



inc. BIOLOGICAL CONSULTING SERVICES  
OF NORTH FLORIDA, INC.

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July 31, 2014

Michael Figoff  
United Filters International  
7932 Ajay Drive  
Sun Valley, CA 91352  
818-404-2124

Re: Inorganics' filtration efficacy of the provided 10" cartridge filters; BCS1407065 and 1407066

To whom it may concern,

We have conducted the requested biological filtration efficacy study on the United Filter International filters that were provided. The experimental set up and challenge of the water filters was designed to evaluate the filters' inorganic soluble chemical contaminant removal efficacy. The contaminant species and water parameters selected were based on client's request and NSF/ANSI water purifier testing protocols.

Following, you will find our report on the results of the challenge study. Should you have any questions, please do not hesitate to contact me.

Sincerely,

George Lukasik, Ph.D.  
Laboratory Director

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FL DOH LABORATORY #E82924, EPA# FLO1147

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FILE: UNITED FILTERS INTERNATIONAL BCS 1407065-66 WATER Filters SOLUBLE METAL REMOVAL .DOCX



**Project:** United Filters International  
**Study Sponsor:** United Filters International  
**Sample(s):** BCS 1407065 and 1407066, received July 07, 2014.  
**Test:** Filtration Efficacy – Initial Efficacy\*  
**Test Parameter:** Soluble Inorganic; Metals – pH 6.5  
**Performed and Analyzed by:** George Lukasik, Ph.D. & Kintin Ng; July 17, 2014

Metal Species	Influent Concentration (ppm)	United Filter #1 Effluent BCS 1407065		United Filter #2 Effluent BCS 1407066		Cumulative % Reduction
		Concentration (ppm)	% Reduction	Concentration (ppm)	% Reduction	
Arsenic	0.098	<0.0040**	>95.9%	<0.0040**	>95.9%	>95.9%
Cadmium	0.097	<0.0010**	>98.8%	<0.0010**	>98.8%	>98.8%
Chromium	0.097	0.0038	96.1%	0.0044	95.5%	95.8%
Iron	0.32	<0.050**	>84.4%	<0.050**	>84.4%	>84.4%
Lead	0.094	0.0024	97.5%	0.0031	96.7%	97.6%
Mercury	110	36	67.3%	24	78.2%	72.8%
Selenium	0.10	0.025	75%	0.022	78%	76.5%
Silver	0.078	0.0016	98.0%	<0.0010**	>98.7%	>98.4%

\*\* The species was not detected in the filter effluent.



**Project:** United Filters International  
**Sample(s):** BCS 1407065 and 1407066, received July 07, 2014.  
**Test:** Filtration Efficacy – Efficacy following passage of 1000 gallons of City of Gainesville municipal tap water \*\*  
**Test Parameter:** Soluble Inorganic; Metals – pH 6.5  
**Performed and Analyzed by:** George Lukasik, Ph.D. & Kintin Ng; July 18, 2014

Metal Species	Influent Concentration (ppm)	1000 Gallons United Filter #1 Effluent BCS 1407065		1000 Gallons United Filter #2 Effluent BCS 1407066		Cumulative % Reduction
		Concentration (ppm)	% Reduction	Concentration (ppm)	% Reduction	
Arsenic	0.10	<0.0040**	>96.0%	<0.0040**	>96.0%	>96.0%
Cadmium	0.10	<0.0010**	>99.0%	<0.0010**	>99.0%	>99.0%
Chromium	0.10	0.010	90.0%	0.010	90.0%	90.0%
Iron	0.30	<0.050**	>83.3%	<0.050**	>83.3%	>84.4%
Lead	0.10	0.0038	96.2%	<0.0020	98.0%	>97.1%
Mercury	0.00110	0.00040	63.6%	0.00042	61.8%	62.7%
Selenium	0.11	0.018	83.6%	0.016	85.5%	84.6%
Silver	0.056	<0.0010**	>98.2%	<0.0010**	>98.2%	>98.2%

\*\* The species was not detected in the filter effluent.



**Project:** United Filters International  
**Study Sponsor:** United Filters International  
**Sample(s):** BCS 1407065 and 1407066, received July 07, 2014.  
**Test:** Filtration Efficacy – Initial filtration efficacy and efficacy following passage of 1000 gallons of City of Gainesville municipal tap water \*\*  
**Test Parameter:** Soluble Inorganic; Metals – pH 6.5  
**Performed and Analyzed by:** George Lukasik, Ph.D. & Kintin Ng; July 17 and 18, 2014

\* Chemical filtration challenge study description: Initially, fifteen liters of City of Gainesville municipal drinking water were passed through each of the provided filters using 58-60 PSI of pressure. The indicated chemical species were added to 25 liters of municipal drinking water and placed in a stainless steel pressure vessel. A stock metal solution was used (Specpure® plasma standard solution, cat. 14657, Alfa Aesar, MA) to spike the water. The water was homogenized. The pH of the water was 6.5. The vessel was sealed and pressurized to 57 PSI. Ten liters of the challenge solution were passed through each of the filters. Each filter's effluent was collected in a clean container. The flow rate was validated using a NIST traceable timer and was measured to be two gallons/min. A sample of the influent was removed prior to the beginning of the challenge study and at the end of the study. Following, 1000 gallons of municipal drinking water were passed through each the filters. The described filtration challenge study was repeated. The collected influent and effluent samples were stabilized immediately following collection and shipped immediately preserved to TestAmerica Tampa Laboratory for analysis. TestAmerica is NELAP accredited for the analysis of the indicated species in water. Method 6010B- Metals (ICP) and 7470A – Mercury (CVAA) were used for the analysis. All quality control data was provided and validated results.

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Study data are summarized in the provided table(s). The results presented pertain only to the study conducted on the test articles/samples provided by the client (or client representative). The study was authorized and commissioned by the client. The results presented pertain only to the samples analyzed and identifier number(s) indicated. The data provided is strictly representative of the study conducted using the material/samples/articles provided by the client (or client's representative) and its (their) condition at the time of test. The study and data are obtained under laboratory conditions and may not be representative or indicative of a real-life process and/or application. Positive, negative, and neutralization controls were performed as outlined in the method and as per Good Laboratory Practices. All analyses were performed in accordance with laboratory practices and procedures set-forth by our NELAP/TNI accreditation standards (ISO 17025) unless otherwise noted. BCS makes no claims with regards to the express or implied warranty regarding the ownership, merchantability, safety or fitness for a particular purpose of any such property or product.



Signature of Laboratory Director/Authorized Rep. \_\_\_\_\_ Date: July 31, 2014

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