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**LABORATORY ANALYSIS REPORT**

**DATE:** 29-August-2011  
**CLIENT:** Harmsco Filtration Products  
7169 N. 49<sup>th</sup> Terrace  
West Palm Beach, FL 33407

**PAGE:** 1 Of 1  
**PROJECT NO.:** 824  
**REPORT NO.:** 824-R1  
**COLLECTED BY:** IBR/PB  
**PROJECT REC'D:** 07-Dec-2010  
**PRODUCT DESC:** Harmsco Hurricane

**CONTACT:** Cyndi Benson

Dear Ms. Benson:

Enclosed, please find the revised final laboratory analysis report regarding the evaluation of Harmsco Hurricane HUR 1 x 170FL Housing Serial #00123 with HC/170-LT2 Filter according to LT2ESWTR 2009 protocol with 2 micron latex spheres at a flow rate of 100 gpm.

This analysis was subcontracted to IBR Laboratories and is not part of Pace Product Testing's A2LA ISO 17025 accreditation.

Pace Analytical Services, Inc. appreciates the opportunity to provide you with this product testing service. We value your feedback, would you please take a few minutes to access our customer satisfaction survey at: <http://www.pacelabs.com/my-account/customer-survey.html> . If you have any questions or comments, please feel free to call me at 612.656.1144 or email [Ashley.Baeten@pacelabs.com](mailto:Ashley.Baeten@pacelabs.com)

Sincerely,

Ashley Baeten  
Project Manager

Enclosure (IBR Test Report-2 pages)



## TEST REPORT

**Reference:** EPA protocol LT2ESWTR (6/2009) - Cryptosporidium removal for drinking water

IBR Test Method: LT2 Lab Method Rev. A (6/2010)

Performed For: Pace Labs

Contact: Ashley Baeten

IBR Project No: **12002 updated 28 August 2011**

Location: Minneapolis MN

Test Date: 8th Feb 2011

Pace Project: 824

Updates: Filter labels per customer instruction 11th August 2011, Expanded Method description

Note: Filter Label HC/170-LT2 provided by client after original report release

**Product Information and Description:**

Harmsco Hurricane HUR 1X170FL SN #00123 with HC/170-LT2 filter (11691-3)

IBR ID: 12002-2

**Test Conditions:**

Terminal Pressure drop - assembly psid	Flow, gpm	
	Initial	Final
30.0	100	100

Cycling- No

Conditioning Procedure: flushed 10 minutes

Contaminant: Efficiency - Latex spheres, 2 micron red

Contaminant: Loading: ISO 12103-1 A2 Fine, 40 mg/L. Injected into upstream line

Sample Points: Initial efficiency, 50% terminal psid, and 100% terminal psid

Inlet Pressure: 44.8 psig

**Flush/Condition:**

	Influent 1	Effluent 1
Flow Rate gpm	100	100
Differential Pressure psid	6.0	
Particles/L 2 micron:	1	0

**Initial Efficiency**

	Influent 1	Effluent 1
Flow Rate gpm	100	100
Differential Pressure psid	8.0	
Particles/L 2 micron:	7100	2
Percent reduction	>99.9	
Log reduction	3.6	

**50% Terminal PSID**

	Influent 1	Effluent 1
Flow Rate gpm	100	100
Differential Pressure psid	15.0	
Particles/L 2 micron:	6600	1
Percent reduction	>99.9	
Log reduction	3.8	

**100% Terminal PSID**

	Influent 1	Effluent 1
Flow Rate gpm	100	100
Differential Pressure psid	30.0	
Particles/L 2 micron:	7550	1
Percent reduction	>99.9	
Log reduction	3.9	

**Performance Criteria/Acceptance:**

The units must reduce the arithmetic mean of the influent concentration by 3 log for each sample point or by 2 log if unit is preceded by a prefilter

Actual minimum log reduction: 3.6

Notice: These data relate only to the samples tested. This report may be copied only in its entirety.



# TEST REPORT

Reference: EPA protocol LT2ESWTR (6/2009) - Cryptosporidium removal for drinking water

IBR Test Method: LT2 Lab Method Rev. A (6/2010)

Performed For: Pace Labs

Contact: Ashley Baeten

IBR Project No: **12002 updated 28 August 2011**

Location: Minneapolis MN

Test Date: 8th Feb 2011

Pace Project: 824

Updates: Filter labels per customer instruction 11th August 2011, Expanded Method description

Note: Filter Label HC/170-LT2 provided by client after original report release

### Product Information and Description:

Harmsco Hurricane HUR 1X170FL SN #00154 with HC/170-LT2 filter (11691-4)

IBR ID: 12002-1

### Test Conditions:

Terminal Pressure drop - assembly psid	Flow, gpm	
	Initial	Final
32.0	100	100

Cycling- No

Conditioning Procedure: flushed 10 minutes

Contaminant: Efficiency - Latex spheres, 2 micron red

Contaminant: Loading: ISO 12103-1 A2 Fine, 40 mg/L. Injected into upstream line

Sample Points: Initial efficiency, 50% terminal psid, and 100% terminal psid

Inlet Pressure: 45.5 psig

### Flush/Condition:

	Influent 1	Effluent 1
Flow Rate gpm	100	100
Differential Pressure psid	6.0	
Particles/L 2 micron:	6	0

### Initial Efficiency

	Influent 1	Effluent 1
Flow Rate gpm	100	100
Differential Pressure psid	7.0	
Particles/L 2 micron:	7850	1
Percent reduction	>99.9	
Log reduction	3.9	

### 50% Terminal PSID

	Influent 1	Effluent 1
Flow Rate gpm	100	100
Differential Pressure psid	15.0	
Particles/L 2 micron:	6050	1
Percent reduction	>99.9	
Log reduction	3.8	

### 100% Terminal PSID

	Influent 1	Effluent 1
Flow Rate gpm	100	100
Differential Pressure psid	32.0	
Particles/L 2 micron:	9300	2
Percent reduction	>99.9	
Log reduction	3.7	

### Performance Criteria/Acceptance:

The units must reduce the arithmetic mean of the influent concentration by 3 log for each sample point or by 2 log if unit is preceded by a prefilter

Actual minimum log reduction: 3.7

Notice: These data relate only to the samples tested. This report may be copied only in its entirety.

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Performed By: RH

Data Location: RH-2

Reviewed By:

Susan H. Goldsmith, Director of Technical Services

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