



Biological Consulting Services
of North Florida, Inc.

November 9, 2012

Dr. Fred Cooper
Ariix
563 West 500 South
Suite 340
Bountiful, Utah 84010

Dear Dr. Cooper:

We have conducted the requested filtration efficacy study on the provided Ariix filters (lot: F3175) received on September 24, 2012. The experimental set up and challenge of the water filter was designed to evaluate the filter's chemical contaminant removal efficacy. It is intended to demonstrate its efficacy following initial use on the removal of pharmaceutical and endocrine waterborne contaminants. The contaminant species and testing parameters selected were based on the provided request, contamination concentrations that might be encountered in contaminated surface water, and recommendations by the analytical laboratory. The challenge test was comparable to methodology outlined in the NSF/EPA water purifier testing protocols. Chemical analysis of the filter influent and effluent samples for the respective species was conducted by an independent NELAP accredited laboratory.

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

Sincerely,

George Lukasik, Ph.D.
Laboratory Director

Phil.Cooper@ariix.com

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4609 NW 6TH STREET, STE. A, GAINESVILLE, FLORIDA 32609
TEL. (352) 377-9272, FAX. (352) 377-5630

WWW.MICROBIOSERVICES.COM

FL DOH LABORATORY #E82924, EPA# FL01147

This report shall not be reproduced, except in full, without the written consent of BCS Laboratories.
File: Ariix filter cumulative pharma and endocrine contaminant removal efficacy study 09 26 2012.doc



Samples:
 Performed and Analyzed by:
 Analysis Parameter:
 Analyzed by:

Ariix Filters: Lot F2943
 George Lukasik, Ph.D. and Alison Stargel, MPH
 Endocrine, WS-LC-0022, Steroids/Hormones
 TestAmerica - Sacramento

Study Date September 26, 2012

TestAmerica Job ID: G2I270452 / Project: Ariix Filters / Robert Weidenfeld, Project Manager

Hormonal Species	Influent Concentration (ng/L)	Ariix Filter #1 Effluent BCS 1209069		Ariix Filter #2 Effluent BCS 1209070		Ariix Filter #3 Effluent BCS 1209072		Cumulative Percent Reduction
		Concentration (ng/L)	% Reduction	Concentration (ng/L)	% Reduction	Concentration (ng/L)	% Reduction	
17a-Estradiol	67	None detected <1.9	>97.2%	None detected <2.2	>96.7%	None detected <1.9	>97.2%	Full Removal >97.0%
17a-Estradiol	32	None detected <1.9	>97.2%	None detected <2.2	>96.7%	None detected <1.9	>97.2%	Full Removal >97.0%
Estriol	280	None detected <9.6	>96.6%	None detected <11	>96.0%	None detected <9.6	>96.6%	Full Removal >96.4%
Estrone	67	None detected <3.8	>94.3%	None detected <4.4	>93.4%	None detected <3.8	>94.3%	Full Removal >94.3%
17a-Ethynyl Estradiol	310	None detected <9.6	>96.7%	None detected <11	>96.5%	None detected <9.6	>96.7%	Full Removal >96.6%

*Procedure: A case (24 sealed filter units) of Ariix drinking water filters were received on September 24, 2012. Each was assigned a BCS identifier number. On September 26, 2012, three randomly selected filters were opened and one thousand milliliters of laboratory reagent grade water (pH 6.1) was passed through each filter at a flow rate of approximately 7 ml/ second. For challenge studies, 4 liters of the reagent grade water was spiked with the provided matrix spike stock solution (TestAmerica- Sacramento) and 1000 ml of the challenge solution was passed through each filter. The solution was passed by placing in a sealed container and connecting to the pressure source (Pressure Control Station, Strategene USA). The solution was passed through each filter using steady 1.5 PSI pressure. Each filter's effluent was collected in clean glass bottles provided by TestAmerica - Sacramento. A one thousand milliliter sample of the Influent challenge and each of the collected effluent samples were then stabilized, packaged, and shipped by express courier TestAmerica – Sacramento for analysis immediately following collection.

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Samples:

Ariix Filters: Lot F2943

Study Date September 26, 2012

Performed and Analyzed by:

George Lukasik, Ph.D. and Alison Stargel, MPH

Analysis Parameter:

1694, Pharmaceuticals, HPLC/MS/MS

Analyzed by:

TestAmerica - Sacramento

TestAmerica Job ID:

G21270452 / Project: Ariix Filters / Robert Weidenfeld, Project Manager

Chemical Species	Influent Concentration (ng/L)	Ariix Filter #1 Effluent BCS 1209069		Ariix Filter #2 Effluent BCS 1209070		Ariix Filter #3 Effluent BCS 1209072		Cumulative Percent Reduction
		Concentration (ng/L)	% Reduction	Concentration (ng/L)	% Reduction	Concentration (ng/L)	% Reduction	
Triclosan	940	None detected <9.6	>99.0%	None detected <11	>98.8%	None detected <9.6	>99.0%	Full Removal >98.9%
Bisphenol-A	1800	None detected <29	>98.4%	None detected <33	>98.2%	39	97.8%	98.1%
Phenytoin	2200	43	98.0%	None detected <22	>99%	49	97.8%	98.3%
Triclocarban	200	None detected <1.9	>99.1%	None detected <2.2	>98.9%	None detected <1.9	>99.1%	Full Removal >99%
Trimethoprim	150	None detected <1.9	>98.7%	None detected <2.2	>98.5%	None detected <1.9	>98.7%	Full Removal >98.6%
Caffeine	230	Non detected <4.8	>97.9%	5.6	97.6%	7.4	96.8%	97.4%

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 George Lukasiak, Ph.D. and Alison Stargel, MPH
 1694, Pharmaceuticals, HPLC/MS/MS
 TestAmerica - Sacramento
 G2I270452 / Project: Ariix Filters / Robert Weidenfeld, Project Manager

Study Date September 26, 2012

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Chemical Species	Influent Concentration (ng/L)	Ariix Filter #1 Effluent BCS 1209069		Ariix Filter #2 Effluent BCS 1209070		Ariix Filter #3 Effluent BCS 1209072		Cumulative Percent Reduction
		Concentration (ng/L)	% Reduction	Concentration (ng/L)	% Reduction	Concentration (ng/L)	% Reduction	
Carbamazepine	210	2.2	99.0%	None detected <2.2	>99.0%	2.3	98.9%	99%
DEET	210	None detected <19	91.0%	None detected <22	>89.5%	None detected <19	91.0%	90.5%
1,7-Dimethylxanthine	2800	None detected <38	>98.6%	None detected <44	>98.4%	None detected <38	>98.6%	Full Removal >98.5%
Gemfibrozil	200	None detected <1.9	>90.5%	None detected <2.2	>98.9%	None detected <1.9	>90.5%	Full Removal >93.2%
Ibuprofen	200	None detected <4.8	>97.6%	None detected <5.4	>97.3%	None detected <4.8	>97.6%	Full Removal >97.5%
Naproxen	173	None detected <4.8	>97.2%	None detected <5.4	>96.9%	None detected <4.8	>97.2%	Full Removal >97.1%

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 TestAmerica Job ID:

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		Concentration (ng/L)	% Reduction	Concentration (ng/L)	% Reduction	Concentration (ng/L)	% Reduction	
Primidone	4300	130	97.0%	None detected <110	>97.4%	150	96.5%	97%
Salicylic Acid	920	None detected <48	>94.8%	None detected <54	>94.1%	None detected <48	>94.8%	Full Removal >94.6%
Sulfamethoxazole	210	5.0	97.6%	None detected <2.2	>99.0%	4.2	98%	98.2%
Thiabendazole	210	None detected <1.9	>99.1%	None detected <2.2	>99.0%	None detected <1.9	>99.1%	Full Removal >99.1%
Warfarin	220	6.3	97.1%	None detected <2.2	>99%	5.7	97.4%	97.8%
Iopromide	250	18	92.8%	6.7	97.3%	12	95.2%	95.1%
Acetaminophen	210	None detected <4.8	>97.7%	None detected <5.4	>97.4%	None detected <4.8	>97.7%	Full Removal >97.6%

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Analysis Parameter: 1694, Pharmaceuticals, HPLC/MS/MS
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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 to 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: November 09, 2012

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