



# COLORADO

Department of Public  
Health & Environment

Dedicated to protecting and improving the health and environment of the people of Colorado

December 28, 2015

Hank Harms  
Owner/CEO  
Harmsco Filtration Products  
7169 North 49<sup>th</sup> Terrace  
West Palm Beach, Florida 33407

Subject: Acceptance of the Harmsco® Model HC/40-LT2, HC/90-LT2, HC/170-LT2 cartridges as an Alternative Filtration Technology to meet the *Colorado Primary Drinking Water Regulations* requirements for *Giardia lamblia* and *Cryptosporidium* Removal

Dear Mr. Harms;

The Colorado Department of Public Health and Environment's (CDPHE) Water Quality Control Division ("the Department") has received and reviewed the information for the Harmsco® Models HC/40-LT2, HC/90-LT2, HC/170-LT2 cartridge filters in accordance with Section 11.8(2)(b)(ii) and 11.10(5)(j) of the *Colorado Primary Drinking Water Regulations* (Regulation 11), 5 CCR 1002-11. The Harmsco HC/40-LT2, HC/90-LT2, HC/170-LT2 cartridge filters meet or exceed the requirements of the *State of Colorado Design Criteria for Potable Water Systems* (DCPWS) Sections 1.11, 4.3.9 and the requirements of Regulation 11. The technology is conditionally accepted for use as an Alternative Filtration Technology and granted the removal credit in Table 4.2, Section 4.3.9.2 of the DCPWS. The filters and filter housings are subject to the conditions outlined in Table 1 of this document and Section 4.3.9 of the DCPWS.

This acceptance supersedes all previous acceptance letters of the Harmsco® Model HC/170-LT2 cartridge filter and associated housings.

This acceptance addresses the following items:

- Harmsco Filter Cartridge Models: HC/40-LT2, HC/90-LT2, HC/170-LT2
- Harmsco Filter Housings (pressure vessels): MUNI 40 MP, MUNI 90 MP, MUNI 170 MP, MUNI-1-2FL-304, MUNI-3-3FL-304, MUNI-5-4FL-304, MUNI-8-6FL-304

This acceptance applies only to the Harmsco Model HC/40-LT2, HC/90-LT2, HC/170-LT2 cartridges and does not constitute construction approval for installation at any public water system. Each individual submittal to the Department must demonstrate conformance with Section 4.3.9 of the DCPWS for each installation of the filters and housings. **Review and approval for the design of any public water system proposing to use this technology will be handled on a case-by-case basis by the Department as required by Section 11.4 of Regulation 11.**

As part of this review, the Department has evaluated the following documents:

- Alternative Technology Acceptance Application for Harmsco Filtration Products, HC/40-LT2, HC/90-LT2, and HC/170-LT2 filters in MUNI MP housings - submission date July 1, 2015 and associated IBR Reports.
- Harmsco Filtration Products Long Term 2 Enhanced Surface Water Treatment Rule (LT2) Validation Testing Report for HC/170-LT2 Cartridges and MUNI-1-2FL-304 housing (Including Pace Analytical and IBR reports on validation testing - Aug 2011)
- Harmsco Municipal and LT2 Product brochures - Aug 2012



- NSF Website including HC/170-LT2

Any addenda that will modify the housing or cartridge must be submitted to the Department for review and acceptance prior to use in Colorado by a regulated public water system. This requirement includes any changes made to the filter materials of construction and associated interfaces with process piping. The Department will review any additional third party verification reports and issue a revised acceptance letter if appropriate.

Table 1. Harmsco Models HC/40-LT2, HC/90-LT2, HC/170-LT2 Cartridge Filters Technical Specifications and Conditions of Acceptance:

Technical Specifications																
Filter Cartridge Model	HC/40-LT2	HC/90-LT2	HC/170-LT2													
Filter Housing Model (pressure vessel)	MUNI 40 MP	MUNI 90 MP	MUNI-1-2FL-304 MUNI 170 MP	MUNI-3-3FL-304	MUNI-5-4FL-304	MUNI-8-6FL-304										
Maximum Flow Rate (gpm)	30 gpm	65 gpm	100 gpm	300 gpm	500 gpm	800 gpm										
Maximum Differential Pressure for Cartridge Change out	30 pounds per square inch differential (psid) <u>total</u>															
Turbidity Performance Standards	< 1 NTU 95% of the time Not to exceed 5 NTU															
Vessels																
Models	Harmsco MUNI 40 MP, MUNI 90 MP, MUNI 170 MP, MUNI-1-2FL-304, MUNI-3-3FL-304, MUNI-5-4FL-304, MUNI-8-6FL-304 housings are the only acceptable housing for use with this technology.															
Materials	304 Stainless Steel															
Pressure Requirements	Rated for 150 pounds per square inch (PSI).															
Prefilters																
Prefilter Models	A gross prefiltration unit is required when influent turbidity exceeds 1 NTU. Turbidity should be reduced to <1 NTU prior to compliance filters.															
Additional Operations and Maintenance Criteria																
<ol style="list-style-type: none"> <li>1. Each public water system must keep a record daily routine pressure differential readings and filter change outs. The document must be available for review by the Department upon request.</li> <li>2. An Operations and Maintenance (O&amp;M) Manual must be provided for all installations including a protocol for filter change out to ensure sanitary conditions and good filter installation practice.</li> <li>3. Spare Parts required to be kept onsite: <ol style="list-style-type: none"> <li>a. O Rings for Pressure Vessels: <table border="0" style="margin-left: 40px;"> <thead> <tr> <th style="text-align: left;"><u>Housing P/N</u></th> <th style="text-align: left;"><u>O-Ring P/N</u></th> </tr> </thead> <tbody> <tr> <td>MUNI-1-2FL-304</td> <td>361-E</td> </tr> <tr> <td>MUNI-3-3FL-304</td> <td>363-E</td> </tr> <tr> <td>MUNI-5-4FL-304</td> <td>365-E</td> </tr> <tr> <td>MUNI-8-6FL-304</td> <td>368-E</td> </tr> </tbody> </table> </li> </ol> </li> </ol>							<u>Housing P/N</u>	<u>O-Ring P/N</u>	MUNI-1-2FL-304	361-E	MUNI-3-3FL-304	363-E	MUNI-5-4FL-304	365-E	MUNI-8-6FL-304	368-E
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Please direct any further correspondence regarding this acceptance to:

Tyson Ingels, P.E.  
Colorado Department of Public Health and Environment  
Water Quality Control Division  
4300 Cherry Creek Drive South  
Denver, CO 80246

If you have any questions or comments, please call Tyson Ingels at 303-692-3002.

Sincerely,

Tyson Ingels, P.E.  
Lead Drinking Water Engineer  
Engineering Section  
Water Quality Control Division  
Colorado Department of Public Health and Environment

cc: Charles Greaves, Water Technology Group, 6345 Downing St., Denver, CO 80216