

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

TEST RESULTS

FOR

Doulton Water Filters

**LYMEDALE CROSS, LOWER MILEHOUSE LANE
STAFFORDSHIRE, UK, ST5 9BT**

British Berkefeld Ultra Sterasyl Filter Elements

NSF/ANSI Standard 401

Chemical Reduction Tests Results

QFT LABORATORY, LLC. Test Report

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BRITISH BERKEFELD ULTRA STERASYL WATER TEST REPORT

Report # 21-155
Report Date: 07/22/2021
Customer Name: Doulton Water Filters

Introduction

An accelerated performance test has been conducted on two British Berkefeld Ultra Sterasyl gravity filter elements fitted into a stainless-steel gravity filter housing. Each filter was exposed to test water containing an influent challenge of pharmaceutical contaminants according to NSF/ANSI Standard 401 test requirements. Influent and effluent challenges were taken and analyzed at 303-liter intervals to verify the filtration efficiency of each candle at each stage up to 3030 liters. The final filtration efficiencies are reported in the tables in the following conclusion section.

Test Water Characteristics

Sample Point	Temp. 17.5-22.5 °C	pH 7.00-8.00	TDS 200-500	Turbidity <1 NTU	TOC >1 ppm	Flow Rate (LPM)	
						F1	F2
Start (10L)	19.7	7.1	239	0.4	1.3	0.13	0.13
303 Liters	20.3	7.2	241	0.4	1.3	0.13	0.13
606 Liters	22.1	7.2	247	0.4	1.3	0.13	0.13
909 liters	22.1	7.1	207	0.4	1.3	0.13	0.13
1212 Liters	20.7	7.2	239	0.4	1.3	0.10	0.10
1515 Liters	20.9	7.2	237	0.4	1.3	0.10	0.10
1818 Liters	22.1	7.1	239	0.4	1.3	0.10	0.10
2121 Liters	22.2	7.2	241	0.4	1.3	0.10	0.10
2424 liters	21.7	7.1	239	0.4	1.3	0.10	0.10
2727 Liters	21.9	7.2	243	0.4	1.3	0.10	0.10
3030 liters	22.2	7.2	239	0.4	1.3	0.10	0.10
Average	21.45	1.2	237	0.4	1.3	0.11	0.11

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Conclusion

The final filtration efficiency for the British Berkefeld Ultra Sterasyl gravity filter elements for pharmaceutical contaminants during the test is summarized in the following tables.

Filter #1 data Summary

Emerging Contaminants in ng/L										
Contaminant	Influent Water					Effluent Water				
	Start (10L)	303 liters	606 liters	909 liters	1212 liters	Start (10L)	303 liters	606 liters	909 liters	1212 liters
Triclosan	56.35	40.24	66.65	49.99	58.31	3.17	1.21	<1	<1	<1
Acetaminophen	46.23	40.84	30.49	49.99	55.38	3.46	<1	<1	<1	<1
Trimethoprim	77.08	62.61	59.58	46.38	50.22	5.47	1.21	<1	<1	<1
Ciprofloxacin	57.66	76.94	70.42	45.91	50.52	2.63	<1	<1	<1	<1
Caffeine	46.97	50.14	36.32	49.81	48.32	<1	1.94	<1	1.3	<1
Sulfamethoxazole	57.16	50.69	12.97	50.23	50.30	<1	<1	<1	<1	<1
17-alpha-Ethinylestradiol	53.15	39.90	47.10	49.77	52.15	<1	<1	<1	<1	<1
Estrone	46.63	55.30	50.85	49.84	53.04	<1	<1	<1	<1	<1
17-beta-Estradiol	53.15	54.76	49.54	50.01	49.48	<1	<1	<1	<1	<1
Diclofenac Sodium	50.93	50.99	51.2	49.97	50.92	<1	<1	<1	<1	<1
Naproxen	51.15	23.41	49.56	49.28	37.87	<1	1.64	<1	<1	<1
Primidone	50.33	29.45	50.02	49.9	49.05	<1	<1	<1	<1	<1
Gemfibrozil	48.96	62.5	48.94	48.92	75.78	<1	1.19	1.02	<1	1
Ibuprofen	49.24	44.83	50.54	49.60	98.53	<1	<1	1.34	<1	<1
Testosterone	50.33	52.23	50.37	50.19	37.57	<1	<1	<1	<1	<1
Bisphenol A	50.28	50.71	50.06	49.73	40.91	<1	<1	<1	<1	<1
Progesterone	51.31	49.00	50.03	49.70	50.21	<1	1.12	2.9	<1	<1
Erythromycin	46.15	51.28	49.74	49.41	83.28	<1	<1	1.19	<1	<1
Fluoxetine	50.54	50.34	51.3	49.98	44.16	<1	<1	<1	<1	<1
Carbamazepine	50.15	50.09	49.7	49.99	19.87	<1	1.15	<1	1.03	<1
4-tert-Octylphenol	45.36	49.92	29.74	49.44	70.47	<1	<1	<1	<1	<1
4-para-Nonylphenol	49.51	77.38	63.15	45.60	22.16	<1	6.96	<1	<1	<1

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Emerging Contaminants in ng/L													
Contaminant	Influent Water						Effluent Water						% Efficiency at 3030 liters
	1515 liters	1818 liters	2121 liters	2424 liters	2727 liters	3030 liters	1515 liters	1818 liters	2121 liters	2424 liters	2727 liters	3030 liters	
Triclosan	71.26	49.89	27.69	61.02	49.97	49.9	<1	<1	<1	<1	<1	<1	>98%
Acetaminophen	46.79	49.33	65.63	31.63	49.81	48.99	<1	1.28	<1	<1	<1	<1	>98%
Trimethoprim	60.35	50.05	54.15	46.3	47.89	48.99	<1	<1	<1	<1	<1	<1	>98%
Ciprofloxacin	58.37	47.3	42.58	55.59	48.12	48.22	<1	<1	<1	<1	1.61	<1	>98%
Caffeine	47.75	48.32	57.29	58.28	45.99	47.36	<1	<1	3.3	<1	3.39	<1	>98%
Sulfamethoxazole	52.40	46.64	64.99	60.12	49.69	47.03	<1	<1	<1	<1	2.39	4.33	90.8%
17-alpha-Ethinylestradiol	54.07	45.66	45.27	42.42	48.57	47.64	<1	<1	<1	<1	<1	<1	>98%
Estrone	53.53	49.30	40.10	41.66	49.30	48.21	<1	<1	<1	<1	<1	<1	>98%
17-beta-Estradiol	50.70	50.23	42.49	42.04	48.63	48.76	<1	<1	<1	<1	<1	<1	>98%
Diclofenac Sodium	50.04	49.84	40.98	41.27	46.81	49.37	<1	<1	<1	<1	<1	<1	>98%
Naproxen	37.77	49.86	44.18	43.31	49.52	48.82	<1	<1	<1	<1	<1	<1	>98%
Primidone	51.04	47.03	58.24	56.03	46.81	47.11	<1	<1	<1	<1	<1	1.55	96.7%
Gemfibrozil	76.42	49.07	47.59	45.23	46.16	48.05	2.56	<1	<1	<1	<1	<1	>98%
Ibuprofen	99.18	45.57	50.59	49.18	52.96	45.56	<1	<1	1.48	<1	<1	<1	>98%
Testosterone	35.95	49.62	41.62	42.42	48.32	46.41	<1	<1	<1	<1	<1	<1	>98%
Bisphenol A	29.47	51.19	43.67	43.59	49.88	48.48	<1	<1	<1	<1	<1	<1	>98%
Progesterone	50.12	49.37	34.79	46.53	44.94	47.93	<1	<1	<1	4.42	<1	<1	>98%
Erythromycin	79.34	48.93	40.98	40.82	48.47	47.06	2.17	<1	<1	1.35	3.21	<1	>98%
Fluoxetine	43.81	49.56	42.63	44.21	48.56	45.79	<1	<1	<1	<1	<1	<1	>98%
Carbamazepine	23.69	49.19	41.18	40.44	47.01	48.72	<1	<1	<1	<1	<1	<1	>98%
4-tert-Octylphenol	49.10	49.91	48.84	41.47	48.43	44.78	<1	<1	6.51	<1	<1	1.00	97.8%
4-para-Nonylphenol	20.41	49.26	82.81	51.18	46.80	46.12	<1	<1	<1	<1	<1	<1	>98%

Filter #2 data Summary

Emerging Contaminants in ng/L										
Contaminant	Influent Water					Effluent Water				
	Start (10L)	303 liters	606 liters	909 liters	1212 liters	Start (10L)	303 liters	606 liters	909 liters	1212 liters
Triclosan	56.35	40.24	66.65	49.99	58.31	<1	<1	<1	<1	<1
Acetaminophen	46.23	40.84	30.49	49.99	55.38	<1	<1	<1	<1	<1
Trimethoprim	77.08	62.61	59.58	46.38	50.22	7.65	1.09	<1	<1	<1
Ciprofloxacin	57.66	76.94	70.42	45.91	50.52	<1	<1	<1	<1	<1
Caffeine	46.97	50.14	36.32	49.81	48.32	<1	<1	<1	<1	<1
Sulfamethoxazole	57.16	50.69	12.97	50.23	50.30	<1	<1	<1	<1	<1
17-alpha-Ethinylestradiol	53.15	39.90	47.10	49.77	52.15	<1	<1	<1	<1	<1
Estrone	46.63	55.30	50.85	49.84	53.04	<1	<1	<1	<1	<1
17-beta-Estradiol	53.15	54.76	49.54	50.01	49.48	<1	<1	<1	<1	<1
Diclofenac Sodium	50.93	50.99	51.20	49.97	50.92	<1	<1	<1	<1	<1
Naproxen	51.15	23.41	49.56	49.28	37.87	<1	<1	<1	<1	<1
Primidone	50.33	29.45	50.02	49.9	49.05	<1	<1	<1	<1	<1
Gemfibrozil	48.96	62.5	48.94	48.92	75.78	1.19	<1	2.06	<1	1.4
Ibuprofen	49.24	44.83	50.54	49.60	98.53	<1	<1	13.04	1.04	<1
Testosterone	50.33	52.23	50.37	50.19	37.57	<1	<1	<1	<1	<1
Bisphenol A	50.28	50.71	50.06	49.73	40.91	<1	<1	<1	<1	<1
Progesterone	51.31	49.00	50.03	49.70	50.21	<1	<1	1.9	<1	<1
Erythromycin	46.15	51.28	49.74	49.41	83.28	<1	3.66	1.55	<1	<1
Fluoxetine	50.54	50.34	51.30	49.98	44.16	<1	<1	<1	<1	<1
Carbamazepine	50.15	50.09	49.70	49.99	19.87	<1	4.93	3.33	<1	<1
4-tert-Octylphenol	45.36	49.92	29.74	49.44	70.47	<1	<1	<1	<1	<1
4-para-Nonylphenol	49.51	77.38	63.15	45.6	22.16	<1	1.27	<1	<1	1.46

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Contaminant	Influent Water						Effluent Water						% Efficiency at 3030 liters
	1515 liters	1818 liters	2121 liters	2424 liters	2727 liters	3030 liters	1515 liters	1818 liters	2121 liters	2424 liters	2727 liters	3030 liters	
Triclosan	71.26	49.89	27.69	61.02	49.97	49.9	<1	<1	<1	<1	<1	<1	>98%
Acetaminophen	46.79	49.33	65.63	31.63	49.81	48.99	<1	<1	<1	<1	<1	<1	>98%
Trimethoprim	60.35	50.05	54.15	46.3	47.89	48.99	<1	<1	<1	<1	<1	<1	>98%
Ciprofloxacin	58.37	47.30	42.58	55.59	48.12	48.22	<1	<1	<1	<1	7.65	<1	>98%
Caffeine	47.75	48.32	57.29	58.28	45.99	47.36	<1	<1	<1	<1	<1	<1	>98%
Sulfamethoxazole	52.40	46.64	64.99	60.12	49.69	47.03	<1	<1	<1	<1	<1	<1	>98%
17-alpha-Ethinylestradiol	54.07	45.66	45.27	42.42	48.57	47.64	<1	<1	<1	<1	<1	2.97	93.8%
Estrone	53.53	49.30	40.10	41.66	49.30	48.21	<1	<1	<1	<1	<1	<1	>98%
17-beta-Estradiol	50.70	50.23	42.49	42.04	48.63	48.76	<1	<1	<1	<1	<1	<1	>98%
Diclofenac Sodium	50.04	49.84	40.98	41.27	46.81	49.37	<1	<1	<1	<1	<1	<1	>98%
Naproxen	37.77	49.86	44.18	43.31	49.52	48.82	<1	<1	<1	<1	<1	<1	>98%
Primidone	51.04	47.03	58.24	56.03	46.81	47.11	<1	<1	<1	<1	2.27	3.04	93.5%
Gemfibrozil	76.42	49.07	47.59	45.23	46.16	48.05	<1	<1	<1	<1	<1	<1	>98%
Ibuprofen	99.18	45.57	50.59	49.18	52.96	45.56	<1	<1	<1	<1	<1	<1	>98%
Testosterone	35.95	49.62	41.62	42.42	48.32	46.41	<1	<1	<1	<1	<1	<1	>98%
Bisphenol A	29.47	51.19	43.67	43.59	49.88	48.48	<1	<1	<1	<1	<1	<1	>98%
Progesterone	50.12	49.37	34.79	46.53	44.94	47.93	<1	<1	<1	<1	<1	<1	>98%
Erythromycin	79.34	48.93	40.98	40.82	48.47	47.06	2.49	<1	<1	<1	<1	<1	>98%
Fluoxetine	43.81	49.56	42.63	44.21	48.56	45.79	<1	<1	<1	<1	<1	1.61	96.5%
Carbamazepine	23.69	49.19	41.18	40.44	47.01	48.72	<1	<1	<1	<1	<1	<1	>98%
4-tert-Octylphenol	49.10	49.91	48.84	41.47	48.43	44.78	<1	<1	<1	<1	<1	<1	>98%
4-para-Nonylphenol	20.41	49.26	82.81	51.18	46.8	46.12	<1	<1	<1	<1	<1	<1	>98%

Disclaimer: The test results are only related to the filter cartridges tested, in the condition received at the laboratory.

Jaime Young
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 Lab Director