



ENVIROTEK LABORATORIES, INC.

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 EPA ID # NJ01298 NJ DEP ID # 03048

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.

Jaime A. Young

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