NSF International

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TEST REPORT

Send To: 13790

Ms. Tracy Bloor
Fairey Industrial Ceramics Ltd.
Unit 4 Lymedale Cross Industrial Estate
Newcastle-Under-Lyme, Staffordshire
ST5 9BT,
United Kingdom

Facility: 13792

Fairey Industrial Ceramics Ltd.
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Newcastle-Under-Lyme
Staffordshire ST5 9BT
United Kingdom

Result **PASS**	Report Date 10-NOV-2014

Customer Name	Doulton Water Filters
Tested To	Standard 53 Lead Reduction pH 8.5 POU/POE 200%
Description	HIP/Ultracarb Inline
Test Type	Qualification
Job Number	J-00143625
Project Number	W0126789
Project Manager	DeMarrio Boles

Thank you for having your product tested by NSF International.

Please contact your Project Manager if you have any questions or concerns pertaining to this report.

Report Authorization   _LeVanseler, Kerri_   **Date**   10-NOV-2014

LeVanseler, Kerri - Director, Chemistry Laboratory

Manufacturer's Name: Fairey Industrial Ceramics Ltd.

Job ID: J-00143625

Date of Job Creation: 12-SEP-2014

Date Sample Received: 08-SEP-2014

Date Job Placed on Hold: 01-OCT-2014

Date Job Released from Hold: 01-OCT-2014

Date Test Completed: 10-NOV-2014

Sample Type: Qualification

Product: HIP/Ultracarb Inline

DCC Number: PW00918

Filter Capacity: 600 Gallons

Flushing Time: flushed for a minimum of 10 minutes, let stand for 24 hours, flush 10 minutes

Maximum Rated Op. Pressure: 125 PSI

On Cycle: 10/90

Percent Capacity: 200%

Physical Description of Sample: Plumbed in to Separate Tap without Reservoir

Rated Service Flow: 0.5 GPM

Test Description: STD 53 - Lead 8.5pH Reduction-HIP/ Ultracarb Inline-QQ

Trade Designation/Model Number: HIP/Ultracarb Inline

Performance Standard: 53 - 2013

Lead P/F: PASS

Pass/Fail Criteria (Lead): 10 ug/L

Overall Percent Reduction: 98.7 %

Maximum Effluent: 4 ug/L

All effluent values are less than or equal to the pass/fail criteria: YES

Data Summary Table

Sample Point	Accumulated Volume (gal)		Dynamic Pressure (psi)	Lead (ug/L)		pH
	Effluent 1	Effluent 2	Influent	Effluent 1	Effluent 2	Influent
Startup	12	10	62	ND(1)	ND(1)	8.48
50%	300	300	60	ND(1)	ND(1)	8.45
100%	600	600	60	ND(1)	ND(1)	8.54
150%	901	901	59	2	2	8.53
180%	1080	1080	59	3	2	8.56
200%	1200	1200	60	4	4	8.46

Sample Point	Flow Rate (gpm)		Fine Particulate (%)	Lead (ug/L)	Total Particulate (%)
	Effluent 1	Effluent 2	Influent	Influent	Influent
Startup	0.50	0.51	52	130	32
50%	0.49	0.51	32	140	31
100%	0.50	0.52	50	150	27
150%	0.51	0.52	40	150	33
180%	0.51	0.51	40	150	33
200%	0.52	0.51	20	160	31

Lead Detection Limit: 1 ug/L
pH Detection Limit: 0.01

Data Analysis Table

Sample Point	Inf. Average (ug/L)	Average (ug/L)		Eff. % Reduction (Ave. Inf.) (%)		
		Effluent 1	Effluent 2	All Effluent	Effluent 1	Effluent 2
100%	140	ND(1)	ND(1)	>99.3	>99.3	>99.3
150%	140	1	1	98.6	98.6	98.6
180%	140	2	1	98.3	97.9	98.6
200%	150	2	2	97.3	97.3	97.3

Sample Point	Ave. % Reduction (%)	Maximum (ug/L)	Met Minimum Criteria
100%	>99.3	ND(1)	YES
150%	99.1	2	YES
180%	99.0	3	YES
200%	98.7	4	YES

Inf. Average: Influent Average

Average: All Effluent Average

Eff. % Reduction (Ave. Inf.): Effluent percent reduction calculated from average of previous influent values.

Ave. % Reduction: Percent reduction calculated from all prior influents and effluents.

Maximum: Maximum Effluent

Met Minimum Criteria: All effluent values are less than or equal to the pass/fail criteria

Water Characteristics

Characteristic	Units	Range		
		Minimum	Average	Maximum
Alkalinity as CaCO3	mg/LCaCO3	55	100	110
Chlorine, Total Residual	mg/L	0.37	0.51	0.61
Hardness, Total	mg/LCaCO3	60	110	120
Temperature	degrees C	19	20	22
pH		8.31		8.60
Total Particulate	%	24	30	33

All analyses performed at NSF International, 789 N. Dixboro Road, Ann Arbor MI 48105

Percent Reduction Calculations

Overall Percent Reduction:

Influent Average includes all influents.
Effluent Average includes all effluents.

$$\% \text{ Reduction} = \frac{\text{Influent Average} - \text{Effluent Average}}{\text{Influent Average}} * 100$$

Influent Average Percent Reduction Calculations

Influent Average Percent Reduction for Current Influent Point:

Influent Average includes all influents up to and including the current sample point.
Effluent Average includes all effluents for the current sample point.

$$\text{Average} \% \text{ Reduction} = \frac{\text{Influent Average} - \text{Effluent Average}}{\text{Influent Average}} * 100$$

Influent Average Percent Reduction for Current Effluent Point:

Influent Average includes all influents up to and including the current sample point.
Effluent includes the effluent value for the specific sample point.

$$\text{Average} \% \text{ Reduction} = \frac{\text{Influent Average} - \text{Effluent}}{\text{Influent Average}} * 100$$

Average Percent Reduction Calculations

Average Percent Reduction:

Influent Average includes all influents up to and including the current sample point.
Effluent Average includes all effluents up to and including the current sample point.

$$\% \text{ Reduction} = \frac{\text{Influent Average} - \text{Effluent Average}}{\text{Influent Average}} * 100$$
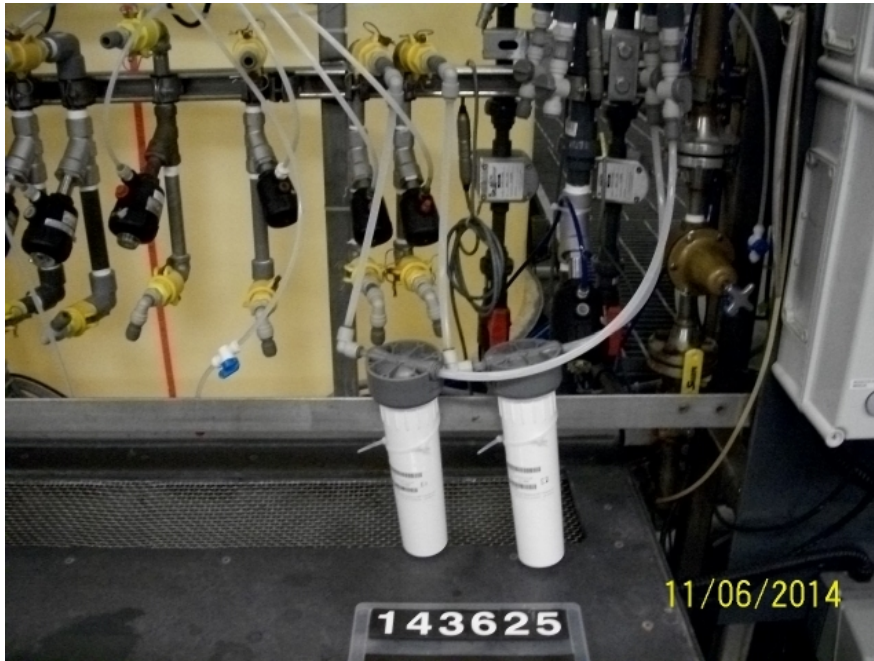
Percent Total Particulate:

Total Lead is the total soluble and particulate lead in the sample.
0.1 µ Filtered Lead is the total soluble lead.

$$\text{Percent Total Particulate} = \frac{\text{Total Lead} - 0.1 \text{ µ Filtered Lead}}{\text{Total Lead}} * 100$$

Percent Fine Particulate:

0.1 µ Filtered Lead is the total soluble lead.
1.2 µ Filtered Lead is the total soluble and particulate lead that is less than 1.2 microns in size.

$$\text{Percent Fine Particulate} = \frac{1.2 \text{ µ Filtered Lead} - 0.1 \text{ µ Filtered Lead}}{\text{Total Lead} - 0.1 \text{ µ Filtered Lead}} * 100$$

Test Configuration