

Schlieren, 15 July 2008
AR/DT

Vestergaard SA
Chemin de Messidor 5-7
1006 Lausanne

Analytical report

Object: LIFESTRAW model LF08-011

Bachema AG
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Chemisches und
mikrobiologisches
Labor für
die Prüfung von
Umweltproben
(Wasser,
Boden, Abfall)
Akkreditiert nach
ISO 17025/STS
Nr.064

Bachema order number	20083413
Sample number	18406-18407
Date of sampling	04 July 2008
Date of arrival at Bachema	04 July 2008
Place of sampling	Schlieren
Samples taken by	C. Favre, Bachema AG
Customer	Vestergaard SA, Chemin de Messidor 5-7, 1006 Lausanne
Invoice address	Vestergaard SA, Chemin de Messidor 5-7, 1006 Lausanne
Report to	Vestergaard SA, D. Frauchiger, Chemin de Messidor 5-7, 1006 Lausanne
Report copy to	Vestergaard SA, D. Frauchiger, Chemin de Messidor 5-7, 1006 Lausanne
Report copy by e-mail to	Vestergaard SA, D. Frauchiger, df@vestergaard-frandsen.com

Yours sincerely,
BACHEMA AG

Annette Rust
Dr. sc. nat. / Dipl. Natw. ETH

KOPIE

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Customer: Vestergaard SA
Bachema order number: 20083413

Overview over the samples

Bachema number	Short desc.	Sample description	Sampling / Arrival
18406 W		Test water from the tap	04.07.08 / 04.07.08
18407 W		Filtered water from outlet LIFESTRAW	04.07.08 / 04.07.08

Caption to the legal standards

EW LMB	Directive values for undisturbed drinking water according to the Swiss Food Manual.
FIV	Limit (G) and tolerance (T) values for drinking water according to Swiss Ordinance on Contaminants and Constituents in Foodstuff (FIV; GSchV = values for ground water which is used or is provided to be used for drinking water according to Swiss Ordinance on Water Protection).

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Abbreviation

W	Water sample
F	Solid sample
<	For the results, the value after the sign < (smaller than) indicates the limit of quantification for the corresponding method.
*	Parameters marked with a * are not within of the accredited area of Bachema AG or are external analysis.

Accreditation

	Partially copying of the analytical report is only allowed with permission from Bachema AG. Detailed information on analytical methods, precision of the measurement and further data are available on request.
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KOPIE
A. Fust

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Customer: Vestergaard SA
Bachema order number: 20083413

Sample description	Test water from the tap	Filtered water from outlet LIFESTRAW			EW LMB	FIV
Sample number	18406	18407				
Date of sampling	04.07.08	04.07.08				
Time of sampling	12:05	12:05				
Field parameters						
Flow rate	L/min	0.150				
Physicochemical parameters						
Dry residue (in 0.1 L)	mg/L	351	322			
Hardness and cations						
Total hardness (calculated)	°f	30.0	30.1			
Total hardness (calculated)	mmol/L	3.00	3.01			
Sodium (dissolved)	mg/L Na	8.5	8.5		<20	
Anions						
Chloride	mg/L Cl	11.9	22.8		<20 (200)	
Sulfate	mg/L SO ₄	18.5	2.8		<50 (200)	
N- and P-compounds						
Ammonium	mg/L NH ₄	<0.01	<0.01		<0.05	0.1 T
Cyanides and sulfides						
Sulfide	mg/L S	<0.01	<0.01			
Elements and heavy metals						
Aluminium (dissolved) ICP-MS	mg/L Al	<0.010	<0.010		<0.05	0.2 T
Lead (dissolved) ICP-MS	mg/L Pb	0.0008	0.0010		<0.001	0.01 G
Cadmium (dissolved) ICP-MS	mg/L Cd	<0.00005	<0.00005		<0.0005	0.005 G
Chromium (dissolved) ICP-MS	mg/L Cr	<0.0005	<0.0005		<0.001	0.02 G
Iron (dissolved) ICP-OES	mg/L Fe	<0.010	<0.010		<0.05	0.3 T (tot)
Copper (dissolved) ICP-MS	mg/L Cu	0.012	0.015		<0.02	1.5 T
manganese (dissolved) ICP-OES	mg/L Mn	<0.005	<0.005		<0.02	0.05 T (tot)
Silver (dissolved) ICP-MS	mg/L Ag	<0.001	<0.001			0.1 T
Zinc (dissolved) ICP-MS	mg/L Zn	0.023	0.026		<0.1	5 T
Organic parameters						
Benzene	µg/L	<0.5	<0.5		<0.1	1 T
Toluene	µg/L	<0.5	<0.5		<0.1	1 T
Ethylbenzene	µg/L	<0.5	<0.5		<0.1	1 T
m-Xylene/ p-Xylene	µg/L	<0.5	<0.5			1 T
o-Xylene	µg/L	<0.5	<0.5		<0.1	1 T
Sum BTEX	µg/L	<1	<1			

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Comment

Flow-through system / test setup

The flow was forced by gravitation. Therefore, a reservoir that was filled with drinking water from the tap in our laboratory in Schlieren, Switzerland and was installed with the upper water level about 2 m above the test-LIFESTRAW. The tap water contained no chlorine. The LIFESTRAW to be tested was attached to a flow-through system with flow regulation (Key Instruments, USA) at the outflow after the LIFESTRAW, which allowed tuning a flow rate of 150 ± 3 mL. Samples were taken after about 5 L of water flowing through the test straw from its effluent and another sample of the tap water before the test straw from the silicon pipe that that were used for the flow through system.

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