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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.
Unit 4 Lymedale Cross Industrial Estate
Newcastle-Under-Lyme
Staffordshire ST5 9BT
United Kingdom

Result PASS
Report Date 07-NOV-2014

Customer Name Doulton Water Filters
Tested To Standard 53 Lead Reduction pH 6.5 POU/POE 200%
Description HIP/Ultracarb inline
Test Type Qualification
Job Number J-00142314
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

Kerri Levanseler - Director, Chemistry Laboratory

Date 07-NOV-2014
Standard 53 Lead Reduction pH 6.5 POU/POE 200%: PASS

Manufacturer's Name: Fairey Industrial Ceramics Ltd.
Job ID: J-00142314
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: 06-NOV-2014
Sample Type: Qualification
Product: HIP/Ultracarb inline
DCC Number: PW00918
Filter Capacity: 600 Gallons
Flushing Time: Flush 10 minutes, let stand 24 hours, flush 10 minutes
Maximum Rated Op. Pressure: 100 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 6.5 pH Reduction testing HIP/Ultracarb w/FX173-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: 99.1%
Maximum Effluent: 4 ug/L
All effluent values are less than or equal to the pass/fail criteria: YES
<table>
<thead>
<tr>
<th>Sample Point</th>
<th>Accumulated Volume (gal)</th>
<th>Dynamic Pressure (psi)</th>
<th>Lead (ug/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Effluent 1</td>
<td>Effluent 2</td>
<td>Influent</td>
</tr>
<tr>
<td>Startup</td>
<td>12</td>
<td>12</td>
<td>60</td>
</tr>
<tr>
<td>50%</td>
<td>300</td>
<td>300</td>
<td>62</td>
</tr>
<tr>
<td>100%</td>
<td>600</td>
<td>600</td>
<td>62</td>
</tr>
<tr>
<td>150%</td>
<td>900</td>
<td>900</td>
<td>61</td>
</tr>
<tr>
<td>180%</td>
<td>1080</td>
<td>1080</td>
<td>60</td>
</tr>
<tr>
<td>200%</td>
<td>1200</td>
<td>1200</td>
<td>60</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample Point</th>
<th>Flow Rate (gpm)</th>
<th>Lead (ug/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Effluent 1</td>
<td>Effluent 2</td>
</tr>
<tr>
<td>Startup</td>
<td>0.51</td>
<td>0.51</td>
</tr>
<tr>
<td>50%</td>
<td>0.52</td>
<td>0.52</td>
</tr>
<tr>
<td>100%</td>
<td>0.51</td>
<td>0.52</td>
</tr>
<tr>
<td>150%</td>
<td>0.51</td>
<td>0.54</td>
</tr>
<tr>
<td>180%</td>
<td>0.53</td>
<td>0.52</td>
</tr>
<tr>
<td>200%</td>
<td>0.55</td>
<td>0.55</td>
</tr>
</tbody>
</table>

Lead Detection Limit: 1 ug/L
### Data Analysis Table

<table>
<thead>
<tr>
<th>Sample Point</th>
<th>Inf. Average (ug/L)</th>
<th>Average (ug/L)</th>
<th>Eff. % Reduction (Ave. Inf.) (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Effluent 1</td>
<td>Effluent 2</td>
</tr>
<tr>
<td>150%</td>
<td>150</td>
<td>1</td>
<td>ND(1)</td>
</tr>
<tr>
<td>180%</td>
<td>150</td>
<td>1</td>
<td>ND(1)</td>
</tr>
<tr>
<td>200%</td>
<td>150</td>
<td>2</td>
<td>ND(1)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample Point</th>
<th>Ave. % Reduction (%)</th>
<th>Maximum (ug/L)</th>
<th>Validated Capacity with PID</th>
<th>Validated Capacity without PID</th>
<th>Met Minimum Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>150%</td>
<td>99.3</td>
<td>1</td>
<td>750</td>
<td>450</td>
<td>YES</td>
</tr>
<tr>
<td>180%</td>
<td>99.3</td>
<td>2</td>
<td>900</td>
<td>540</td>
<td>YES</td>
</tr>
<tr>
<td>200%</td>
<td>99.1</td>
<td>4</td>
<td>1000</td>
<td>600</td>
<td>YES</td>
</tr>
</tbody>
</table>

**Infl. 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  
**Validated Capacity with PID:** Validated Capacity with Performance Indication Device  
**Validated Capacity without PID:** Validated Capacity without Performance Indication Device
## Water Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Units</th>
<th>Minimum</th>
<th>Average</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alkalinity as CaCO3</td>
<td>mg/LCaCO3</td>
<td>15</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>Hardness, Total</td>
<td>mg/LCaCO3</td>
<td>21</td>
<td>22</td>
<td>24</td>
</tr>
<tr>
<td>Solids, Total Dissolved</td>
<td>mg/L</td>
<td>52</td>
<td>52</td>
<td>53</td>
</tr>
<tr>
<td>Temperature</td>
<td>degrees C</td>
<td>20</td>
<td>20</td>
<td>21</td>
</tr>
<tr>
<td>Turbidity</td>
<td>NTU</td>
<td>ND(0.1)</td>
<td>ND(0.1)</td>
<td>ND(0.1)</td>
</tr>
<tr>
<td>pH</td>
<td></td>
<td>6.67</td>
<td>6.69</td>
<td></td>
</tr>
</tbody>
</table>

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

### Calculation Definitions

All calculations use values as presented in the Data Summary Table and rounding is performed only at the conclusion of the calculation.

### Percent Reduction Calculations

Overall Percent Reduction:

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

\[
\% \text{ Reduction} = \frac{\text{Influent Average} - \text{Effluent Average}}{\text{Influent Average}} \times 100
\]
**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.

\[
\text{Average % Reduction} = \frac{\text{Influent Average} - \text{Effluent Average}}{\text{Influent Average}} \times 100
\]

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.

\[
\text{Average % Reduction} = \frac{\text{Influent Average} - \text{Effluent}}{\text{Influent Average}} \times 100
\]

**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.

\[
\% \text{ Reduction} = \frac{\text{Influent Average} - \text{Effluent Average}}{\text{Influent Average}} \times 100
\]
Test Configuration