SAFETY AND BUILDINGS DIVISION
Plumbing Product Review
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Wisconsin
Department of Commerce

**Jim Doyle, Governor**
**Cory L. Nettles, Secretary**

September 16, 2004

PENTAPURE INCORPORATED
DAVID BOTTS
1000 APOLLO RD
EAGAN MN 55121-2240

Re: Description: WATER TREATMENT DEVICE-ACTIVATED CARBON
Manufacturer: PENTAPURE INCORPORATED
Product Name: GE SMARTWATER WATER FILTRATION SYSTEM
Model Number(s): GNSV75FWW USING THE FQSVF CARTRIDGE SET
Product File No: 20040427

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 September 2009.

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.

- For buildings not served by a municipal water supply, Department of Natural Resources (DNR) 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.

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 5 of this letter.

## AESTHETIC CONTAMINANT REDUCTION CAPABILITIES
## PRODUCT FILE NUMBER 20040427
## TABLE 1 OF 5

**Flow Rate:** 2.3 liters (l) [0.6 gallon per minute (gpm)]
**Capacity:** 606 liters (l) [160 gallons (gals.)]. For particulate reduction the capacity is dependent on the type and quantity of particulate matter present in the untreated water; the need for maintenance may be indicated be a significant decrease in flow rate.

| Tested Contaminant | Influent Challenge (mg/l)*, 1 |
|---|---|
| Chlorine (free) | 2.0 ± 10% |
| Particulates (0.5 to < 1.0 μm) | ≥ 1.0 x $10^4$ #/ml |

**Other Conditions**: the contaminant reduction performance capabilities displayed for Table 1 of 5 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. To qualify for particulate reduction (Class I) the device must reduce the influent challenge concentrations by ≥ 85%.

**1** = milligrams per liter (mg/l) are equivalent to parts per million (ppm)
**≥** = greater than or equal to
**±** = plus or minus
**#/ml** = particles per milliliter
**<** = less than
**μm** = micrometers
***** = unless otherwise specified

## HEALTH EFFECTING INORGANIC CONTAMINANT REDUCTION CAPABILITIES
## PRODUCT FILE NUMBER 20040427
## TABLE 2 OF 5

**Flow Rate:** 2.3 l (0.6 gpm)
**Capacity:** 606 l (160 gals.). For asbestos reduction, the capacity is dependent on the type and quantity of particulate matter present in the untreated water; the need for maintenance may be indicated be a significant decrease in flow rate.

| Tested Contaminant | Influent Challenge Concentration (mg/l*)1 |
|---|---|
| Asbestos fibers (> 10 μm in length) | 1.0 x $10^7$ to 1.0 x $10^8$ F/l |
| Lead ($Pb^{+2}$) 2 | 0.15 ± 10% |
| Mercury ($Hg^{+2}$) 2 | 0.006 ± 10% |

**Other Conditions:** the contaminant reduction performance capabilities displayed for Table 2 of 5 were verified by testing conducted in accordance with NSF *International* Standard 53. To qualify for asbestos reduction, the device must reduce the influent challenge concentrations by ≥ 99%. 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 mercury reduction, the device must reduce the influent challenge concentrations such that all effluent concentrations are ≤ 0.002 mg/l.

**1** = milligrams per liter (mg/l) are equivalent to parts per million (ppm)
***** = unless otherwise specified
**±** = plus or minus
**>** = greater than
**2** = metals are tested at pH 6.5 and pH 8.5
**≤** = less than or equal to
F/l = fibers per liter

## HEALTH EFFECTING BIOLOGICAL CONTAMINANT REDUCTION CAPABILITIES
## PRODUCT FILE NUMBER 20040427
## TABLE 3 OF 5

**Flow Rate:** 2.3 l (0.6 gpm)
**Capacity:** dependent on the type and quantity of particulate matter present in the influent water; the need for maintenance may be indicated by a significant decrease in flow rate.

| Tested Contaminant | Influent Challenge (#/ml) |
|---|---|
| Cysts/Oocysts[1] | ≥ $5.0 \times 10^4$ |

**Other Conditions**: the contaminant reduction performance capabilities displayed for Table 3 of 5 were verified by testing conducted in accordance with NSF *International* Standard 53. To qualify for cyst/oocyst reduction, the device must reduce the influent challenge concentrations by ≥ 99.95% at each sample point.

**1** = the specific organisms covered under this testing protocol include cryptosporidium parvum, entamoeba histolytica, giardia lamblia and toxoplasma gondii
**#/ml** = particles or cysts per milliliter
**≥** = greater than or equal to

## HEALTH EFFECTING ORGANIC CONTAMINANT REDUCTION CAPABILITIES
## PRODUCT FILE NUMBER 20040427
## TABLE 4 OF 5

**Flow Rate:** 2.3 l (0.6 gpm)
**Capacity:** 606 l (160 gals.)

| Tested Contaminant | Influent Challenge (μg/l)[1] |
|---|---|
| Atrazine | 9.0 ± 10% |
| Benzene | 15.0 ± 10% |
| Lindane | 2.0 ± 10% |

**Other Conditions**: the contaminant reduction performance capabilities displayed for Table 4 of 5 were verified by testing conducted in accordance with NSF *International* Standard 53. To qualify for atrazine reduction, the device must reduce the influent challenge concentrations such that all effluent concentrations are ≤3.0 μg/l. To qualify for benzene reduction, the device must reduce the influent challenge concentrations such that all effluent concentrations are ≤ 5.0 μg/l. To qualify for lindane reduction, the device must reduce the influent challenge concentrations such that all effluent concentrations are ≤ 0.2 μg/l.

**1** = micrograms per liter (μg/l) are equivalent to parts per billion (ppb)
**±** = plus or minus
**≤** = less than or equal to

**HEALTH EFFECTING ORGANIC CONTAMINANT REDUCTION CAPABILITIES**
**PRODUCT FILE NUMBER 20040427**
**TABLE 5 OF 5**

**Flow Rate:** 2.3 lpm (0.6 gpm)
**Capacity:** 606 l (160 gals.)

| Tested Contaminant | Influent Challenge (µg/l)[1] |
|---|---|
| Alachlor | 50 |
| Atrazine | 100 |
| Benzene | 81 |
| Carbofuran | 190 |
| Carbon tetrachloride | 78 |
| Chlorobenzene | 77 |
| Chloropicrin | 15 |
| 2,4-D | 110 |
| Dibromochloropropane (DBCP) | 52 |
| o-Dichlorobenzene | 80 |
| p-Dichlorobenzene | 40 |
| 1,2-Dichloroethane | 88 |
| 1,1-Dichloroethylene | 83 |
| cis-1,2-Dichloroethylene | 170 |
| trans-1,2-Dichloroethylene | 86 |
| 1,2-Dichloropropane | 80 |
| cis-1,3-Dichloropropylene | 79 |
| Dinoseb | 170 |
| Endrin | 53 |
| Ethylbenzene | 88 |
| Ethylene dibromide (EDB) | 44 |
| **Haloacetonitriles (HAN):** | - |
| Bromochloroacetonitrile | 22 |
| Dibromoacetonitrile | 24 |
| Dichloroacetonitrile | 9.6 |
| Trichloroacetonitrile | 15 |
| **Haloketones (HK):** | - |
| 1,1-Dichloro-2-propanone | 7.2 |
| 1,1,1-Trichloro-2-propanone | 8.2 |
| Heptachlor (H-34, HEPTOX) | 80 |
| Heptachlor epoxide | 10.7 |
| Hexachlorobutadiene | 44 |
| Hexachlorocyclopentadiene | 60 |
| Lindane | 55 |
| Methoxychlor | 50 |
| Pentachlorophenol | 96 |
| Simazine | 120 |
| Styrene | 150 |
| 1,1,2,2-Tetrachloroethane | 81 |
| Tetrachloroethylene | 81 |
| Toluene | 78 |
| 2,4,5-TP (silvex) | 270 |
| Tribromoacetic acid | 42 |
| 1,2,4-Trichlorobenzene | 160 |
| 1,1,1-Trichloroethane | 84 |
| 1,1,2-Trichloroethane | 150 |
| Trichloroethylene | 180 |

**HEALTH EFFECTING ORGANIC CONTAMINANT REDUCTION CAPABILITIES**
**PRODUCT FILE NUMBER 20040427**
**TABLE 5 OF 5 (continued)**

| Tested Contaminant | Influent Challenge (μg/l)[1] |
|---|---|
| Trihalomethanes **(chloroform surrogate)** | 300 |
| Xylenes (total) | 70 |

**Other Conditions:** the contaminant reduction performance capabilities displayed for Table 5 of 5 were verified by testing conducted in accordance with NSF *International* Standard 53. To qualify for the reduction of the organic contaminants listed above, the device must reduce the influent challenge concentration of chloroform at 300 μg/l ± 10% at each sample point by a minimum of 95%.

**1** = micrograms per liter (μg/l) are equivalent to parts per billion (ppb)

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
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Safety and Buildings Division
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