DIVISION OF INDUSTRY SERVICES
Plumbing Product Review
P.O. Box 2658
Madison, Wisconsin 53701-2658
**TTY: Contact Through Relay**

**Scott Walker, Governor**
**Dave Ross, Secretary**

July 8, 2016

ECOWATER SYSTEMS
MARGARET BICKING
1890 WOODLANE DR
WOODBURY MN 55125

SEARS BRANDS MANAGEMENT CORP.
MARGARET BICKING
1890 WOODLANE DRIVE
WOODBURY MN 55125

Re: Description: WATER TREATMENT DEVICE - SOFTENER/CATION EXCHANGE
Manufacturer: SEARS BRANDS MANAGEMENT CORPORATION
Product Name: (trans id 2731840) KENMORE ELITE SMART HYBRID WATER SOFTENER
Model Number(s): 625.386200
Product File No: 20160185

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 July 2021.

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 this approved device is 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 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 treatment media within these devices, arbitrary increases in the flow rates above the rated service flow rates may compromise the quality of the 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 20160185**
**TABLE 1 OF 3**

| **Model Numbers** | **Capacity*** | | | | | | **Max. Rated Service Flow Rate** |
|---|---|---|---|---|---|---|---|
| Metered | **Rating 1** | | **Rating 2** | | **Rating 3** | | |
| Kenmore Elite | **Grains** | **Pounds** | **Grains** | **Pounds** | **Grains** | **Pounds** | **gpm @ psig** |
| 625.386200 | 14,000 | 2.9 | 29,800 | 9.3 | 35,600 | 15.6 | 8.0 @ 8.4 |

* 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 of 3 were conducted in accordance with NSF Standard 44. This device is also approved for the reduction of dissolved iron, up to a maximum concentration of 3.0 mg/l. The tests run to support the dissolved iron reduction claim were conducted by the Water Quality Association (WQA).This device is efficiency rated (ER) at the lowest salt dosage displayed for this model (i.e. “Rating 1”).

**gpm** = gallons per minute
**gpg** = grains per gallon (1.0 gpg = 17.1 mg/l)
**psig** = pounds per square inch – gauge
**mg/l** = milligrams per liter (mg/l) are equivalent to parts per million (ppm)

**HEALTH EFFECTING INORGANIC CONTAMINANT REDUCTION CAPABILITIES**
**PRODUCT FILE NUMBER 20160185**
**TABLE 2 OF 3**

**Flow Rate:** 8.0 gpm @ 8.4 psig
**Capacities:** see Table 1 of 3

| Tested Contaminant | Tested Influent Concentration (mg/l)[1] |
|---|---|
| Barium ($Ba^{+2}$) (*hardness surrogate)* | 10.0 ± 10% |
| $Radium_{226/228}$ (*hardness surrogate*) | 25 pCi/l |

**Other conditions:** the contaminant reduction capabilities displayed for table 2 of 3 were generated by testing conducted in accordance with NSF/ANSI Standard 44. To qualify for barium reduction, the device must reduce the influent challenge water hardness concentrations such that all effluent hardness concentrations are ≤ 1.0 gpg. To qualify for radium reduction, the device must reduce the influent challenge water hardness concentrations such that all effluent hardness concentrations are ≤ 1.0 gpg. Studies conducted on sulfonated poly-styrene di-vinyl benzene cation exchange media have documented that if hardness is reduced to less than 1.0 gpg, barium and radium will also be effectively reduced.

**1** = milligrams per liter (mg/l) are equivalent to parts per million (ppm)
**±** = plus or minus
**≤** = less than or equal to
**gpg** = grains per gallon (1.0 gpg = 17.1 mg/l)
**pCi/l** = picocuries per liter

**AESTHETIC CONTAMINANT REDUCTION CAPABILITIES**
**PRODUCT FILE NUMBER 20160185**
**TABLE 3 OF 3**

**Flow Rate:** 8.0 gpm @ 8.4 psig
**Capacity:** 570,000 gals.

| Tested Contaminant | Influent Challenge (mg/l)[1] |
|---|---|
| Chlorine (free) | 2.0 ± 10% |

**Other Conditions**: the contaminant reduction performance capabilities displayed for Table 3 of 3 were verified by testing conducted in accordance with NSF *International* Standard 42. To qualify for free chlorine reduction, the device must reduce the influent challenge concentrations by ≥ 50%; meeting the free chlorine reduction requirements also qualifies the device for the reduction of aesthetic, organic, taste and odor reduction (e.g. geosmin, methylisoborneol); this does not include hydrogen sulfide. The activated carbon component of the media bed that is responsible for free chlorine reduction has a finite, non-renewable, capacity and must be replaced on a regular basis.

**1** = milligrams per liter (mg/l) are equivalent to parts per million (ppm)
**≥** = greater than or equal to
**±** = plus or minus

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
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