SAFETY AND BUILDINGS DIVISION
Plumbing Product Review
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Wisconsin
Department of Commerce

Jim Doyle, Governor
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November 17, 2006

GE INFRASTRUCTURE
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MINNETONKA MN 55343

GE INFRASTRUCTURE
RANDY BURIAN
5730 N GLEN PARK ROAD
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Re: Description: WATER TREATMENT DEVICE-REVERSE OSMOSIS
Manufacturer: GE INFRASTRUCTURE WATER & PROCESS TECH.
Product Name: MERLIN
Model Number(s): MERLIN I AND MERLIN II
Product File No: 20040642

The specifications and/or plans for this plumbing product have been reviewed and determined to be in compliance with chapters Comm 82 through 84, Wisconsin Administrative Code, and Chapters 145 and 160, Wisconsin Statutes.

The Department hereby issues an approval based on the Wisconsin Statutes and the Wisconsin Administrative Code. This approval is valid until the end of November 2011.

This approval is contingent upon compliance with the following stipulation(s):

- This product has undergone sufficient testing to document the product's ability to reduce only those contaminants and/or substances as specified in this approval letter when the product is installed and maintained in strict accordance with the manufacturers published instructions.

- Where the Department of Natural Resources (DNR) has jurisdiction, a written approval may be required prior to installation of this product in a water supply system to reduce the concentration of a contaminant that exceeds the primary drinking water standards contained in ch. NR 809, Wis. Admin. Code, the enforcement standards contained in ch. NR 140, Wis. Admin. Code, or for a water supply system that is subject to a written advisory opinion by the DNR. For more information contact the DNR Section of Private Water Systems, P.O. Box 7921, Madison, WI 53707, telephone (608) 266-3415.

- If these approved devices are modified or additional assertions of function or performance are made, then this approval shall be considered null and void, unless the change is submitted to the department for review and the approval is reaffirmed.

- The system shall be provided with an in-line total dissolved solids (TDS) monitor, or other acceptable means, to warn the user when the system is not performing it's functions. Acceptable alternatives to an in-line TDS monitor include:

  1. terminating the discharge of treated water;

  2. sounding an alarm which is connected to acceptable power source;

  3. flashing a light connected to an acceptable power source;

  4. providing the user with an obvious, readily interpretable, indication of the system's ability to perform (e.g. decreasing the flow rate of treated water by 50% or more for systems making mechanical filtration claims;

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5. Providing a sampling service by the manufacturer, either directly or through an authorized dealer, a minimum of once every six months;

6. Providing a sampling kit for analysis of TDS or other appropriate contaminants; or

7. Providing a TDS monitor to measure the product water quality.

Whichever means of performance verification is selected, it shall be clearly described in the owner's manual for this device, and approved for use along with the device.

- In addition to the product water quality monitor specified elsewhere in this letter, this device shall be provided with one of the following means to warn the user when the system is not performing its function:

  a. a nitrate/nitrite monitor on the product water stream; or

  b. a sampling and analysis kit for nitrate/nitrite with explicit instructions of recommended frequency of analysis.

Based on testing data submitted to and reviewed by the department, this approval recognizes that these plumbing products will reduce the concentration of contaminants as specified on pages 1 through 3 of this letter.

HEALTH EFFECTING INORGANIC CONTAMINANT REDUCTION CAPABILITIES
PRODUCT FILE NUMBER 20040642
TABLE 1 OF 2

Product Water Production Rate: 1.9 liters per minute (lpm) [0.5 gallons per minute (gpm)]♦

Tested Contaminant	Tested Influent Concentration (mg/l*)[1]
Arsenic (As^{+5})	0.30 ± 10%
Barium (Ba^{+2})	10.0 ± 10%
Cadmium (Cd^{+2})	0.03 ± 10%
Copper (Cu^{+2})	3.0 ± 10%
Fluoride (F^{-1})	8.0 ± 10%
Hexavalent Chromium (Cr^{+6})	0.15 ± 10%
Lead (Pb^{+2})	0.15 ± 10%
Nitrate (NO_3^-)	27.0 ± 10%
Nitrite (NO_2^-)	3.0 ± 10%
Radium 226/228 (*barium surrogate*)	25 pCi/L
Selenium (Se^{+4} and Se^{+6})	0.10 ± 10%
Trivalent chromium (Cr^{+3})	0.15 ± 10%

Other conditions: the contaminant reduction capabilities displayed for table 1 of 2 were generated by testing conducted in accordance with NSF/ANSI Standard 58. To qualify for arsenic reduction, the device must reduce the influent challenge concentrations such that all effluent concentrations are ≤ 0.010 mg/l. To qualify for asbestos reduction, the device must reduce the influent challenge concentrations by ≥ 99%.To qualify for barium reduction, the device must reduce the influent challenge water concentrations such that all effluent concentrations are ≤ 2.0 mg/l. To qualify for cadmium reduction, the device must reduce the influent challenge concentrations such that all effluent concentrations are ≤ 0.005 mg/l. To qualify for copper reduction, the device must reduce the influent challenge water concentrations such that all effluent concentrations are ≤ 1.3 mg/l. To qualify for chromium reduction (i.e. trivalent or hexavalent), the device must reduce the influent challenge concentrations such that all effluent concentrations are ≤ 0.1 mg/l. To qualify for fluoride reduction, the device must reduce the influent challenge concentrations such that all effluent concentrations are ≤ 1.5 mg/l. To qualify for lead reduction, the device must reduce the influent challenge concentrations such that all effluent concentrations are ≤ 0.010 mg/l. To qualify for

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nitrate/nitrite reduction, the device must reduce the influent challenge water concentrations, such that all effluent concentrations are ≤ 10.0 mg/l (as N), also, no more than 1.0 mg/l (as N) shall be in the form of nitrite. To qualify for radium reduction, the device must reduce the influent barium challenge concentrations such that all effluent concentrations are ≤ 2.0 mg/l (barium is used as a surrogate based on its relationship with radium on the periodic table and the difficulty in using radium for routine testing). To qualify for selenium reduction, the device must reduce the influent challenge concentrations such that all effluent concentrations are ≤ 0.05 mg/l.

1 = milligrams per liter (mg/l) are equivalent to parts per million (ppm)
± = plus or minus
≤ = less than or equal to
***** = unless otherwise indicated
≥ = greater than or equal to
♦ = product water production rate (this is the rate these devices will produce treated water, until the storage tank is full, then the flow of treated water stops until sufficient water is withdrawn from the storage tank. The devices detect this decrease in stored water volume, and commence producing treated water until the storage tank is again full. This cycle repeats in response to a given treated water usage pattern).

AESTHETIC INORGANIC CONTAMINANT REDUCTION CAPABILITIES
PRODUCT FILE NUMBER 20040642
TABLE 2 OF 2

Product Water Production Rate: 1.9 liters per minute (lpm) [0.5 gallons per minute (gpm)]♦

Tested Contaminant	Average Influent Challenge (mg/l)[1]
Total Dissolved Solids (NaCl surrogate)	750 ± 40

Other Conditions: the contaminant reduction performance capabilities displayed for Table 2 of 2 were verified by testing conducted in accordance with the testing *methodology* contained in NSF *International* Standard 58, with the exception of free chlorine and total dissolved solids which were fully tested and reported under NSF Standard 58 by NSF. To qualify for total dissolved solids (TDS) reduction, the device must reduce the influent challenge concentrations by ≥ 75%.

1 = milligrams per liter (mg/l) are equivalent to parts per million (ppm)
≥ = greater than or equal to
± = plus or minus
♦ = product water production rate (this is the rate these devices will produce treated water, until the storage tank is full, then the flow of treated water stops until sufficient water is withdrawn from the storage tank. The devices detect this decrease in stored water volume, and commence producing treated water until the storage tank is again full. This cycle repeats in response to a given treated water usage pattern).

This device was tested under controlled laboratory, or field, conditions. The actual performance of this device for a specific end use installation will vary from the tested conditions based on local factors such as water pressure, water temperature and water chemistry.

The department is in no way endorsing this product or any advertising, and is not responsible for any situation which may result from its use.

Sincerely,

Glen W. Schlueter
Engineering Consultant-Plumbing Product Reviewer
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Safety and Buildings Division
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