



**Jim Doyle, Governor**  
**Mary P. Burke, Secretary**

October 26, 2005

CULLIGAN INTERNATIONAL  
RESEARCH AND DEVELOPMENT  
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idealCHO<sub>2</sub>ICE  
ANNA K. LEVOY  
ONE CULLIGAN PARKWAY  
NORTHBROOK IL 60062

Re: Description: WATER TREATMENT DEVICE-REVERSE OSMOSIS  
Manufacturer: ideal CHO<sub>2</sub>ICE  
Product Name: ADVANCED REVERSE OSMOSIS WATER FILTRATION SYSTEM  
Model Number(s): RO3500  
Product File No: 20050144

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 June 2008.

This approval supersedes the approval issued on June 30, 2003 under product file number 20030169.

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 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 devices will only reduce the concentration of cysts/oocysts at water outlets that are served by the devices. Therefore, using point-of-use devices such as these will not protect all routes of potential exposure. Potentially hazardous exposures to cysts/oocysts will remain possible at unprotected outlets.

The presence of cysts/oocysts strongly suggests that other pathogens (e.g. bacteria, virus) may also be present.

If, by way of reputable water analyses, a water supply is known to contain cysts/oocysts, then all the water entering the residence must be treated at the point-of-entry, using an approved water treatment device, to address all potential routes of exposure thereby providing a biologically safe water supply.

- 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.

- A device used to detect increases in the total dissolved solids concentration must be installed on the product water line.

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

**INORGANIC CONTAMINANT REDUCTION CAPABILITIES**  
**PRODUCT FILE NUMBER 20050144**  
**TABLE 1 OF 2**

**Production Rate:** 28.8 liters per day (lpd) [7.6 gallons per day (gpd)]

Tested Contaminant	Influent Challenge Concentration (mg/l) <sup>1</sup>	Max. Permissible Effluent Concentration (mg/l) <sup>1</sup>
Ammonia (NH <sub>4</sub> )	3.3	0.6 <sup>†</sup>
Arsenic (As <sup>+5</sup> )	0.30 ± 10%	0.010
Barium (Ba <sup>+2</sup> ) <sup>2</sup>	10.0 ± 10%	2.0
Cadmium (Cd <sup>+2</sup> ) <sup>2</sup>	0.03 ± 10%	0.005
Chlorine (free) <sup>4</sup>	2.0 ± 10%	1.0
Total Chromium (Cr <sup>+3</sup> + Cr <sup>+6</sup> )	0.3 ± 10%	0.05 hexavalent and 0.05 trivalent
Hexavalent Chromium (Cr <sup>+6</sup> ) <sup>2</sup>	0.15 ± 10%	0.05
Trivalent Chromium (Cr <sup>+3</sup> ) <sup>2</sup>	0.15 ± 10%	0.05
Copper (Cu <sup>+2</sup> ) <sup>2</sup>	3.0 ± 10%	1.3
Fluoride (F <sup>-1</sup> )	8.0 ± 10%	1.5
Lead (Pb <sup>+2</sup> ) <sup>2</sup>	0.15 ± 10%	0.010
Magnesium (Mg <sup>+2</sup> )	29.0	0.1 <sup>†</sup>
Nitrate + Nitrite (NO <sub>3</sub> <sup>-</sup> + NO <sub>2</sub> <sup>-</sup> both as N)	30.0 ± 10%	10.0
Nitrate (NO <sub>3</sub> <sup>-</sup> as N)	27.0 ± 10%	10.0
Nitrite (NO <sub>2</sub> <sup>-</sup> as N)	3.0 ± 10%	1.0
Radium 226/228 (Barium surrogate) <sup>3</sup>	25 pCi/l	5 pCi/l
Selenium (Se <sup>+4</sup> and Se <sup>+6</sup> ) <sup>2</sup>	0.10 ± 10%	0.05
Sulfate (SO <sub>4</sub> <sup>-2</sup> ) <sup>5</sup>	760	7.0 <sup>†</sup>
Total Dissolved Solids (NaCl)	750 ± 40	187
Tannin (C <sub>76</sub> H <sub>52</sub> O <sub>4</sub> )	3.7	2.0 <sup>†</sup>
Zinc (Zn <sup>+2</sup> )	10.2	0.05 <sup>†</sup>

**Other Conditions:** the contaminant reduction performance capabilities displayed for Table 1 of 2 were verified by testing conducted in accordance with NSF *International* Standard 58. To qualify for a specific contaminant reduction claim, the system shall reduce the influent challenge concentration so that the arithmetic mean of all effluent sample results, and 90% of the individual effluent samples, are ≤ the maximum permissible effluent concentration. The D-20 post-filter was tested for free chlorine reduction in accordance with NSF standard 42, to qualify for free chlorine reduction, the system must reduce the influent challenge concentrations by ≥ 50%. The data qualifying this device for ammonia, magnesium, sulfate, tannin and zinc reduction performance were generated by testing conducted by U.S. Filter – Plymouth Products in accordance with the generalized testing protocol contained in NSF Standard 58.

1 = milligrams per liter (mg/l) are equivalent to parts per million (ppm)

2 = metals are tested at pH 6.5 and pH 8.5

3 = 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.

4 = free chlorine reduction testing performed on the "D-20" post-filter

5 = tested independently of NSF Standard 58

pCi/l = picocuries per liter

≤ = less than or equal to

† = average effluent concentration

\* = unless otherwise specified

± = plus or minus

**BIOLOGICAL CONTAMINANT REDUCTION CAPABILITIES  
PRODUCT FILE NUMBER 20050144  
TABLE 2 OF 2**

**Production Rate:** 28.8 liters per day (lpd) [7.6 gallon per day (gpd)]

<b>Tested Contaminant</b>	<b>Influent Challenge (#/ml)</b>
Cysts/Oocysts <sup>1</sup>	≥ 5.0 x 10 <sup>4</sup>

Other Conditions: the contaminant reduction performance capabilities displayed for Table 2 of 2 were verified by testing conducted in accordance with NSF *International* Standard 58. To qualify for cyst/oocyst reduction, the device must reduce the influent challenge concentrations by ≥ 99.95% at each sample point.

<sup>1</sup> = the specific organisms covered under this testing protocol include cryptosporidium parvum, entamoeba histolytica, giardia lamblia and toxoplasma gondii

#/ml = particles per milliliter

≥ = greater than or equal to

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 that may result from its use.

Sincerely,

Glen W. Schlueter  
Engineering Consultant-Plumbing Product Reviewer  
Bureau of Integrated Services  
Safety and Buildings Division  
Department of Commerce  
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