.27	6.57	6.66	6.70	6.62	6.52
Hardness as CaCO <sub>3</sub> mg/L	10-30	22.21	22.21	22.21	27.77	27.77	27.77	27.77	27.77
Alkalinity as CaCO <sub>3</sub> mg/L	10-30	30.0	30.0	20.8	20.8	30.0	30.0	20.8	20.0
TDS mg/L	<100	41	45	41	57	51	58.0	71	66
Turbidity NTU	<1	<1	<1	<1	<1	<1	<1	<1	<1
Temperature °C	22±2.5	20	21	21	21	21	21	21	2
Poly PO <sub>4</sub> as P mg/L	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

Page 2 of 3

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# HOME PITCHER

## LEAD REDUCTION FOLLOWING NSF/ANSI 53 STANDARD



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#### TEST PRODUCTS



Lead reduction at pH 6.5

Lead reduction at pH 8.5

**FILTRATION CYCLE USED FOR TESTING: Four pourings ( 2 Litres) and 20 Minutes rest. Total Filtration per day:40Lit**

Page 3 of 3

Dr S.MURALIDHARA RAO  
Head - Laboratory

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Ph: +080 25743042 | www.aquadiagnostics.com | E: askme@IAPMOAquadiagnostics.org

## TEST REPORT

Report No: AWR TCL/PRTR/ 15085F/18-19

Date: 22.01.2019

CUSTOMER DETAILS	SAMPLE DETAILS	TEST DETAILS
<b>Name &amp;</b>  <b>Address :</b>  <b>Le Thu Cao</b> <b>Laboratory</b> <b>manager</b> <b>Life Straw</b> <b>Vietnam</b>	Sample received: 04.12.2018	<b>Method:</b> <b>NSF/ANSI 53.</b>
	Sample code no:- AWR TCL/15085F/18-19	
	Sample Description: LIFE STRAW HOME Pitcher Filters	
	Sample Quantity for Testing: 1 No	
	Submitted by : LIFE STRAW – VIETNAM	
	Date of Analysis started : 10.01.2019	
	Date of Analysis Completed: 22.01.2019	
	Subcontract : Not Applicable	
Sample condition when received : Intact		

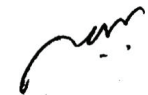
### TEST DATA: ATRAZINE REDUCTION

Volume of Filtration Liters	ATRAZINE REDUCTION TESTS		
	ATRAZINE CONCENTRATION µg/L		
	INPUT WATER Atrazine Concentration µg/L	OUTPUT WATER Atrazine Concentration µg/L	Time taken for 500 ml filtration Min – Sec
4 Ltr	10.17	<0.1	04-38
75 Ltr(50%)	8.91	<0.1	05-19
150 Ltr(100%)	8.80	<0.1	05-22
225 Ltr(150%)	9.20	0.35	05-51
270 Ltr(180%)	8.78	0.33	06-52
300Ltr(200%)	9.50	0.31	07-02
Average →	9.23	0.215	
NSF/ANSI53 Requirement Average	8.1 to 9.9 µg/L		Maximum allowable Product water Atrazine concentration 3 µg/L

Average of Atrazine was maintained at 9µg/L ± 10% level ( 8.1 – 9.9µg/L )

**INTERPRETATION:** Tested product of LS Home Pitcher filter meets Atrazine reduction as per NSF/ANSI53 specification throughout the tested volume of 300 Liters of filtration.

Page 1 of 3

  
**Dr. S.MURALIDHARA RAO**  
 Head - Laboratory

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# HOME PITCHER

## ATRAZINE REDUCTION FOLLOWING NSF/ANSI 53 STANDARD



### AQUADIAGNOSTICS WATER RESEARCH & TECHNOLOGY CENTRE LIMITED

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#### TEST DATA: LINDANE REDUCTION

Volume of Filtration Liters	LINDANE REDUCTION TESTS		
	INPUT WATER Lindane Concentration µg/L	OUTPUT WATER Lindane Concentration µg/L	LINDANE CONCENTRATION µg/L Time taken for 500 ml filtration Min – Sec
4 Ltr	2.05	<0.1	04-38
75 Ltr(50%)	2.12	<0.1	05-19
150 Ltr(100%)	2.15	<0.1	05-22
225 Ltr(150%)	2.27	<0.1	05-51
270 Ltr(180%)	2.27	<0.1	06-52
300Ltr(200%)	2.30	<0.1	07-02
Average →	2.19	<0.1	
NSF/ANSI53 Requirement Average	1.8 to 2.2 µg/L	< 0.1 µg/L	Maximum allowable Product water Lindane concentration 0.2 µg/L

Average of Lindane was maintained at 2µg/L ± 10% level (1.8 – 2.2µg/L )

**INTERPRETATION: Tested product of LS Home Pitcher filter meets Lindane reduction as per NSF/ANSI53 specification throughout the tested volume of 300Liters of filtration.**

#### TEST WATER COMPOSITION : ATRAZINE & LINDANE REDUCTION

CHARACTERISTICS	NSF/ANSI-53	Tank 1	Tank 2	Tank 3	Tank 4	Tank 5	Tank 6	Tank 7	Tank 8
pH	7.5±0.5	7.92	7.50	7.46	7.55	7.61	7.75	7.62	7.59
TDS mg/L	200-500	305	308	325	312	284	327	332	411
TOC mg/L	>1.0	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Turbidity NTU	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Temperature	20±2.5	19	19	19	19	19	19	19	19

Report No: AWRCL/PRTR/ 15085F/18-19 , Date: 22.01.2019,

Page 2 of 3

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# HOME PITCHER

## ATRAZINE REDUCTION FOLLOWING NSF/ANSI 53 STANDARD



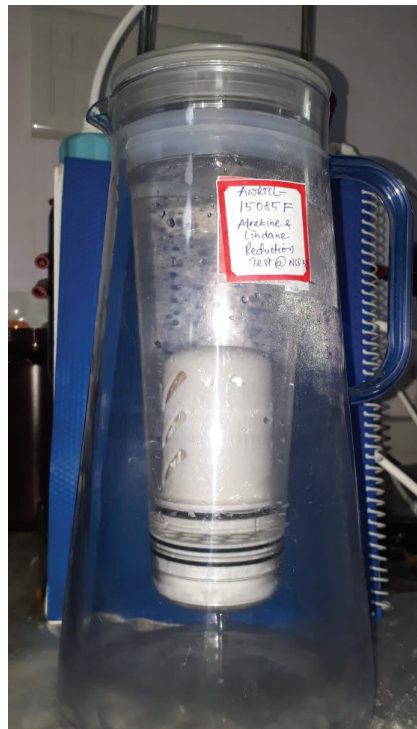
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**TEST SETUP :As agreed between the testing Laboratory and the customer.**



Report No: AWRTCL/PRTR/ 15085F/18-19 , Date: 22.01.2019,

Page 3 of 3

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Near Hosur Road Junction, Hosur Main Road,  
Bangalore - 560 100 Karnataka INDIA  
Ph: + 91 7349604940  
GSTIN: 29AABC18959C1Z7  
<http://www.iapmoindia.org>

## TEST REPORT

**Report No: IAPMOLAB/PRTR/18531A/21-22**
**Date: 28.05.2021**

CUSTOMER DETAILS	SAMPLE DETAILS	TEST DETAILS
<b>Name &amp; Address :</b>  <b>Vu Huu Toan</b> <b>Vestergaard</b> <b>Frandsen Inc.</b> <b>M: +84 901 736 899</b>	<b>Sample received: 25.05.2021</b>	<b>Method:</b> <b>NSF P 231</b> <b>protocol</b>
	<b>Sample code no: IAPMOLAB/PRTR/18531A/21-22</b>	
	<b>Sample Description: LS Home Pitcher Filter</b>	
	<b>Sample Quantity for Testing: 1 No.</b>	
	<b>Submitted by : Vestergaard Frandsen Inc.</b>	
	<b>Date of Analysis started:26.05.2021</b>	
	<b>Date of Analysis Completed:28.05.2021</b>	
	<b>Subcontract : Not Applicable</b>	
	<b>Sample condition when received : Intact</b>	

**TEST DATA: 3 Micron Microsphere Reduction: After 10 Liter Filtration**

Sample Code	Parameter	Input water concentration microspheres/Liter	Output water concentration microspheres/Liter	% Reduction
IAPMOLAB/18531A/21-22 LS Home Pitcher Filter	3 micron microspheres	1.64 x 10 <sup>7</sup> microspheres/Litre	<160 microspheres/Litre	99.9990 (5.01 log)

**Flow Rate of Filtration: 200 ml/min**

**INFERENCE:** Tested LS Home products performs well by reducing 3 micron microspheres to the tune of 99.999% ( ≥ 5 log reduction) exceeding the specification of NSF P 231 norm i.e 99.9 % ( 3 log reduction).

**Report No: IAPMOLAB/PRTR/18531A/21-22, Date: 28.05.2021, Page 1 of 2**
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# HOME PITCHER

MICROBIAL REDUCTION AFTER 10 LITER FILTRATION FOLLOWING NSF P231 STANDARD



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Bangalore - 560 100 Karnataka INDIA  
Ph: + 91 7349604940  
GSTIN: 29AABC18959C1Z7  
<http://www.iapmoindia.org>

### TEST WATER COMPOSITION: GTW#1 (General Test water – 1)

Test water Characteristic	Recommended Concentration	Concentration maintained by the Laboratory
pH	6.5 to 8.5	7.52
TDS mg/L	50 – 500	430
TOC mg/L	>1	>1
Turbidity NTU	0.1 to 5.0	1.0
Temperature °C	20±5 °C	24

### TEST PRODUCT



  
**Dr S.MURALIDHARA RAO**  
Head – Laboratory

Report No: IAPMOLAB/PRTR/18531A/21-22, Date: 28.05.2021, Page 2 of 2

00---End of the Test Report –00

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## TEST REPORT

**Report No: IAPMOLAB/PRTR/18531A/21-22**
**Date: 28.05.2021**

CUSTOMER DETAILS	SAMPLE DETAILS	TEST DETAILS
<b>Name &amp; Address :</b>  <b>Vu Huu Toan</b> <b>Vestergaard</b> <b>Frandsen Inc.</b> <b>M: +84 901 736 899</b>	<b>Sample received: 25.05.2021</b>	<b>Method:</b> <b>NSF P 231</b> <b>protocol</b>
	<b>Sample code no: IAPMOLAB/PRTR/18531A/21-22</b>	
	<b>Sample Description: LS Home Pitcher Filter</b>	
	<b>Sample Quantity for Testing: 1 No.</b>	
	<b>Submitted by : Vestergaard Frandsen Inc.</b>	
	<b>Date of Analysis started:26.05.2021</b>	
	<b>Date of Analysis Completed:28.05.2021</b>	
	<b>Subcontract : Not Applicable</b>	
	<b>Sample condition when received : Intact</b>	

**TEST DATA: 3 Micron Microsphere Reduction: After 10 Liter Filtration**

Sample Code	Parameter	Input water concentration microspheres/Liter	Output water concentration microspheres/Liter	% Reduction
IAPMOLAB/18531A/21-22 LS Home Pitcher Filter	3 micron microspheres	1.64 x 10 <sup>7</sup> microspheres/Litre	<160 microspheres/Litre	99.9990 (5.01 log)

**Flow Rate of Filtration: 200 ml/min**

**INFERENCE:** Tested LS Home products performs well by reducing 3 micron microspheres to the tune of 99.999% ( ≥ 5 log reduction) exceeding the specification of NSF P 231 norm i.e 99.9 % ( 3 log reduction).

**Report No: IAPMOLAB/PRTR/18531A/21-22, Date: 28.05.2021, Page 1 of 2**
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# HOME PITCHER

MICROBIAL REDUCTION AFTER 10 LITER FILTRATION FOLLOWING NSF P231 STANDARD



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pH	6.5 to 8.5	7.52
TDS mg/L	50 – 500	430
TOC mg/L	>1	>1
Turbidity NTU	0.1 to 5.0	1.0
Temperature °C	20±5 °C	24

### TEST PRODUCT



  
**Dr S.MURALIDHARA RAO**  
Head – Laboratory

Report No: IAPMOLAB/PRTR/18531A/21-22, Date: 28.05.2021, Page 2 of 2

00---End of the Test Report –00

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# HOME PITCHER

## PFOA AND PFOS REDUCTION FOLLOWING NSF P473 STANDARD



## TEST REPORT

5001 East Philadelphia Street  
Ontario, California – USA 91761-2816  
Ph: 909.472.4100 | Fax: 909.472.4243  
<http://www.iapmortl.org>

**Report Number:** 19131 **Lab Project No.** PN32201

**Report Issued:** May 6, 2019

**Client:** Life straw  
Vietnam **Contact:** Le Thu Cao

**Source of Sample:** The samples were shipped to subcontract laboratory QFT Laboratory, LLC and received in good condition.

**Testing Location:** **QFT Laboratory, LLC**  
41 D Germay Drive  
Wilmington, DE 19804

**Date of Testing:** April 20 – April 29, 2019

**Sample Description:** LS Home Pitcher, Gravity Filter – without warning indicator

**Scope of Testing:** NSF P473-2016, Section 7, non-plumbed pour-through-type batch treatment system with a manufacturer specified use pattern. Testing subcontracted to QFT Laboratory, LLC.

**Conclusion:** **The samples passed the requirements of NSF P473-2016 for PFOA and PFOS reduction requirements specified in section 7 only.**

Reviewed by,  
Thomas P. Palkon

A handwritten signature in black ink, appearing to read "T. Palkon", is written above a horizontal line.

**Primary Standards:** NSF P473 – 2016, Section 7 Performance Claims

### **7.1 General requirements**

**7.1.1 Claims contained in other NSF/ANSI Standards – N/A**

**7.1.2 Apparatus –** The test apparatus for pour through pitchers is not applicable.

### **7.2 PFOA/PFOS reduction claims**

#### **7.2.1 Carbon-based systems**

**7.2.1.2 Apparatus – N/A**

**7.2.1.3 Analytical methods –** Sample analysis was conducted in accordance with methods referenced in Annex E.

**7.2.1.4 Premature filter plugging – N/A**

**7.2.1.5 General test water –** Test water used for the challenge tanks complies with the all general test water requirements.

**7.2.1.6 Cycle time – N/A**

#### **7.2.1.7 Methods**

**7.2.1.7.1 plumbed-in system without reservoirs and all faucet-mounted systems – N/A**

**7.2.1.7.1.1 Refrigerator filters without integral flow control – N/A**

**7.2.1.7.1.2 Refrigerators filters without integral flow control, with water dispenser and ice maker – N/A**

**7.2.1.7.2 Plumbed-in systems with reservoirs – N/A**

**7.2.1.7.3 Non plumbed pour-through-type batch treatment systems – N/A**

**7.2.1.7.3.1 Systems with a manufacturer’s recommended use pattern –** Use Pattern: Four 500 ml fills followed by a 20-minute rest, process 40 liters of influent water per day. Leave water in the pitcher overnight so that the filter does not dry out.

**7.2.1.7.3.3 Mouth drawn drinking water treatment units – N/A**

**7.2.1.7.3.4 Squeeze bottle drinking water treatment units – N/A**

**7.2.1.8 Sampling –** System does not have a performance indication device. Samples were collected after start up, 50%, 100%, 180% and 200% of the estimated capacity of 150 liters.

# HOME PITCHER

## PFOA AND PFOS REDUCTION FOLLOWING NSF P473 STANDARD

### Executive Summary

LS Home Pitcher filters reduced PFOA and PFOS chemical contaminants below the allowable level of 0.07 µg/L. The filtered water did not contain PFOA and PFOS above (<0.01 µg/L) throughout the tested volume of 300Liters. The tested LS Home Pitcher products complied with NSF P473 standard in reducing PFOA and PFOS chemicals throughout its claimed lifetime of 150L.

### Test Conditions

- Manufacturer's Name: Vestergaard
- Sample Type: Qualification
- Product: Batch Filter
- Flow Rate: 40 liters/ day
- Filter Capacity: 150 liters
- Cycle: Pour 500 mL fills four times followed by 20-minute rest. Leave Filtered water in the pitcher to prevent drying of the cartridge during overnight stagnation.
- Conditioning Procedure: Remove and rinse housing, remove filter housing cap and install active carbon and ion exchange filter, fill housing with water, cover and shake for 30 seconds to remove air bubbles, discard water, place housing in pitcher and ensure water spouts align, fill with water again and discard filtered water
- Physical Description of Sample: Gravity Filter
- Performance Indicator Device: No, test to 200% Capacity
- Test Description: NSF P473 PFOA Reduction Testing
- Trade Designation/Model Number: LS Home Pitcher
- Unit Volume: 0.1 L
- Performance Standard: NSF P473 – 2016
- Pass/Fail Criteria (PFOA+PFOS Combined Maximum Product Water Concentration): 0.07 µg/L

### Test Results

**PFOA Filter #1 Data Summary Table**

Sample Point	Accumulated Volume Effluent 1	Influent 1 PFOA (µg/L)	Effluent 1 PFOA Concentration (µg/L)	% Reduction
10 UV	10 UV	0.42	<0.01	>97.62%
50%	75 Liters	0.46	<0.01	>97.83%
100%	150 liters	0.43	<0.01	>97.67%
150%	225 liters	0.52	<0.01	>98.08%
180%	270 liters	0.50	<0.01	>98.00%
200%	300 liters	0.46	<0.01	>97.83%

**PFOA Filter #2 Data Summary Table**

Sample Point	Accumulated Volume Effluent 2	Influent 2 PFOA (µg/L)	Effluent 2 PFOA Concentration (µg/L)	% Reduction
10 UV	10 UV	0.42	<0.01	>97.62%
50%	75 Liters	0.46	<0.01	>97.83%
100%	150 liters	0.43	<0.01	>97.67%
150%	225 liters	0.52	<0.01	>98.08%
180%	270 liters	0.50	<0.01	>98.00%
200%	300 liters	0.46	<0.01	>97.83%



# HOME PITCHER

## PFOA AND PFOS REDUCTION FOLLOWING NSF P473 STANDARD

**PFOS Filter #1 Data Summary Table**

Sample Point	Accumulated Volume Effluent 1	Influent 1 PFOS (µg/L)	Effluent 1 PFOS Concentration (µg/L)	% Reduction
10 UV	10 UV	0.92	<0.01	>98.91%
50%	75 Liters	1.09	<0.01	>99.08%
100%	150 liters	1.04	<0.01	>99.04%
150%	225 liters	1.15	<0.01	>99.13%
180%	270 liters	0.99	<0.01	>98.99%
200%	300 liters	1.06	0.01	99.06%

**PFOS Filter #2 Data Summary Table**

Sample Point	Accumulated Volume Effluent 2	Influent 2 PFOS (µg/L)	Effluent 2 PFOS Concentration (µg/L)	% Reduction
10 UV	10 UV	0.92	<0.01	>98.91%
50%	75 Liters	1.09	<0.01	>99.08%
100%	150 liters	1.04	<0.01	>99.04%
150%	225 liters	1.15	<0.01	>99.13%
180%	270 liters	0.99	<0.01	>98.99%
200%	300 liters	1.06	0.01	99.06%

PFOA and PFOS Detection Limit: 0.01 µg/L

**PFOA and PFOS Data Summary Filter 1**

Sample Point	Accumulated Volume Effluent 1	Influent Total PFOA + PFOS Concentration (µg/L)	Effluent 1 Total PFOA + PFOS Concentration (µg/L)	Passing Criteria
10 UV	10 UV	1.34	<0.01	Passed
50%	75 Liters	1.55	<0.01	Passed
100%	150 liters	1.47	<0.01	Passed
150%	225 liters	1.67	<0.01	Passed
180%	270 liters	1.49	<0.01	Passed
200%	300 liters	1.52	0.01	Passed

**PFOA and PFOS Data Summary Filter 2**

Sample Point	Accumulated Volume Effluent 2	Influent Total PFOA + PFOS Concentration (µg/L)	Effluent 2 Total PFOA + PFOS Concentration (µg/L)	Passing Criteria
10 UV	10 UV	1.34	<0.01	Passed
50%	75 Liters	1.55	<0.01	Passed
100%	150 liters	1.47	<0.01	Passed
150%	225 liters	1.67	<0.01	Passed
180%	270 liters	1.49	<0.01	Passed
200%	300 liters	1.52	0.01	Passed

**Influent Water Characteristics**

Sample Point	pH (7.5±0.5)	Temperature (20±3°C)	TDS (200 to 500 mg/L)	Turbidity (<1 NTU)	TOC (>1)
10 UV	7.2	18.9	311	0.6	1.4
50%	7.3	18.1	298	0.4	1.4
100%	7.3	17.6	306	0.6	1.6
150%	7.4	17.7	301	0.6	1.8
180%	7.2	18.3	297	0.5	1.7
200%	7.2	17.8	298	0.4	1.8
Average	7.27	18.1	302	0.52	1.6

# HOME PITCHER

PFOA AND PFOS REDUCTION FOLLOWING NSF P473 STANDARD

## Product Picture



# HOME PITCHER

## MERCURY REDUCTION AT PH 6.5 FOLLOWING NSF/ANSI 53 STANDARD



### AQUADIAGNOSTICS WATER RESEARCH & TECHNOLOGY CENTRE LIMITED

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No. 43, PMR Towers, 3rd Floor, Above State Bank of India, Beretena Agrahara,  
Near Hosur Road Junction, Hosur Main Road, Bangalore – 560 100

Ph: +080 25743042 | www.aquadiagnostics.com | E: askme@IAPMOAquadiagnostics.org

## TEST REPORT

Report No: AWR TCL/PRTR/ 15085/18-19

Date: 24.12.2018

CUSTOMER DETAILS	SAMPLE DETAILS	TEST DETAILS
<b>Name &amp; Address :</b>  <b>Le Thu Cao</b> <b>Laboratory</b> <b>manager</b> <b>Life Straw</b> <b>Vietnam</b>	Sample received: 04.12.2018	<b>Protocol</b>  <b>NSF/ANSI 53</b>
	Sample code no:- AWR TCL/15085/18-19	
	Sample Description: LS HOME Pitcher Filter	
	Sample Quantity for Testing: 1 No	
	Submitted by : LIFE STRAW – VIETNAM	
	Date of Analysis started : 12.12.2018	
	Date of Analysis Completed: 20.12.2018	
	Subcontract : Not Applicable	
Sample condition when received : Intact		

### TEST DATA: MERCURY REDUCTION at pH 6.5

Volume of Filtration Liters	INFLUENT WATER MERCURY Concentration µg/L	EFFLUENT WATER MERCURY Concentration µg/L	Time Taken for 500 ml filtration (min – Sec)
4 Lit	6.20	<1.0	4-00
75 Lit	6.24	<1.0	4-09
150Lit	6.21	<1.0	5-25
225Lit	6.20	<1.0	5-25
275Lit	6.20	<1.0	5-00
300Lit	6.38	<1.0	4-50
Average →	6.23	<1.0	
NSF/ANSI 53 Requirement Average	6.0 µg/L ±10 %	<1.0µg/L	NSF/ANSI53 specification is 2 µg/L Maximum Allowable Product water Concentration

<1.0 µg/L = Below Detection Limit

**INFERENCE:** Tested LS Home Pitcher Filter conforms to Mercury reduction from 6 µg/L to 2µg/L (maximum) when tested at pH 6.5 which is in compliance with NSF/ANSI 53 specification requirement throughout the tested volume of 300Lit.

Page 1 of 3

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Note:

- The results pertain only to the tested samples and applicable parameters.
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Near Hosur Road Junction, Hosur Main Road, Bangalore – 560 100

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## TEST REPORT

Report No: AWR TCL/PRTR/ 15085A/18-19

Date: 24.12.2018

CUSTOMER DETAILS	SAMPLE DETAILS	TEST DETAILS
<b>Name &amp; Address :</b>  <b>Le Thu Cao</b> <b>Laboratory</b> <b>manager</b> <b>Life Straw</b> <b>Vietnam</b>	Sample received: 04.12.2018	<b>Protocol</b>  <b>NSF/ANSI 53</b>
	Sample code no:- AWR TCL/15085A/18-19	
	Sample Description: LS HOME Pitcher Filter	
	Sample Quantity for Testing: 1 No	
	Submitted by : LIFE STRAW – VIETNAM	
	Date of Analysis started : 12.12.2018	
	Date of Analysis Completed: 20.12.2018	
	Subcontract : Not Applicable	
Sample condition when received : Intact		

### TEST DATA: MERCURY REDUCTION at pH 8.5

Volume of Filtration Liters	INFLUENT WATER MERCURY Concentration µg/L	EFFLUENT WATER MERCURY Concentration µg/L	Time Taken for 500 ml filtration (min – Sec)
4 Lit	6.34	<1.0	3-00
75 Lit	6.23	<1.0	4-00
150Lit	6.26	<1.0	5-05
225Lit	6.43	<1.0	5-08
275Lit	6.28	<1.0	5-30
300Lit	6.24	<1.0	5-20
Average →	6.29	<1.0	
NSF/ANSI 53 Requirement Average	6.0 µg/L ±10 %	<1.0 µg/L	NSF/ANSI53 specification is 2 µg/L Maximum Allowable Product water Concentration

<1.0 µg/L = Below Detection Limit

**INFERENCE:** Tested LS Home Pitcher Filter conforms to Mercury reduction from 6 µg/L to 2µg/L (maximum) when tested at pH 8.5 which is in compliance with NSF/ANSI 53 specification requirement throughout the tested volume of 300Lit.

Report No: AWR TCL/PRTR/ 15085/18-19 , Date: 24.12.2018, Page 2 of 3

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# HOME PITCHER

MERCURY REDUCTION AT PH 6.5 FOLLOWING NSF/ANSI 53 STANDARD



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No. 43, PMR Towers, 3rd Floor, Above State Bank of India, Beretena Agrahara,  
Near Hosur Road Junction, Hosur Main Road, Banaalure – 560 100  
rg

### TEST WATER COMPOSITION : pH 6.5

CHARACTERISTICS	NSF/ANSI-53	Tank 1	Tank 2	Tank 3	Tank 4	Tank 5	Tank 6	Tank 7	Tank 8
pH	6.5±0.25	6.29	6.38	6.39	6.42	6.30	6.32	6.49	6.52
TDS mg/L	<100	52	50	48	44	49	50	45	52
Total Hardness as CaCO3 mg/L	10-30	23.21	23.21	11.60	11.60	11.60	23.21	23.21	11.60
Total Alkalinity as CaCO3 mg/L	10-30	20.80	20.80	20.80	10.40	10.40	20.80	20.80	20.80
Poly Phosphate as P mg/L	>0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Temperature °C	20±2.5	19	19	19	19	19	19	19	20
Turbidity NTU	<1	<1	<1	<1	<1	<1	<1	<1	<1

### TEST WATER COMPOSITION : pH 8.5

CHARACTERISTICS	NSF/ANSI-53	Tank 1	Tank 2	Tank 3	Tank 4	Tank 5	Tank 6	Tank 7	Tank 8
pH	8.5±0.25	8.49	8.43	8.52	8.49	8.35	8.39	8.30	8.42
TDS mg/L	200-500	356	376	376	366	377	345	353	350
Total Hardness as CaCO3 mg/L	100-200	139.31	162.52	162.52	139.31	116.09	185.74	185.74	162.52
Total Alkalinity as CaCO3 mg/L	100-250	187.20	228.8	228.8	228.8	208.0	208.0	228.8	249.60
Poly Phosphate as P mg/L	>0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Temperature °C	20±2.5	19	19	19	19	19	19	19	20
Turbidity NTU	<1	<1	<1	<1	<1	<1	<1	<1	<1

### PRODUCT PICTURES



LS Home : pH 6.5

LS Home: pH 8.5

Report No: AWRTEL/PRTR/ 15085/18-19 , Date: 24.12.2018, Page 3 of 3

*(Signature)*  
Dr S.MURALIDHARA RAO  
Head - Laboratory

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## TEST REPORT

Report No: AWR TCL/PRTR/ 15085D-15085E/18-19

Date: 11.01.2019

CUSTOMER DETAILS	SAMPLE DETAILS	TEST DETAILS
<b>Name &amp; Address :</b>  <b>Le Thu Cao</b> <b>Laboratory</b> <b>manager</b> <b>Life Straw</b> <b>Vietnam</b>	Sample received: 04.12.2018	<b>Protocol</b>  <b>NSF/ANSI 53</b>
	Sample code no:- AWR TCL/15085D/18-19	
	Sample Description: LS HOME Pitcher Filter	
	Sample Quantity for Testing: 1 No	
	Submitted by : LIFE STRAW – VIETNAM	
	Date of Analysis started : 31.12.2018	
	Date of Analysis Completed: 10.01.2019	
	Subcontract : Not Applicable	
	Sample condition when received : Intact	

### TEST DATA: CHROMIUM III REDUCTION at pH 6.5

Volume of Filtration Liters	INFLUENT WATER CHROMIUM – III Concentration µg/L	EFFLUENT WATER CHROMIUM – III Concentration µg/L	Time Taken for 500 ml filtration ( min – Sec)	
4 Lit	324.56	43.92	6-10	
75 Lit	318.29	22.21	5-00	
150Lit	320.91	31.36	4-46	
225Lit	323.41	45.85	5-20	
275Lit	325.0	37.45	5-38	
300Lit	316.89	45.30	4-40	
Average →	322.0	38.0		
NSF/ANSI 53 Requirement Average	300µg/L ±10 %	100µg/L	NSF/ANSI53 specification is 100 µg/L Maximum Allowable Product water Concentration	

<1.0 µg/L = Below Detection Limit

**INFERENCE:** Tested LS Home Pitcher Filter conforms to Chromium III reduction from 300µg/L to 100µg/L (maximum) when tested at pH 6.5 which is in compliance with NSF/ANSI 53 specification requirement throughout the tested volume of 300Lit.

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# HOME PITCHER

## CHROMIUM III REDUCTION AT PH 6.5 FOLLOWING NSF/ANSI 53 STANDARD



### AQUADIAGNOSTICS WATER RESEARCH & TECHNOLOGY CENTRE LIMITED

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## TEST REPORT

Report No: AWR TCL/PRTR/ 15085D-15085E/18-19

Date: 11.01.2019

CUSTOMER DETAILS	SAMPLE DETAILS	TEST DETAILS
<b>Name &amp; Address :</b>  <b>Le Thu Cao</b> <b>Laboratory</b> <b>manager</b> <b>Life Straw</b> <b>Vietnam</b>	Sample received: 04.12.2018	<b>Protocol</b>  <b>NSF/ANSI 53</b>
	Sample code no:- AWR TCL/15085E/18-19	
	Sample Description: LS HOME Pitcher Filter	
	Sample Quantity for Testing: 1 No	
	Submitted by : LIFE STRAW – VIETNAM	
	Date of Analysis started : 31.12.2018	
	Date of Analysis Completed: 10.01.2019	
	Subcontract : Not Applicable	
Sample condition when received : Intact		

### TEST DATA: CHROMIUM III REDUCTION at pH 8.5

Volume of Filtration Liters	INFLUENT WATER CHROMIUM – III Concentration µg/L	EFFLUENT WATER CHROMIUM – III Concentration µg/L	Time Taken for 500 ml filtration ( min – Sec)
4 Lit	320.59	44.55	6-08
75 Lit	310.80	21.71	5-07
150Lit	316.64	15.54	4-33
225Lit	323.43	33.28	4-58
275Lit	324.66	20.90	5-50
300Lit	326.35	20.71	5-19
Average →	320.0	26.0	
NSF/ANSI 53 Requirement Average	300µg/L ±10 %	100µg/L	NSF/ANSI53 specification is 100 µg/L Maximum Allowable Product water Concentration

<1.0 µg/L = Below Detection Limit

INFERENCE: Tested LS Home Pitcher Filter conforms to Chromium III reduction from 300µg/L to 100µg/L (maximum) when tested at pH 8.5 which is in compliance with NSF/ANSI 53 specification requirement throughout the tested volume of 300Lit.

Report No: AWR TCL/PRTR/ 15085D-15085E/18-19 , Date: 11.01.2019, Page 2 of 3

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# HOME PITCHER

CHROMIUM III REDUCTION AT PH 6.5 FOLLOWING NSF/ANSI 53 STANDARD



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No. 43, PMR Towers, 3rd Floor, Above State Bank of India, Beretena Agrahara, Near Hosa Road Junction, Hosur Main Road, Bangalore – 560 100

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### TEST WATER COMPOSITION : pH 6.5

CHARACTERISTICS	NSF/ANSI-53	Tank 1	Tank 2	Tank 3	Tank 4	Tank 5	Tank 6	Tank 7	Tank 8
pH	6.5±0.25	6.29	6.48	6.52	6.38	6.59	6.28	6.58	6.37
TDS mg/L	<100	52	51	49	48	49	49	49	47
Total Hardness as CaCO3 mg/L	10-30	23.21	11.60	23.21	23.81	11.90	23.81	23.81	23.81
Total Alkalinity as CaCO3 mg/L	10-30	10.40	20.80	20.80	21.30	10.65	21.30	21.30	21.30
Poly Phosphate as P mg/L	>0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Temperature °C	20±2.5	19	19	19	19	19	20	19	20
Turbidity NTU	<1	<1	<1	<1	<1	<1	<1	<1	<1

### TEST WATER COMPOSITION : pH 8.5

CHARACTERISTICS	NSF/ANSI-53	Tank 1	Tank 2	Tank 3	Tank 4	Tank 5	Tank 6	Tank 7	Tank 8
pH	8.5±0.25	8.42	8.52	8.49	8.33	8.42	8.35	8.46	8.53
TDS mg/L	200-500	365	364	365	363	356	369	358	353
Total Hardness as CaCO3 mg/L	100-200	139.3	162.5	185.7	167.7	142.9	166.7	142.91	142.9
Total Alkalinity as CaCO3 mg/L	100-250	208.0	228.8	249.6	213.0	191.7	213.0	191.70	191.7
Poly Phosphate as P mg/L	>0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Temperature °C	20±2.5	19	19	19	19	19	20	19	19
Turbidity NTU	<1	<1	<1	<1	<1	<1	<1	<1	<1

### PRODUCT PICTURES



LS Home : pH 6.5

LS Home: pH 8.5

Report No: AWRCL/PRTR/ 15085D-15085E/18-19 , Date: 11.01.2019, Page 3 of 3

Dr S.MURALIDHARA RAO  
Head - Laboratory

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## TEST REPORT

Report No: AWRACL/PRTR/ 15085I-150851J/18-19

Date: 06.02.2019

CUSTOMER DETAILS	SAMPLE DETAILS	TEST DETAILS
<b>Name &amp; Address:</b>  <b>Le Thu Cao</b> <b>Laboratory</b> <b>manager</b> <b>Life Straw</b> <b>Vietnam</b>	Sample received: 04.12.2018	<b>Protocol</b>  <b>NSF/ANSI 53</b>
	Sample code no:- AWRACL/15085I/18-19	
	Sample Description: LS HOME Pitcher Filter	
	Sample Quantity for Testing: 1 No	
	Submitted by : LIFE STRAW – VIETNAM	
	Date of Analysis started : 28.01.2019	
	Date of Analysis Completed: 05.02.2019	
	Subcontract : Not Applicable	
	Sample condition when received : Intact	

### TEST DATA: CADMIUM REDUCTION at pH 6.5

Volume of Filtration Liters	INFLUENT WATER CADMIUM Concentration µg/L	EFFLUENT WATER CADMIUM Concentration µg/L	Time Taken for 500 ml filtration ( min – Sec)
4 Lit	31.18	<2.0	3-46
75 Lit	29.55	<2.0	4-13
150Lit	31.31	<2.0	4-24
225Lit	30.62	<2.0	4-34
275Lit	30.50	<2.0	4-41
300Lit	31.15	<2.0	5-25
Average →	30.72	<2.0	
NSF/ANSI 53 Requirement Average	30µg/L ±10 %	<2.0	NSF/ANSI53 specification is 5.0µg/L Maximum Allowable Product water Concentration

&lt;2.0 µg/L = Below Detection Limit

**INFERENCE:** Tested LS Home Pitcher Filter conforms to Cadmium reduction from 30µg/L to 5µg/L (maximum) when tested at pH 6.5 in accordance with NSF/ANSI 53 specification requirement throughout the tested volume of 300Lit.

  
 Dr. S. MURALIDHARA RAO  
 Head - Laboratory

Page 1 of 4

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# HOME PITCHER

CADMIUM REDUCTION AT PH 6.5 FOLLOWING NSF/ANSI 53 STANDARD



## AQUADIAGNOSTICS WATER RESEARCH & TECHNOLOGY CENTRE LIMITED

CIN:U73100KA2008PLC045994 | An IAPMO Group – USA Company

No. 43, PMR Towers, 3rd Floor, Above State Bank of India, Beretena Agrahara,  
Near Hosur Road Junction, Hosur Main Road, Bangalore – 560 100

Ph: +080 25743042 | www.aquadiagnostics.com | E: askme@IAPMOAquadiagnostics.org

### TEST WATER COMPOSITION : pH 6.5

CHARACTERISTICS	NSF/ANSI-53	Tank 1	Tank 2	Tank 3	Tank 4	Tank 5	Tank 6	Tank 7	Tank 8
pH	6.5±0.25	6.29	6.31	6.41	6.38	6.53	6.59	6.61	6.60
TDS mg/L	<100	50	52	48	49	49	49	50	49
Total Hardness as CaCO <sub>3</sub> mg/L	10-30	23.81	23.81	23.81	23.81	23.81	23.81	11.90	11.90
Total Alkalinity as CaCO <sub>3</sub> mg/L	10-30	21.30	21.30	21.30	21.30	21.30	21.30	10.65	10.65
Poly Phosphate as P mg/L	>0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Temperature °C	20±2.5	19	19	20	20	20	20	20	20
Turbidity NTU	<1	<1	<1	<1	<1	<1	<1	<1	<1

### PRODUCT PICTURE



LS Home : Lead Reduction at pH 6.5

Report No: AWRTCL/PRTR/ 150851-150851J/18-19, Date: 06.02.2019, page 2 of 4

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## TEST REPORT

Report No: AWR TCL/PRTR/ 15085I-15085J /18-19

Date: 06.02.2019

CUSTOMER DETAILS	SAMPLE DETAILS	TEST DETAILS
<b>Name &amp; Address :</b>  <b>Le Thu Cao</b> <b>Laboratory</b> <b>manager</b> <b>Life Straw</b> <b>Vietnam</b>	Sample received: 04.12.2018	<b>Protocol</b>  <b>NSF/ANSI 53</b>
	Sample code no:- AWR TCL/15085J/18-19	
	Sample Description: LS HOME Pitcher Filter	
	Sample Quantity for Testing: 1 No	
	Submitted by : LIFE STRAW – VIETNAM	
	Date of Analysis started : 28.01.2019	
	Date of Analysis Completed: 05.02.2019	
	Subcontract : Not Applicable	
	Sample condition when received : Intact	

**TEST DATA: CADMIUM REDUCTION at pH 8.5**

Volume of Filtration Liters	INFLUENT WATER CADMIUM Concentration µg/L	EFFLUENT WATER CADMIUM Concentration µg/L	Time Taken for 500 ml filtration ( min – Sec)
4 Lit	30.17	<2.0	3-36
75 Lit	30.59	<2.0	4-14
150Lit	30.02	<2.0	4-29
225Lit	30.06	<2.0	4-28
275Lit	32.06	<2.0	4-35
300Lit	31.17	<2.0	5-15
Average →	30.68	<2.0	
NSF/ANSI 53 Requirement Average	30µg/L ±10 %	<2.0	NSF/ANSI53 specification is 5.0µg/L Maximum Allowable Product water Concentration

&lt;2.0 µg/L = Below Detection Limit

**INFERENCE:** Tested LS Home Pitcher Filter conforms to Cadmium reduction from 30µg/L to 5µg/L (maximum) when tested at pH 8.5 in accordance with NSF/ANSI 53 specification requirement throughout the tested volume of 300Lit.

Report No: AWR TCL/PRTR/ 15085I-15085J/18-19, Date: 06.02.2019, page 3 of 4

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# HOME PITCHER

CADMIUM REDUCTION AT PH 6.5 FOLLOWING NSF/ANSI 53 STANDARD



## AQUADIAGNOSTICS WATER RESEARCH & TECHNOLOGY CENTRE LIMITED

CIN:U73100KA2008PLC045994 | An IAPMO Group – USA Company

No. 43, PMR Towers, 3rd Floor, Above State Bank of India, Beretena Agrahara, Near Hosur Road, Hosur Main Road, Bangalore – 560 100

### TEST WATER COMPOSITION: pH 8.5

CHARACTERISTICS	NSF/ANSI-53	Tank 1	Tank 2	Tank 3	Tank 4	Tank 5	Tank 6	Tank 7	Tank 8
pH	8.5±0.25	8.29	8.64	8.66	8.59	8.66	8.53	8.58	8.46
TDS mg/L	200-500	364	357	358	359	360	365	350	354
Total Hardness as CaCO3 mg/L	100-200	119.09	142.91	142.91	166.73	166.73	190.55	190.55	142.91
Total Alkalinity as CaCO3 mg/L	100-250	170.40	191.70	191.70	149.10	149.10	191.70	191.70	213.00
Poly Phosphate as P mg/L	>0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Temperature °C	20±2.5	19	19	20	20	20	20	20	20
Turbidity NTU	<1	<1	<1	<1	<1	<1	<1	<1	<1

Product Picture



LS Home : Lead Reduction at pH 8.5

Report No: AWRCL/PRTR/ 150851-150851J/18-19, Date: 06.02.2019, page 4 of 4

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## TEST REPORT

Report No: AWR TCL/PRTR/ 15085K-150851L/18-19

Date: 15.02.2019

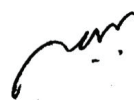
CUSTOMER DETAILS	SAMPLE DETAILS	TEST DETAILS
<b>Name &amp; Address:</b>  <b>Le Thu Cao</b> <b>Laboratory</b> <b>manager</b> <b>Life Straw</b> <b>Vietnam</b>	Sample received: 04.12.2018	<b>Protocol</b>  <b>NSF/ANSI 53</b>
	Sample code no:- AWR TCL/15085K/18-19	
	Sample Description: LS HOME Pitcher Filter	
	Sample Quantity for Testing: 1 No	
	Submitted by : LIFE STRAW – VIETNAM	
	Date of Analysis started : 06.02.2019	
	Date of Analysis Completed: 15.02.2019	
	Subcontract : Not Applicable	
	Sample condition when received : Intact	

### TEST DATA: COPPER REDUCTION at pH 6.5

Volume of Filtration Liters	INFLUENT WATER COPPER Concentration mg/L	EFFLUENT WATER COPPER Concentration mg/L	Time Taken for 500 ml filtration ( min – Sec)
4 Lit	3.07	<0.005	3-46
75 Lit	2.96	<0.005	4-07
150Lit	3.00	<0.005	3-56
225Lit	3.24	<0.005	3-58
275Lit	3.05	<0.005	3-44
300Lit	2.97	0.0051	4-16
Average →	3.04	0.005	
NSF/ANSI 53 Requirement Average	3.0mg/L ±10 %	0.005	NSF/ANSI53 specification is 1.30 mg/L Maximum Allowable Product water Concentration

&lt;0.005mg/L= Below Detection Limit

**INFERENCE:** Tested LS Home Pitcher Filter conforms to Copper reduction from 3.0mg/L to 1.3mg/L (maximum) when tested at pH 6.5 in accordance with NSF/ANSI 53 specification requirement throughout the tested volume of 300Lit.



Dr S.MURALIDHARA RAO  
Head - Laboratory

Report No: AWR TCL/PRTR/ 15085K-150851L/18-19, Date: 15.02.2019, page 1 of 4

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# HOME PITCHER

COPPER REDUCTION AT PH 6.5 FOLLOWING NSF/ANSI 53 STANDARD



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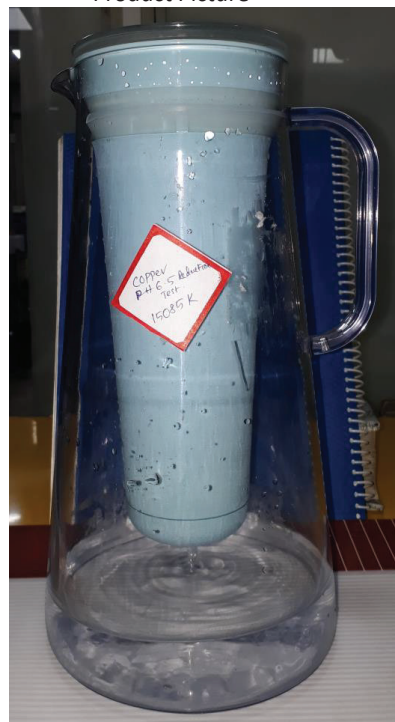
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### TEST WATER COMPOSITION: pH 6.5

CHARACTERISTICS	NSF/ANSI-53	Tank 1	Tank 2	Tank 3	Tank 4	Tank 5	Tank 6	Tank 7	Tank 8
pH	6.5±0.25	6.42	6.67	6.30	6.52	6.30	6.36	6.66	6.39
TDS mg/L	<100	58	48	49	40	50	49	49	52
Total Hardness as CaCO <sub>3</sub> mg/L	10-30	23.81	23.81	23.81	24.02	24.02	24.02	24.02	24.02
Total Alkalinity as CaCO <sub>3</sub> mg/L	10-30	21.30	21.30	21.30	21.30	21.30	21.30	21.30	21.30
Poly Phosphate as P mg/L	>0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Temperature °C	20±2.5	20	20	20	19	20	20	20	20
Turbidity NTU	<1	<1	<1	<1	<1	<1	<1	<1	<1

Product Picture



LS Home:Copper Reduction at pH 6.5

Report No: AWRCL/PRTR/ 15085K-150851L/18-19, Date: 15.02.2019, page 2 of 4

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## COPPER REDUCTION AT PH 6.5 FOLLOWING NSF/ANSI 53 STANDARD



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## TEST REPORT

Report No: AWR TCL/PRTR/ 15085K-15085L /18-19

Date: 15.02.2019

CUSTOMER DETAILS	SAMPLE DETAILS	TEST DETAILS
<b>Name &amp; Address :</b>  <b>Le Thu Cao</b> <b>Laboratory</b> <b>manager</b> <b>Life Straw</b> <b>Vietnam</b>	Sample received: 04.12.2018	<b>Protocol</b>  <b>NSF/ANSI 53</b>
	Sample code no:- AWR TCL/15085L/18-19	
	Sample Description: LS HOME Pitcher Filter	
	Sample Quantity for Testing: 1 No	
	Submitted by : LIFE STRAW – VIETNAM	
	Date of Analysis started : 06.02.2019	
	Date of Analysis Completed: 15.02.2019	
	Subcontract : Not Applicable	
Sample condition when received : Intact		

### TEST DATA: COPPER REDUCTION at pH 8.5

Volume of Filtration Liters	INFLUENT WATER COPPER Concentration mg/L	EFFLUENT WATER COPPERM Concentration mg/L	Time Taken for 500 ml filtration ( min – Sec)
4 Lit	2.95	0.0078	4-08
75 Lit	2.97	<0.005	4-17
150Lit	3.07	<0.005	5-15
225Lit	3.08	<0.005	6-51
275Lit	2.94	0.0055	7-56
300Lit	3.02	0.0073	9-19
Average →	3.0		
NSF/ANSI 53 Requirement Average	3.0mg/L±10 %	0.0059	NSF/ANSI53 specification is 1.30 mg/L Maximum Allowable Product water Concentration

<0.005mg/L= Below Detection Limit

**INFERENCE:** Tested LS Home Pitcher Filter conforms to Copper reduction from 3.0 mg/L to 1.3mg/L (maximum) when tested at pH 8.5 in accordance with NSF/ANSI 53 specification requirement throughout the tested volume of 300Lit.

Report No: AWR TCL/PRTR/ 15085K-150851L/18-19, Date: 15.02.2019, page 3 of 4

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# HOME PITCHER

## COPPER REDUCTION AT PH 6.5 FOLLOWING NSF/ANSI 53 STANDARD



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#### TEST WATER COMPOSITION : pH 8.5

CHARACTERISTICS	NSF/ANSI -53	Tank 1	Tank 2	Tank 3	Tank 4	Tank 5	Tank 6	Tank 7	Tank 8
pH	8.5±0.25	8.53	8.29	8.51	8.54	8.30	8.49	8.58	8.51
TDS mg/L	200-500	367	365	367	370	359	357	349	390
Total Hardness as CaCO3 mg/L	100-200	166.73	166.73	142.91	192.15	192.15	192.15	168.13	168.13
Total Alkalinity as CaCO3 mg/L	100-250	234.3	213.0	234.3	234.3	234.3	234.3	234.3	234.3
Poly Phosphate as P mg/L	>0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Temperature °C	20±2.5	20	20	20	19	20	20	20	20
Turbidity NTU	<1	<1	<1	<1	<1	<1	<1	<1	<1

Product Picture



LS Home: Copper Reduction at pH 8.5

Report No: AWRCL/PRTR/ 15085K-150851L/18-19, Date: 15.02.2019, page 4 of 4

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# HOME PITCHER

## BARIUM REDUCTION AT PH 6.5 FOLLOWING NSF/ANSI 53 STANDARD



### AQUADIAGNOSTICS WATER RESEARCH & TECHNOLOGY CENTRE LIMITED

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Near Hosa Road Junction, Hosur Main Road, Bangalore – 560 100

Ph: +080 25743042 | www.aquadiagnostics.com | E: askme@IAPMOAquadiagnostics.org

## TEST REPORT

Report No: AWRCL/PRTR/ 15085O-150851P/18-19

Date: 13.03.2019

CUSTOMER DETAILS	SAMPLE DETAILS	TEST DETAILS
<b>Name &amp; Address:</b>  <b>Le Thu Cao</b> <b>Laboratory</b> <b>manager</b> <b>Life Straw</b> <b>Vietnam</b>	Sample received: 04.12.2018	<b>Protocol</b>  <b>NSF/ANSI 53</b>
	Sample code no: AWRCL/15085O/18-19	
	Sample Description: LS HOME Pitcher Filter	
	Sample Quantity for Testing:1 No	
	Submitted by : LIFE STRAW – VIETNAM	
	Date of Analysis started : 25.02.2019	
	Date of Analysis Completed: 13.03.2019	
	Subcontract : Not Applicable	
	Sample condition when received : Intact	

### TEST DATA: BARIUM REDUCTION at pH 6.5

Volume of Filtration Liters	INFLUENT WATER BARIUM Concentration mg/L	EFFLUENT WATER BARIUM Concentration mg/L	Time Taken for 500 ml filtration ( min – Sec)
4 Lit	9.921	1.491	3-45
75 Lit	10.382	1.485	4-20
150Lit	10.369	1.461	4-16
225Lit	10.637	1.585	4-34
275Lit	10.597	1.594	4-23
300Lit	10.613	1.594	4-52
Average →	10.419	1.535	
NSF/ANSI 53 Requirement Average	10.0mg/L±10 %	2.0 mg/L	NSF/ANSI53 specification is 2.0 mg/L Maximum Allowable Product water Concentration

<0.005mg/L= Below Detection Limit

INFERENCE: Tested LS Home Pitcher Filter conforms to Barium reduction from 10.0mg/L to 2.0mg/L (maximum) when tested at pH 6.5 in accordance with NSF/ANSI 53 specification requirement throughout the tested volume of 300Lit.

Dr S.MURALIDHARA RAO  
Head - Laboratory

Report No: AWRCL/PRTR/ 15085K-150851L/18-19, Date: 15.02.2019, page 1 of 4

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# HOME PITCHER

## BARIUM REDUCTION AT PH 6.5 FOLLOWING NSF/ANSI 53 STANDARD



### AQUADIAGNOSTICS WATER RESEARCH & TECHNOLOGY CENTRE LIMITED

CIN:U73100KA2008PLC045994 | An IAPMO Group – USA Company

No. 43, PMR Towers, 3rd Floor, Above State Bank of India, Beretena Agrahara,  
Near Hosa Road Junction, Hosur Main Road, Bangalore – 560 100

Ph: +080 25743042 | www.aquadiagnostics.com | E: askme@IAPMOAquadiagnostics.org

#### TEST WATER COMPOSITION: pH 6.5

CHARACTERISTICS	NSF/ANSI-53	Tank 1	Tank 2	Tank 3	Tank 4	Tank 5	Tank 6	Tank 7	Tank 8
pH	6.5±0.25	6.28	6.62	6.41	6.53	6.44	6.69	6.51	6.33
TDS mg/L	<100	62	60	62	57	63	60	60	59
Total Hardness as CaCO <sub>3</sub> mg/L	10-30	29.72	29.72	29.72	29.72	29.72	29.72	29.72	29.72
Total Alkalinity as CaCO <sub>3</sub> mg/L	10-30	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0
Poly Phosphate as P mg/L	>0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Temperature °C	20±2.5	21	21	21	21	21	21	21	21
Turbidity NTU	<1	<1	<1	<1	<1	<1	<1	<1	<1

Product Picture



LS Home:Barium Reduction at pH 6.5

Report No: AWRCL/PRTR/ 15085K-150851L/18-19, Date: 15.02.2019, page 2 of 4

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## TEST REPORT

Report No: AWR TCL/PRTR/ 15085OK-15085P /18-19

Date: 13.03.2019

CUSTOMER DETAILS	SAMPLE DETAILS	TEST DETAILS
<b>Name &amp; Address :</b>  <b>Le Thu Cao</b> <b>Laboratory</b> <b>manager</b> <b>Life Straw</b> <b>Vietnam</b>	Sample received: 04.12.2018	<b>Protocol</b>  <b>NSF/ANSI 53</b>
	Sample code no:- AWR TCL/15085P/18-19	
	Sample Description: LS HOME Pitcher Filter	
	Sample Quantity for Testing: 1 No	
	Submitted by : LIFE STRAW – VIETNAM	
	Date of Analysis started : 25.02.2019	
	Date of Analysis Completed: 13.03.2019	
	Subcontract : Not Applicable	
	Sample condition when received : Intact	

**TEST DATA: BARIUM REDUCTION at pH 8.5**

Volume of Filtration Liters	INFLUENT WATER BARIUM Concentration mg/L	EFFLUENT WATER BARIUM Concentration mg/L	Time Taken for 500 ml filtration ( min – Sec)
4 Lit	9.930	0.748	3-41
75 Lit	10.457	1.472	4-04
150Lit	10.528	1.466	4-30
225Lit	10.539	1.586	4-38
275Lit	10.751	1.590	4-54
300Lit	10.640	1.599	5-29
Average →	10.474	1.41	
NSF/ANSI 53 Requirement Average	10.0mg/L±10 %	2.0 mg/L	NSF/ANSI53 specification is 2.0 mg/L Maximum Allowable Product water Concentration

&lt;0.005mg/L= Below Detection Limit

**INFERENCE:** Tested LS Home Pitcher Filter conforms to Barium reduction from 10.0mg/L to 2.0mg/L (maximum) when tested at pH 8.5 in accordance with NSF/ANSI 53 specification requirement throughout the tested volume of 300Lit.

Report No: AWR TCL/PRTR/ 15085K-150851L/18-19, Date: 15.02.2019, page 3 of 4

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# HOME PITCHER

## BARIUM REDUCTION AT PH 6.5 FOLLOWING NSF/ANSI 53 STANDARD



### AQUADIAGNOSTICS WATER RESEARCH & TECHNOLOGY CENTRE LIMITED

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#### TEST WATER COMPOSITION : pH 8.5

CHARACTERISTIC S	NSF/ANSI -53	Tank 1	Tank 2	Tank 3	Tank 4	Tank 5	Tank 6	Tank 7	Tank 8
pH	8.5±0.25	5.58	8.65	8.41	8.49	8.35	8.29	8.39	8.41
TDS mg/L	200-500	377	369	376	371	377	379	366	362
Total Hardness as CaCO3 mg/L	100-200	138.71	158.52	158.52	158.52	158.52	178.34	178.34	178.34
Total Alkalinity as CaCO3 mg/L	100-250	184.0	207.0	230.0	230.0	207.0	207.0	230.0	230.0
Poly Phosphate as P mg/L	>0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Temperature °C	20±2.5	21	21	21	21	21	21	21	21
Turbidity NTU	<1	<1	<1	<1	<1	<1	<1	<1	<1

Product Picture



LS Home:Barium Reduction at pH 8.5

Report No: AWR TCL/PRTR/ 15085K-150851L/18-19, Date: 15.02.2019, page 4 of 4

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## TEST REPORT

Report No: AWR TCL/PRTR/ 15662A /19-20

Date: 05.08.2019

CUSTOMER DETAILS	SAMPLE DETAILS	TEST DETAILS
<b>Name &amp; Address :</b>  Ms. Le Thu Cao Laboratory manager Life Straw Vietnam	Sample received: 30.03.2019	<b>Method:</b> NSF P 231 protocol
	Sample code no:- AWR TCL/15662A/19-20	
	Sample Description: LS Home Pitcher Filter	
	Sample Quantity for Testing: 1 No.	
	Submitted by : LIFE STRAW – VIETNAM	
	Date of Analysis started:01.08.2019	
	Date of Analysis Completed:03.08.2019	
	Subcontract : Not Applicable	
Sample condition when received : Intact		

#### TEST DATA: Microbial reduction @ Flow rate- 500ml/4.32min

Sample Code/ Customer Code	Tested parameter	Input Water Microbial Count	Output Water Microbial Count	% Reduction
AWR TCL /15662A/ 19-20 LS Home Pitcher's	E.Coli MTCC 68	7.0x 10 <sup>6</sup> cfu/ml	No Viable Counts/100 ml	99.999999 (8.81 Log)
		6.0x 10 <sup>6</sup> cfu/ml	No Viable Counts/100 ml	
	Average count	6.5.0x 10 <sup>6</sup> cfu/ml (8.81 Log)	No Viable Counts/100 ml (0 Log)	

Cfu: Colony forming units. Sampling was done after 10 Lit filtration.

**INFERENCE:** Tested LS Home Pitcher filter performs effectively by reducing E.Coli MTCC 68 bacterium to the tune of 99.999999 (8.81 log) exceeding the minimum requirement of 99.9999% (6 log reduction) as per NSFP231 norm.

Report No: AWR TCL/PRTR/ 15662A /19-20, Date: 05.08.2019, Page 1 of 2

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# HOME PITCHER

MICROBIAL REDUCTION @ FLOW RATE- 500ML/4.32MIN FOLLOWING NSF P 231 STANDARD



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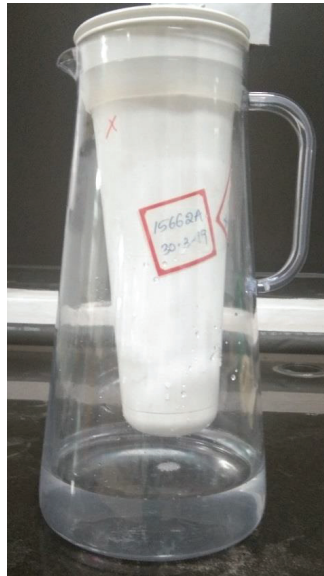
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### TEST WATER COMPOSITION: GTW#1 (General Test water – 1)

Test water Characteristic	Recommended Concentration	Concentration maintained by the Laboratory
pH	6.5 to 8.5	7.28
TDS mg/L	50 – 500	422
TOC mg/L	0.1 to 5.0	1.0
Turbidity NTU	0.1 to 5.0	1.0
Temperature °C	20±5 °C	24

### TEST PRODUCT



Dr S.MURALIDHARA RAO  
Head - Laboratory

Report No: AWRTCL/PRTR/ 15662A /19-20, Date: 05.08.2019, Page 2 of 2

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## TEST REPORT

Report No: AWRCL/PRTR/ 14967C /18-19

Date: 14.11.2018

CUSTOMER DETAILS	SAMPLE DETAILS	TEST DETAILS
<b>Name &amp; Address :</b>  <b>Le Thu Cao</b> <b>Laboratory</b> <b>manager</b> <b>Life Straw</b> <b>Vietnam</b>	Sample received: 05.11.2018	<b>Method:</b> <b>Turbidity and</b> <b>cyst (as 3</b> <b>micron spheres)</b> <b>reduction</b> <b>following</b> <b>NSF/ANSI 53</b> <b>standard</b>
	Sample code no:- AWRCL/14967C/18-19	
	Sample Description: LIFE STRAW HOME water filters	
	Sample Quantity for Testing: 2 No.	
	Submitted by : LIFE STRAW – VIETNAM	
	Date of Analysis started : 15.11.2018	
	Date of Analysis Completed: 16.11.2018	
	Subcontract : Not Applicable	
Sample condition when received : Intact		

### TEST DATA: 3 Micron Microsphere Reduction: After 10 Liter Filtration

Test water composition: pH-7.32, TDS-432ppm, Turbidity- 0.91 NTU, Temperature- 24°C

Sample code	Microbial culture	Input Water concentration cfu/ml	Output Water concentration cfu/ml	% Reduction
AWRCL/14987C/18-19 LS Home Pitcher Filter	3 micron microspheres	1.74 x 10 <sup>7</sup> cells/ Liter	<160cells/Liter	99.9990 (5.04 log)

Flow Rate of Filtration : 120 ml/min

**INFERENCE:** Tested LS Home products perform well meeting the specification of NSF/ANSI 53 for cyst reduction (as 3 micron spheres). Reduction performance were higher than 99.999% (>5 Log).

### TEST DATA: TURBIDITY REDUCTION after 10 Liters of Filtration

Volume of Filtration Liters	TURBIDITY REDUCTION NTU				TEST WATER			
	INPUT WATER Turbidity NTU	OUTPUT WATER Turbidity NTU	% Reduction	NSF/ANSI53 Reduction Requirement of Turbidity	Time taken for filtration Min-Sec	Test Water Characteristic	Requirement	Tank – 1
1Lit	10.70	0.6	94.39	From 11±1 to not more than 0.5 NTU	04 - 05	Hardness as CaC3 mg/L	Not more than 170 mg/L	166.63
10 Lit	10.30	<0.1	99.02			pH	7.5±0.5	7.05
						Temperature °C	20±2.5	22
						TDS mg/L	200-500	316
					Turbidity NTU	<1.0	<1.0	

A2 dust was added for adjusting Turbidity

**INFERENCE:** Tested LS Home products perform well meeting the specification of NSF/ANSI 53 for turbidity removal. Turbidity of filtered water was smaller than 0.5 NTU.

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# HOME PITCHER

3 MICRON MICROSPHERE REDUCTION: AFTER 10 LITER FILTRATION FOLLOWING NSF/ANSI 53 STANDARD



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### Product Pictures



*Turbidity test*



*3 micron sphere test*

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Head - Laboratory

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# HOME PITCHER

## 1 MICRON POLYSTYRENE MICROSPHERES REDUCTION: AFTER 10 LITER FILTRATION



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## TEST REPORT

Report No: AWRCL/PRTR/ 14967D /18-19

Date: 17.11.2018

CUSTOMER DETAILS	SAMPLE DETAILS	TEST DETAILS
Name & Address :  Le Thu Cao Laboratory manager Life Straw Vietnam	Sample received: 05.11.2018	Method: Microplastic reduction (as 1 micron plastic spheres) - black dyed Microspheres
	Sample code no:- AWRCL/14967D/18-19	
	Sample Description: LIFE STRAW Pitcher filter	
	Sample Quantity for Testing: 1 No.	
	Submitted by : LIFE STRAW – VIETNAM	
	Date of Analysis started : 16.11.2018	
	Date of Analysis Completed: 17.11.2018	
	Subcontract : Not Applicable	
Sample condition when received : Intact		

TEST DATA: 1 micron polystyrene microspheres reduction: After 10 Liter Filtration

Sample code	Microbial culture	Input Water concentration counts/Liter	Output Water concentration counts/Liter	% Reduction
AWRCL/1 4987D/ 18-19 LS Home Pitcher Filter	1 micron microspheres	3.20 x 10 <sup>7</sup> cells/ Liter	320 cells/Liter	99.9990 (5.0 log)

Test water composition: pH-9.23, TDS-1490ppm, Turbidity- 31.0 NTU, Temperature- 5°C, TOC-10 mg/L  
Flow Rate of Filtration : 116 ml/min

**INFERENCE:** Tested LS Home product reduces well microplastics as 1 micron polystyrene black dyed microspheres with reduction percentage higher than 99.999% (> 5 Log).

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# HOME PITCHER

## 1 MICRON POLYSTYRENE MICROSPHERES REDUCTION: AFTER 10 LITER FILTRATION



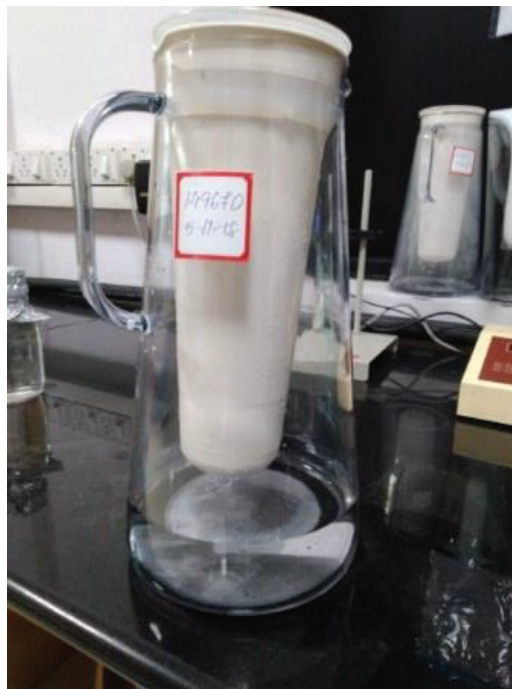
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Product Picture



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# Certificate of Analysis

PHÒNG THÍ NGHIỆM NƯỚC/ *Water Laboratory*  
 ISO/IEC 17025 accredited

## Sample Information

Test	: LifeStraw® Home	Requested by	: QC
Quantity	: 1 pc	Description	: QC sample

## Analysis Results

Parameter	Microbiological log <sub>10</sub> reduction		Physico-chemical characteristics			
	Bacteria (E.coli)	Protozoa (3µm spheres surrogate)	Turbidity of effluent water (NTU)	Flow rate (ml/min)	Chlorine removal (%)	Lead removal (%)
Reference method	SMEWW 9222G	US EPA 05/9205/EPADWC (Modified) (*)	SMEWW 2130B (*)	In house method	Hach 8167 - DPD method (*)	SMEWW 3125:2012
1 LS.18.486.29	>8.6	>5.3	0.1	145	100%	100%

Note: (\*) ISO/IEC 17025 accredited methods

I, the undersigned, hereby declare that the findings provide a true and accurate record of the results obtained on samples as received.

Date and signature

23/11/2018



Cao Thu Le

Water Laboratory Manager



LifeStraw® 