



ENVIROTEK LABORATORIES, INC.

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EPA ID # NJ01298 NJ DEP ID # 03048 NY ELAP ID # 12044

ATC SUPER STERASYL FILTER PHARMACEUTICALS TEST REPORT

Report # 16-374-Pharmaceuticals

Report Date: 11/15/2016

Customer Name: Fairey Industrial Ceramics, LTD.

EXECUTIVE SUMMARY

Four hundred gallons of tap water was spiked with Pharmaceutical Standard Solution to have a final concentration of 20 ± 5 $\mu\text{g/L}$; the spiked tap water was filtered through the filter element and tested; the Pharmaceutical drugs in the tap water were reduced by at least 99.5 % after 400 gallons.

INTRODUCTION

Four hundred gallons of tap water was spiked with Pharmaceutical Standard Solution to have a final concentration of 20 ± 5 $\mu\text{g/L}$; the spiked tap water was filtered through the filter element and tested by HPLC method for drugs; the Pharmaceutical drugs in the tap water were reduced by at least 99.5% after 400 gallons.

REAGENTS, MATERIALS, AND LAB EQUIPMENT

Agilent HPLC 1100, DAD detector.

Analytical Column Allure C18. Restek Pharmaceutical Mix #1, Catalog 3116, Lot A0102241.

Restek Pharmaceutical Mix #2, Catalog 3118, Lot A095125. Restek Pharmaceutical Mix #3, Catalog 3117, Lot A0101273.

ATC Super Sterasyl Filter.

PROCEDURE

Four hundred gallons of tap water was spiked with Pharmaceutical Standard Solution in a Tank and mixed well; this solution was tested and adjusted to have a final concentration of 20 ± 5 $\mu\text{g/L}$ of Pharmaceutical Drugs; the influent water properties are summarized in Table 1 below. The solution was filtered through the ATC Super Sterasyl Filter and tested every 100 gallons following the HPLC Method for Pharmaceutical Drugs in drinking water. The results are summarized in Table 2 below.

RESULTS

Table 1
Influent Challenge Water Properties

Parameter	Influent Challenge Water	Target
pH	7.40	7.00 to 8.00
Temperature	20.5 °C	$20 \pm 2.5^\circ\text{C}$
TDS	350 mg/L	200 to 500 mg/L
Turbidity	0.65 NTU	<1 Nephelometric Turbidity Units

Table 2
Filtered Water Pharmaceutical Drugs Test Results

Drinking Water Contaminant Tested	Influent Water Results in $\mu\text{g/L}$	Filter Results 100 gallons	Filter Results 200 gallons	Filter Results 300 gallons	Filter Results 400 gallons	% Reduction at 400 gallons
Acetaminofen	20.2	<0.1	<0.1	<0.1	<0.1	99.5%+
Caffeine	20.0	<0.1	<0.1	<0.1	<0.1	99.5%+
Carbamazepine	20.1	<0.1	<0.1	<0.1	<0.1	99.5%+
Ciprofloxacin HCl	20.2	<0.1	<0.1	<0.1	<0.1	99.5%+
Erythromycin USP	20.3	<0.1	<0.1	<0.1	<0.1	99.5%+
Sulfamethoxazole	20.2	<0.1	<0.1	<0.1	<0.1	99.5%+
Trimethoprim	20.0	<0.1	<0.1	<0.1	<0.1	99.5%+
Bisphenol A	20.1	<0.1	<0.1	<0.1	<0.1	99.5%+
Diclofenac Sodium	20.5	<0.1	<0.1	<0.1	<0.1	99.5%+
4-para-Nonylphenol	20.0	<0.1	<0.1	<0.1	<0.1	99.5%+
4-tert-Octylphenol	20.4	<0.1	<0.1	<0.1	<0.1	99.5%+
Primidone	20.3	<0.1	<0.1	<0.1	<0.1	99.5%+
Progesterone	20.2	<0.1	<0.1	<0.1	<0.1	99.5%+
Gemfibrozil	20.1	<0.1	<0.1	<0.1	<0.1	99.5%+
Ibuprofen	20.4	<0.1	<0.1	<0.1	<0.1	99.5%+
Naproxen Sodium	20.5	<0.1	<0.1	<0.1	<0.1	99.5%+
Triclosan	20.6	<0.1	<0.1	<0.1	<0.1	99.5%+



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CONCLUSION:

The ATC Super Sterasyl Filter reduces the Pharmaceutical drugs concentration by at least 99.5% for up to 400 gallons, tested following the NSF Protocol 401.

CERTIFICATION OF RESULTS:

I certify in writing that all analyses, and reporting performed herein, comply with all requirements set forth in N.J.A.C. 7:9E and N.J.A.C. 7:18, and hereby certify that this laboratory is in compliance with all laboratory certification and quality control procedures and requirements as set forth in N.J.A.C. 7:18; the NYCRR Subpart 55-2 and the National Environmental Laboratory Accreditation Conference (NELAC) Institute Standards.

Disclaimer: The test results are only related to the filter sample tested.

Jaime A. Young

Jaime A. Young
Lab Director



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TEST RESULTS

FOR

Fairey Industrial Ceramics

LYMEDALE CROSS, LOWER MILEHOUSE LANE

STAFFORDSHIRE, UK, ST5 9BT

ATC Super Sterasyl Filter Candles

NSF/ANSI Standards 42, 53, and 401

Chemical Reduction Tests Results



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ATC SUPER STERASYL FILTER CANDLES WATER TEST REPORT

Report # 19-119

Report Date: 06/20/2019

Customer Name: Fairey Industrial Ceramics

Introduction

The following test report summarises the performances of ATC Super Sterasyl filters tested under gravity using a range of Pesticides, and Chlorine Contaminants to a capacity of 3030 Liters. The influent and effluent levels plus the filtration efficiencies for each contaminant were measured throughout the test and recorded in the following result tables.

Contaminant Tested		10 UV	606 liters	1515 liters	2121 liters	2727 liters	3030 liters	Min Efficiency throughout
Alachlor	Influent	48.25 ug/L	49.39 ug/L	40.32 ug/L	48.8 ug/L	49.58 ug/L	49.25 ug/L	
	Filtered	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	
	Reduction	99.79%	99.80%	99.75%	99.80%	99.80%	99.80%	99.75%
Hexachlorobenze	Influent	50.58 ug/L	48.66 ug/L	62.11 ug/L	46.54 ug/L	51.25 ug/L	52.35 ug/L	
	Filtered	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	
	Reduction	99.80%	99.79%	99.84%	99.79%	99.80%	99.81%	99.78%
Hexachlorocyclopentadiene	Influent	48.55 ug/L	64.22 ug/L	79.28 ug/L	62.66 ug/L	52.45 ug/L	52.74 ug/L	
	Filtered	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	
	Reduction	99.79%	99.84%	99.87%	99.84%	99.81%	99.81%	99.79%
Delta-BHC	Influent	50.57 ug/L	48.65 ug/L	62.09 ug/L	46.53 ug/L	49.57 ug/L	51.24 ug/L	
	Filtered	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	
	Reduction	99.80%	99.79%	99.84%	99.79%	99.80%	99.80%	99.78%
Porpachlor	Influent	50.57 ug/L	48.65 ug/L	62.1 ug/L	46.53 ug/L	53.26 ug/L	52.36 ug/L	
	Filtered	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	
	Reduction	99.80%	99.79%	99.84%	99.79%	99.81%	99.81%	99.78%
Molinate	Influent	49.43 ug/L	33.59 ug/L	53.29 ug/L	58.24 ug/L	48.58 ug/L	49.61 ug/L	
	Filtered	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	0.1	0.1	
	Reduction	99.80%	99.70%	99.81%	99.83%	99.79%	99.80%	99.66%
Alpha-BHC	Influent	50.57 ug/L	48.65 ug/L	62.09 ug/L	36.53 ug/L	49.65 ug/L	51.23 ug/L	
	Filtered	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	0.1 ug/L	
	Reduction	99.80%	99.79%	99.84%	99.73%	99.80%	99.80%	99.73%
Beta-BHC	Influent	45.15 ug/L	48.26 ug/L	40.05 ug/L	51.54 ug/L	51.42 ug/L	48.56 ug/L	
	Filtered	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	
	Reduction	99.78%	99.79%	99.75%	99.81%	99.79%	99.79%	99.75%
Gama BHC (Lindane)	Influent	46.57 ug/L	38.31 ug/L	45.19 ug/L	49.57 ug/L	47.23 ug/L	48.52 ug/L	
	Filtered	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	0.1 ug/L	
	Reduction	99.79%	99.74%	99.78%	99.80%	99.79%	99.79%	99.69%
Atrazine	Influent	45.13 ug/L	48.26 ug/L	40.1 ug/L	51.54 ug/L	49.85 ug/L	48.58 ug/L	
	Filtered	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	
	Reduction	99.78%	99.79%	99.75%	99.81%	99.80%	99.38%	99.38%



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Contaminant Tested		10 UV	606 liters	1515 liters	2121 liters	2727 liters	3030 liters	Min Efficiency throughout
Simazine	Influent	49.58 ug/L	48.05 ug/L	64.63 ug/L	44.7 ug/L	46.78 ug/L	49.85 ug/L	
	Filtered	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	
	Reduction	99.80%	99.79%	99.85%	99.78%	99.79%	99.80%	99.74%
Metribuzin	Influent	46.82 ug/L	49.68 ug/L	60.43 ug/L	47.82 ug/L	51.24 ug/L	50.24 ug/L	
	Filtered	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	0.1 ug/L	0.3 ug/L	
	Reduction	99.79%	99.80%	99.83%	99.79%	99.80%	99.40%	99.40%
Heptachlor	Influent	46.77 ug/L	41.83 ug/L	49.64 ug/L	65.19 ug/L	48.75 ug/L	50.24 ug/L	
	Filtered	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	
	Reduction	99.79%	99.76%	99.80%	99.85%	99.79%	99.80%	99.35%
Metolachlor	Influent	73.8 ug/L	49.86 ug/L	51.67 ug/L	45.53 ug/L	48.75 ug/L	49.52 ug/L	
	Filtered	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	
	Reduction	99.86%	99.80%	99.81%	99.78%	99.79%	99.80%	99.78%
Butylate	Influent	65.51 ug/L	89.98 ug/L	71.56 ug/L	109.3 ug/L	84.57 ug/L	70.45 ug/L	
	Filtered	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	
	Reduction	99.85%	99.89%	99.86%	99.91%	99.88%	99.86%	99.85%
2,4-D	Influent	49.75 ug/L	59.32 ug/L	40.02 ug/L	56.85 ug/L	51.45 ug/L	50.25 ug/L	
	Filtered	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	
	Reduction	99.80%	99.83%	99.75%	99.82%	99.81%	99.80%	99.75%
Aldrin	Influent	56.35 ug/L	56.04 ug/L	50.77 ug/L	51.42 ug/L	58.45 ug/L	54.12 ug/L	
	Filtered	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	
	Reduction	99.82%	99.82%	99.80%	99.81%	99.83%	99.82%	99.80%
Heptachlor Epoxide	Influent	111.31 ug/L	199.18 ug/L	97.85 ug/L	172.73 ug/L	130.25 ug/L	125.25 ug/L	
	Filtered	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	
	Reduction	99.91%	99.95%	99.90%	99.94%	99.92%	99.92%	99.90%
Trans-Chlordane (Nonachlor)	Influent	34.98 ug/L	50.77 ug/L	66.03 ug/L	42.99 ug/L	44.52 ug/L	48.57 ug/L	
	Filtered	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	0.1	
	Reduction	99.71%	99.80%	99.85%	99.77%	99.78%	99.79%	99.71%
Butachlor	Influent	95.18 ug/L	185.07 ug/L	165.73 ug/L	151.15 ug/L	130.25 ug/L	132.45 ug/L	
	Filtered	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	
	Reduction	99.89%	99.95%	99.94%	99.93%	99.92%	99.92%	99.89%
Endosulfan I	Influent	52.35 ug/L	48.92 ug/L	53.25 ug/L	42.9 ug/L	48.58 ug/L	49.57 ug/L	
	Filtered	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	0.1	0.1	
	Reduction	99.81%	99.80%	99.81%	99.77%	99.79%	99.80%	99.75%
Cis-Chlordane	Influent	52.35 ug/L	51.23 ug/L	51.24 ug/L	52.24 ug/L	50.65 ug/L	51.45 ug/L	
	Filtered	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	0.1	
	Reduction	99.81%	99.80%	99.80%	99.81%	99.80%	99.81%	99.80%
p,p'-DDE	Influent	35.76 ug/L	66.82 ug/L	104.25 ug/L	71.76 ug/L	50.65 ug/L	51.45 ug/L	
	Filtered	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	
	Reduction	99.72%	99.85%	99.90%	99.86%	99.80%	99.81%	99.72%



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Contaminant Tested		10 UV	606 liters	1515 liters	2121 liters	2727 liters	3030 liters	Min Efficiency throughout
Dieldrin	Influent	73.68 ug/L	105.07 ug/L	85.27 ug/L	85.77 ug/L	70.45 ug/L	65.58 ug/L	
	Filtered	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	0.56 ug/L	<0.1 ug/L	<0.1 ug/L	
	Reduction	99.86%	99.90%	99.88%	99.35%	99.86%	99.85%	99.35%
Endrin	Influent	59.72 ug/L	50.97 ug/L	62.56 ug/L	46.45 ug/L	49.58 ug/L	50.25 ug/L	
	Filtered	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	
	Reduction	99.83%	99.80%	99.84%	99.78%	99.80%	99.80%	99.78%
Endosulfan II	Influent	50.6 ug/L	53.49 ug/L	67.23 ug/L	49.8 ug/L	51.45 ug/L	50.32 ug/L	
	Filtered	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	0.1	0.1	
	Reduction	99.80%	99.81%	99.85%	99.80%	99.81%	99.80%	99.80%
p,p'-DDD	Influent	20.25 ug/L	21.56 ug/L	19.44 ug/L	19.45 ug/L	22.45 ug/L	24.85 ug/L	
	Filtered	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	0.1	0.1	
	Reduction	99.51%	99.54%	99.49%	99.49%	99.55%	99.60%	99.49%
Endrin Aldehyde	Influent	21.6 ug/L	29.9 ug/L	52.92 ug/L	30.32 ug/L	46.85 ug/L	42.85 ug/L	
	Filtered	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	
	Reduction	99.54%	99.67%	99.81%	99.67%	99.79%	99.77%	99.54%
p,p'-DDT	Influent	22.18 ug/L	33.36 ug/L	57.83 ug/L	33.22 ug/L	30.52 ug/L	31.45 ug/L	
	Filtered	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	0.1 ug/L	0.1 ug/L	
	Reduction	99.55%	99.70%	99.83%	99.70%	99.67%	99.68%	99.55%
Endosulfan Sulfate	Influent	37.86 ug/L	53.66 ug/L	93.49 ug/L	54.26 ug/L	52.45 ug/L	53.65 ug/L	
	Filtered	<0.1 ug/L	0.85 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	0.1 ug/L	
	Reduction	99.74%	98.42%	99.89%	99.82%	99.81%	99.81%	98.42%
Endrin Ketone	Influent	65.25 ug/L	68.53 ug/L	52.03 ug/L	51.56 ug/L	50.85 ug/L	51.98 ug/L	
	Filtered	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	0.1 ug/L	
	Reduction	99.85%	99.85%	99.81%	99.81%	99.80%	99.81%	99.80%
Methoxychlor	Influent	111.41 ug/L	119.63 ug/L	108.38 ug/L	131.58 ug/L	124.56 ug/L	120.45 ug/L	
	Filtered	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	0.1 ug/L	0.1 ug/L	
	Reduction	99.91%	99.92%	99.91%	99.92%	99.92%	99.92%	99.91%
Bromacil	Influent	115.53 ug/L	113.43 ug/L	213.44 ug/L	130.91 ug/L	120.58 ug/L	121.85 ug/L	
	Filtered	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	
	Reduction	99.91%	99.91%	99.95%	99.92%	99.92%	99.92%	99.91%
Carbofuran	Influent	36.49 ug/L	58.34 ug/L	59.5 ug/L	76.89 ug/L	52.85 ug/L	59.62 ug/L	
	Filtered	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	
	Reduction	99.73%	99.83%	99.83%	99.87%	99.81%	99.83%	99.73%
Chlorneb	Influent	47.55 ug/L	67.64 ug/L	81.61 ug/L	58.55 ug/L	58.95 ug/L	50.45 ug/L	
	Filtered	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	
	Reduction	99.79%	99.85%	99.88%	99.83%	99.83%	99.80%	99.79%
Chlorthalonil	Influent	75.42 ug/L	49.87 ug/L	73.9 ug/L	66.86 ug/L	52.85 ug/L	50.48 ug/L	
	Filtered	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	
	Reduction	99.87%	99.80%	99.86%	99.85%	99.81%	99.80%	99.80%



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Contaminant Tested		10 UV	606 liters	1515 liters	2121 liters	2727 liters	3030 liters	Min Efficiency throughout
Chlorprophane	Influent	33.89 ug/L	19.16 ug/L	60.22 ug/L	69.57 ug/L	53.45 ug/L	50.51 ug/L	
	Filtered	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	
	Reduction	99.70%	99.48%	99.83%	99.86%	99.81%	99.80%	99.48%
Chlorpyrifos	Influent	49.76 ug/L	49.7 ug/L	54.93 ug/L	53.4 ug/L	51.52 ug/L	51.58 ug/L	
	Filtered	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	
	Reduction	99.80%	99.80%	99.82%	99.81%	99.81%	99.81%	99.77%
Cyanazine	Influent	45.71 ug/L	41.77 ug/L	69.26 ug/L	41.53 ug/L	51.78 ug/L	52.65 ug/L	
	Filtered	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	
	Reduction	99.78%	99.76%	99.86%	99.76%	99.81%	99.81%	99.76%
Dichlorvos	Influent	50.23 ug/L	63.21 ug/L	121.79 ug/L	51.86 ug/L	54.03 ug/L	51.35 ug/L	
	Filtered	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	
	Reduction	99.80%	99.84%	99.92%	99.81%	99.81%	99.81%	99.80%
Diphenamid	Influent	36.83 ug/L	49.3 ug/L	71.24 ug/L	61.16 ug/L	53.65 ug/L	52.05 ug/L	
	Filtered	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	
	Reduction	99.73%	99.80%	99.86%	99.84%	99.81%	99.81%	99.73%
Disulfoton	Influent	15.72 ug/L	19.62 ug/L	76.14 ug/L	26.09 ug/L	20.63 ug/L	20.51 ug/L	
	Filtered	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	
	Reduction	99.36%	99.49%	99.87%	99.62%	99.52%	99.51%	99.36%
Fenamiphos	Influent	56.43 ug/L	69.56 ug/L	70.27 ug/L	45.84 ug/L	49.85 ug/L	48.57 ug/L	
	Filtered	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	
	Reduction	99.82%	99.86%	99.86%	99.78%	99.80%	99.79%	99.76%
Fenarimol	Influent	34.48 ug/L	53.37 ug/L	76.16 ug/L	56.4 ug/L	50.05 ug/L	51.35 ug/L	
	Filtered	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	
	Reduction	99.71%	99.81%	99.87%	99.82%	99.80%	99.81%	99.71%
Fluoridone	Influent	72.54 ug/L	50.25 ug/L	87.52 ug/L	53.65 ug/L	53.62 ug/L	54.36 ug/L	
	Filtered	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	
	Reduction	99.86%	99.80%	99.89%	99.81%	99.81%	99.82%	99.80%
Ethoprop	Influent	51.54 ug/L	71.97 ug/L	62.67 ug/L	74.02 ug/L	60.25 ug/L	63.32 ug/L	
	Filtered	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	
	Reduction	99.81%	99.86%	99.84%	99.86%	99.83%	99.84%	99.81%
Toxaphene	Influent	36.65 ug/L	39.89 ug/L	73.32 ug/L	39.56 ug/L	46.36 ug/L	43.52 ug/L	
	Filtered	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	0.1	0.1	
	Reduction	99.73%	99.75%	99.86%	99.75%	99.78%	99.77%	99.73%
PCB's	Influent	10.25 ug/L	12.42 ug/L	10.45 ug/L	10.35 ug/L	11.98 ug/L	11.75 ug/L	
	Filtered	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	0.1	0.1	
	Reduction	99.02%	99.19%	99.04%	99.03%	99.17%	99.15%	98.93%
Glyphosate	Influent	810.2 ug/L	803.4 ug/L	804.8 ug/L	806.8 ug/L	803.6 ug/L	804.9 ug/L	
	Filtered	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	<0.1 ug/L	0.3 ug/L	0.5 ug/L	
	Reduction	99.99%	99.99%	99.99%	99.99%	99.96%	99.94%	99.94%



QFT LABORATORY, LLC.

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EPA ID # NJ01298 NJ DEP ID # 03048 IAPMO ID #102

Chlorine Test Results

Accumulated Volume	Influent Chlorine	Effluent Chlorine	% Reduction
10 UV	1.90 mg/L	<0.01	99.47%
303 Liters	2.20 mg/L	<0.01	99.55%
606 liters	1.80 mg/L	<0.01	99.44%
909 liters	1.90 mg/L	<0.01	99.47%
1212 liters	1.80 mg/L	<0.01	99.44%
1515 liters	1.80 mg/L	<0.01	99.44%
1818 liters	1.80 mg/L	<0.01	99.44%
2121 liters	2.00 mg/L	<0.01	99.50%
2424 liters	2.20 mg/L	<0.01	99.55%
2727 liters	1.80 mg/L	<0.01	99.44%
3030 liters	1.80 mg/L	<0.01	99.44%

Results

The filters provided $\geq 98.9\%$ filtration efficiency of all contaminants throughout the testing.

CERTIFICATION OF RESULTS:

I certify in writing that all analyses, and reporting performed herein, comply with all requirements set forth in N.J.A.C. 7:9E and N.J.A.C. 7:18, and hereby certify that this laboratory is in compliance with all laboratory certification and quality control procedures and requirements as set forth in N.J.A.C. 7:18; the NYCRR Subpart 55-2, the National Environmental Laboratory Accreditation Conference (NELAC) Institute Standards, and the ISO 17025.

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



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ATC SUPER STERASYL FILTER LEAD TEST REPORT

Report # 16-374-Pb-HPH

Report Date: 10/08/2016

Customer Name: Fairey Industrial Ceramics, LTD.

EXECUTIVE SUMMARY:

The ATC Super Sterasyl Filter was tested for Lead Reduction at pH 8.50 for a total volume of 800 gallons. The Filter Element reduces the Lead concentration by 98.4% for up to 800 gallons, tested following the NSF Standard 53.

INTRODUCTION:

The ATC Super Sterasyl Filter was tested for Lead Reduction at pH 8.50 for a total volume of 800 gallons; passing five gallons per day. The filter was challenged with tap water adjusted and spiked with Lead, then tested every 100 gallons following the EPA method 200.8. The Filter Element reduces the Lead concentration by 98.4% for up to 800 gallons, tested following the NSF Standard 53.

REAGENTS, MATERIALS, AND LAB EQUIPMENT:

Perkin Elmer ICP/MS DRC-e 6100 mass spectrometer

Perkin Elmer Lead Nitrate standard solution 1000 mg/L

Type A glassware to perform the EPA Method 200.8 for metals in drinking water

Pall Acrodisc® Supor® syringe filter 0.1 µm.

Pall Acrodisc® Supor® syringe filter 1.2 µm.

ATC Super Sterasyl Filter.

PROCEDURE:

Flushed the filter elements with approximately 1 gallon of tap water. Prepared 2 gallons of influent water every day with Lead at a concentration of 150 µg/L of Lead and a pH of 8.50; Table 1 summarizes the Influent water properties. An aliquot of the influent water was filtered through the Pall Acrodisc® Supor® filter 0.1 µm, another aliquot was filtered through the Pall Acrodisc® Supor® filter 1.2 µm, these aliquots were tested for Lead following the EPA method 200.8 to calculate the % total Lead particulate and the % Lead fine particulate; Table 2 summarizes the results. Ran 5 gallons of challenge water per day until a total volume of 800 gallons passed through the filter element. Collected the effluent water every day at the end of the 5 gallons, analyzed the filtered water for Lead every 100 gallons following the EPA Method 200.8. The results are summarized in Table 3 below.

RESULTS:

Table 1
Influent Challenge Water Properties

Parameter	Influent Challenge Water	Target
pH	8.45 to 8.70	8.25 to 8.75
Temperature	20.0 to 21.5 °C	20 ± 2.5°C
Total Chlorine	0.40 to 0.60 mg/L	0.50 ± 0.25 mg/L
Total Lead	140 to 160 µg/L	140 – 160 µg/L
Total Particulate Lead	26.8 to 36.3%	10 – 50 %
Fine Particulate Lead (0.1 to 1.2 µm)	60.0 to 84.2%	≥20%

Table 2
Influent Challenge Water Properties (%Total and % Fine Particulate)

Accumulated volume	Influent Water Concentration (in µg/L)	Filtered Water 0.1 µm Disc (in µg/L)	Filtered Water 1.2 µm Disc (in µg/L)	% Total Particulate	% Fine Particulate
Initial (0.1 gallons)	146	102	136	30.1	77.3
50 gallons	154	103	134	33.1	60.8
100 gallons	146	106	132	27.4	65.0
200 gallons	152	104	135	31.6	64.6
300 gallons	140	103	137	26.4	91.9
400 gallons	148	102	136	31.1	73.9
500 gallons	148	108	132	27.0	60.0
600 gallons	154	101	136	34.4	66.0
700 gallons	160	102	138	36.3	62.1
800 gallons	142	104	136	26.8	84.2



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Table 3
Filtered Water Lead Test Results

Accumulated volume	Influent Water Concentration	Filtered Water Concentration	% Reduction	Minimum % Reduction: 93.3%
Initial (0.1 gallons)	146 µg/L	<0.5 µg/L	99.9+ %	Passed
50 gallons	154 µg/L	<0.5 µg/L	99.9+ %	Passed
100 gallons	146 µg/L	<0.5 µg/L	99.9+ %	Passed
200 gallons	152 µg/L	<0.5 µg/L	99.9+ %	Passed
300 gallons	140 µg/L	<0.5 µg/L	99.9+ %	Passed
400 gallons	148 µg/L	<0.5 µg/L	99.9+ %	Passed
500 gallons	148 µg/L	<0.5 µg/L	99.9+ %	Passed
600 gallons	154 µg/L	0.5 µg/L	99.7 %	Passed
700 gallons	160 µg/L	1.7 µg/L	98.9 %	Passed
800 gallons	142 µg/L	2.3 µg/L	98.4 %	Passed
Average	149 µg/L	0.8 µg/L	99.5%	Passed

CONCLUSION:

The Filter Element reduces the Lead concentration by an average of 99.5% efficiency for up to 800 gallons, tested following NSF Standard 53.

CERTIFICATION OF RESULTS:

I certify in writing that all analyses, and reporting performed herein, comply with all requirements set forth in N.J.A.C. 7:9E and N.J.A.C. 7:18, and hereby certify that this laboratory is in compliance with all laboratory certification and quality control procedures and requirements as set forth in N.J.A.C. 7:18; the NYCRR Subpart 55-2 and the National Environmental Laboratory Accreditation Conference (NELAC) Institute Standards.

Disclaimer: The test results are only related to the filter sample tested.

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EPA ID # NJ01298 NJ DEP ID # 03048 NY ELAP ID # 12044

ATC SUPER STERASYL FILTER METALS TEST REPORT

Report # 16-374-Metals High pH

Report Date: 11/08/2016

Customer Name: Fairey Industrial Ceramics, Ltd.

EXECUTIVE SUMMARY

Eight hundred gallons of tap water was spiked with Metals Standard Solution at pH 8.50; the spiked tap water was filtered through the filter element and tested; the Metals in the tap water were reduced at the efficiencies recorded in Table 2 after 800 gallons.

INTRODUCTION

Eight hundred gallons of tap water was spiked with Metals Standard Solution at pH 8.50; the spiked tap water was filtered through the filter element and tested following the EPA Method 200.8; the Metals in the tap water were reduced at the efficiencies recorded in Table 2 after 800 gallons.

REAGENTS, MATERIALS, AND LAB EQUIPMENT

Perkin Elmer ICP/MS DRC-e 6100 mass spectrometer.

Inorganic Ventures Metals Standard Solution Catalog # Envirotek-2

ATC Super Sterasyl Filter.

PROCEDURE

Eight hundred gallons of tap water was spiked with Metals Standard Solution in a Tank and mixed well; this solution was tested and adjusted to have the concentrations of Metals summarized on Table 2 below and a pH of 8.50; the influent water properties are summarized in Table 1 below. The solution was filtered through the ATC Super Sterasyl Filter and tested every 100 gallons following the EPA Method 200.8 for Metals in drinking water. The results are summarized in Table 2 below.

RESULTS

Table 1
Influent Challenge Water Properties

Parameter	Influent Challenge Water	Target
pH	8.45 to 8.75	8.25 to 8.75
Temperature	20.0 to 21.5 °C	20 ± 2.5°C
TDS	200 to 450 mg/L	200 to 500 mg/L
Turbidity	0.75 to 0.85 NTU	<1 Nephelometric Turbidity Units

Table 2
Filtered Water Metals Test Results

Drinking Water Contaminant Tested	Influent Water Results in µg/L	Filter Results 100 gallons	Filter Results 200 gallons	Filter Results 300 gallons	Filter Results 400 gallons	% Reduction at 400 gallons
Arsenic	388	0.7	<0.5	<0.5	<0.5	99.9+
Barium	1204	36.9	38.9	37.7	38.9	96.8
Beryllium	6.1	<0.5	<0.5	<0.5	<0.5	91.8+
Cadmium	32	0.5	<0.5	<0.5	<0.5	98.4+
Mercury	6.0	<0.5	<0.5	<0.5	<0.5	91.8+
Antimony	6.3	<0.5	<0.5	<0.5	<0.5	92.1+
Selenium	99.7	<0.5	1.4	2.5	3.3	96.4
Thallium	6.0	<0.5	<0.5	<0.5	<0.5	91.7+
Copper	2891	305	346	355	368	87.3
Iron	3050	35.6	37.7	40.2	41.1	98.7
Manganese	1087	36.3	43.2	45.3	50.2	95.4
Zinc	1449	203	217	207	209	85.6



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Table 2
Filtered Water Metals Test Results

Drinking Water Contaminant Tested	Influent Water Results in µg/L	Filter Results 500 gallons	Filter Results 600 gallons	Filter Results 700 gallons	Filter Results 800 gallons	% Reduction at 800 gallons
Arsenic	388	<0.5	<0.5	<0.5	<0.5	99.9
Barium	1204	34.7	32.5	33.4	36.3	97.0
Beryllium	6.1	<0.5	<0.5	<0.5	<0.5	91.8+
Cadmium	32	0.5	0.6	<0.5	<0.5	98.4+
Mercury	6.0	<0.5	<0.5	<0.5	<0.5	91.7+
Antimony	6.3	<0.5	<0.5	<0.5	<0.5	92.1+
Selenium	99.7	2.6	2.3	1.4	1.0	99.0
Thallium	6.0	<0.5	<0.5	<0.5	<0.5	91.7+
Copper	2891	328	383	406	410	85.8
Iron	3050	41.6	39.6	40.3	41.5	98.6
Manganese	1087	53.7	54.3	58.3	55.6	94.9
Zinc	1449	257	260	271	275	81.0

CONCLUSION:

The ATC Super Sterasyl Filter reduces the Metals concentration by at least 81% for up to 800 gallons except for Aluminum; tested following the NSF Standard 53.

CERTIFICATION OF RESULTS:

I certify in writing that all analyses, and reporting performed herein, comply with all requirements set forth in N.J.A.C. 7:9E and N.J.A.C. 7:18, and hereby certify that this laboratory is in compliance with all laboratory certification and quality control procedures and requirements as set forth in N.J.A.C. 7:18; the NYCRR Subpart 55-2 and the National Environmental Laboratory Accreditation Conference (NELAC) Institute Standards.

Disclaimer: The test results are only related to the filter sample tested.

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ATC SUPER STERASYL FILTER PESTICIDE TEST REPORT

Report # 16-374-Pesticide

Report Date: 11/15/2016

Customer Name: Fairey Industrial Ceramics, LTD.

EXECUTIVE SUMMARY

Four hundred gallons of tap water was spiked with Pesticides Standard Solution to have a final concentration of 50 ± 5 $\mu\text{g/L}$; the spiked tap water was filtered through the filter element and tested; the Pesticides in the tap water were reduced by at least 95.0 % after 400 gallons.

INTRODUCTION

Four hundred gallons of tap water was spiked with Pesticides Standard Solution to have a final concentration of 50 ± 5 $\mu\text{g/L}$; the spiked tap water was filtered through the filter element and tested following the EPA Method 508.1; the Pesticides in the tap water were reduced by at least 95.0% after 400 gallons.

REAGENTS, MATERIALS, AND LAB EQUIPMENT

Hewlet Packard GC/ECD model 5890 plus.

Restek Pesticide Standard Solution 2000 mg/L.

ATC Super Sterasyl Filter.

PROCEDURE

Four hundred gallons of tap water was spiked with Pesticides Standard Solution in a Tank and mixed well; this solution was tested and adjusted to have a final concentration of 50 ± 5 $\mu\text{g/L}$ of Pesticides; the influent water properties are summarized in Table 1 below. The solution was filtered through the ATC Super Sterasyl Filter and tested every 100 gallons following the EPA Method 508.1 for Pesticides in drinking water. The results are summarized in Table 2 below.

RESULTS

Table 1
Influent Challenge Water Properties

Parameter	Influent Challenge Water	Target
pH	7.70	7.00 to 8.00
Temperature	20.5 °C	$20 \pm 2.5^\circ\text{C}$
TDS	350 mg/L	200 to 500 mg/L
Turbidity	0.65 NTU	<1 Nephelometric Turbidity Units

Table 2
Filtered Water Pesticide Test Results

Drinking Water Contaminant Tested	Influent Water Results in $\mu\text{g/L}$	Filter Results 100 gallons	Filter Results 200 gallons	Filter Results 300 gallons	Filter Results 400 gallons	% Reduction at 400 gallons
4,4'-DDD	50.1	<0.1	<0.1	<0.1	<0.1	99.8+
4,4'-DDE	50.2	<0.1	<0.1	<0.1	<0.1	99.8+
4,4'-DDT	50.1	<0.1	<0.1	<0.1	<0.1	99.8+
Alachlor	40.2	<0.1	<0.1	<0.1	<0.1	99.8+
Aldrin	50.2	<0.1	<0.1	<0.1	<0.1	99.8+
Alpha-BHC	50.8	<0.1	<0.1	<0.1	<0.1	99.8+
Ametryn	50.0	<0.1	<0.1	<0.1	<0.1	99.8+
Atraton	50.2	<0.1	<0.1	<0.1	<0.1	99.8+
Atrazine	10.0	<0.1	<0.1	<0.1	<0.1	99.0+
Beta-BHC	50.9	<0.1	<0.1	<0.1	<0.1	99.8+
Bromacil	51.2	<0.1	<0.1	<0.1	<0.1	99.8+
Carbofuran	80.2	<0.1	<0.1	<0.1	<0.1	99.9+
Chlordane	40.2	<0.1	<0.1	<0.1	<0.1	99.8+
Chlorneb	51.0	<0.1	<0.1	<0.1	<0.1	99.8+
Chlorobenzilate	49.9	<0.1	<0.1	<0.1	<0.1	99.8+
Chlorothalonil	50.2	<0.1	<0.1	<0.1	<0.1	99.8+
Chlorprophane	50.2	<0.1	<0.1	<0.1	<0.1	99.8+
Chlorpyrifos	50.3	<0.1	<0.1	<0.1	<0.1	99.8+
Cyanizene	50.1	<0.1	<0.1	<0.1	<0.1	99.8+



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Drinking Water Contaminant Tested	Influent Water Results in µg/L	Filter Results 100 gallons	Filter Results 200 gallons	Filter Results 300 gallons	Filter Results 400 gallons	% Reduction at 400 gallons
Delta-BHC	50.7	<0.1	<0.1	<0.1	<0.1	99.8+
Dichlorvos	50.2	<0.1	<0.1	<0.1	<0.1	99.8+
Dieldrin	50.2	<0.1	<0.1	<0.1	<0.1	99.8+
Diphenamid	50.2	<0.1	<0.1	<0.1	<0.1	99.8+
Disulfoton	50.2	<0.1	<0.1	<0.1	<0.1	99.8+
Endosulfan Sulfate	50.0	<0.1	<0.1	<0.1	<0.1	99.8+
Endrin	6.0	<0.1	<0.1	<0.1	<0.1	98.3+
Endrin Aldehyde	50.5	<0.1	<0.1	<0.1	<0.1	99.8+
Endrin Ketone	50.0	<0.1	<0.1	<0.1	<0.1	99.8+
Endosulfan I	49.8	<0.1	<0.1	<0.1	<0.1	99.8+
Endosulfan II	50.3	<0.1	<0.1	<0.1	<0.1	99.8+
Ethoprop	50.4	<0.1	<0.1	<0.1	<0.1	99.8+
Fenamiphos	50.2	<0.1	<0.1	<0.1	<0.1	99.8+
Fenarimol	50.2	<0.1	<0.1	<0.1	<0.1	99.8+
Fluoridone	50.4	<0.1	<0.1	<0.1	<0.1	99.8+
Gamma-BHC (Lindane)	2.0	<0.1	<0.1	<0.1	<0.1	95.0+
Glyphosate	800	<0.1	<0.1	<0.1	<0.1	99.9+
Heptachlor	80.0	<0.1	<0.1	<0.1	<0.1	99.9+
Heptachlor Epoxide	4.0	<0.1	<0.1	<0.1	<0.1	97.5+
Methoxychlor	120	<0.1	<0.1	<0.1	<0.1	99.9+
Molinate	50.4	<0.1	<0.1	<0.1	<0.1	99.8+
PCB's	10.1	<0.1	<0.1	<0.1	<0.1	99.0+
Prometron	50.0	<0.1	<0.1	<0.1	<0.1	99.8+
Simazine	12.0	<0.1	<0.1	<0.1	<0.1	99.2+
Toxaphene	15.1	<0.1	<0.1	<0.1	<0.1	99.3+

CONCLUSION:

The ATC Super Sterasyl Filter reduces the Pesticide concentration by at least 95.0% for up to 400 gallons, tested following the NSF Standard 53.

CERTIFICATION OF RESULTS:

I certify in writing that all analyses, and reporting performed herein, comply with all requirements set forth in N.J.A.C. 7:9E and N.J.A.C. 7:18, and hereby certify that this laboratory is in compliance with all laboratory certification and quality control procedures and requirements as set forth in N.J.A.C. 7:18; the NYCRR Subpart 55-2 and the National Environmental Laboratory Accreditation Conference (NELAC) Institute Standards.

Disclaimer: The test results are only related to the filter sample tested.

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