



November 14, 2016

ECOWATER SYSTEMS LLC
MARGARET BICKING
1890 WOODLANE DR
WOODBURY MN 55125

Re: Description: WATER TREATMENT DEVICE – EFFICIENCY RATED POE WATER SOFTENER
Manufacturer: ECOWATER SYSTEMS LLC
Product Name: (trans id 2788739) ECOWATER SYSTEMS DIGITAL DEMAND WATER CONDITIONER (POE)
Model Number(s): ECR3502R70 AND ECR3702R70
Product File No: 20160276

The specifications and/or plans for this plumbing product have been reviewed and determined to be in compliance with chapters SPS 382 through 384, 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 May 2020.

This approval supersedes the approval issued on May 1, 2015 under product file number 20150076.

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 manufacturer's 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) 267-9787.
- 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.
- These cation exchange water softeners shall be sized, installed, programmed and maintained such that wastewater volumes, total dissolved solids and chloride discharges are minimized.
- At the time of installation, these devices shall be provided with an effective means to warn the users when they are not performing their function. This shall be accomplished by one of the following:
 1. sounding and alarm or flashing a light, each connected to an acceptable power source;
 2. providing a sampling kit for analysis of hardness or other appropriate contaminants; or
 3. providing a hardness monitor.

- Operation of these devices at flow rates above the rated service flow rates specified within this approval letter are not supported or acknowledged by this approval. The rated service flow rates are the actual flow rates at which these devices were tested.

Because the level of treatment obtained is, in part, a function of how long the water is in contact with the media within these devices, arbitrary increases in the service flow rates above the rated service flow rates may compromise the quality of treated water.

- The department does not recommend the use of water softeners for reducing dissolved iron concentrations in excess of 3.0 mg/l. This is because applying water softeners in this way sacrifices long-term water softener performance and efficiency. The use of water softeners for reducing dissolved iron concentrations exceeding 3.0 mg/l also generates excessive, and otherwise avoidable, quantities of chloride and dissolved solids which are subsequently discharged to ground and/or surface water supplies. Once present in ground and/or surface water supplies, chloride and dissolved solids tend to remain in the water resource and may travel great distances from the original point source. Presently, there are no economically viable methods to remove chloride and dissolved solids from water supplies because available technologies generate waste streams of their own, further concentrating the problem. It has been established by the Wisconsin Department of Natural Resources that chloride is chronically toxic to representative aquatic organisms, including forage and sport fish, at 395 mg/l, and acutely toxic at 757 mg/l.
- These devices are not approved for the reduction of bacterial, colloidal or organically bound forms of iron.

The water must be tested to speciate the iron present to determine if these devices can provide adequate treatment.

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.

**WATER SOFTENING CAPABILITIES
 PRODUCT FILE NUMBER 20160276
 TABLE 1 OF 1**

Model Numbers	Capacity*						Max. Rated Service Flow Rate
	Rating 1		Rating 2		Rating 3		
Metered	Grains	Pounds	Grains	Pounds	Grains	Pounds	gpm @ psig
Ecowater							
ECR3502R70	32,900	6.2	57,600	12.8	71,500	25.6	12.0 @ 11.0
ECR3702R70	32,900	6.2	57,600	12.8	71,500	25.6	12.0 @ 11.0

* The softener capacity rating is based on grains of hardness, due to calcium and magnesium cations, removed (as calcium carbonate) while producing soft water between successive regenerations and is related to the pounds of salt required for each regeneration. The tests run to generate the hardness reduction data for table 1 were conducted in accordance with NSF Standard 44.

This device is also approved for the reduction of barium up to a maximum influent concentration of 10 mg/l and radium up to a maximum concentration of 25 pCi/l. This device is also approved for the reduction of dissolved iron, up to a maximum concentration of 15 mg/l. The tests run to support the dissolved iron reduction performance claim made for this device were conducted by the Water Quality Association (WQA).

This device is efficiency rated (ER) at the lowest salt dosages displayed (i.e. "Rating 1").

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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
Environmental Engineer - Plumbing Product Reviewer
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Division of Industry Services
Bureau of Technical Services
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