MINNESOTA POLLUTION CONTROL AGENCY

520 Lafayette Road North | St. Paul, Minnesota 55155-4194 | 651-296-6300

800-657-3864 | Use your preferred relay service | info.pca@state.mn.us | Equal Opportunity Employer

January 9, 2025

Daniel Westrich
Bio-Microbics, Inc.
16002 W 110th St
Lenexa, KS 66219

RE: Product Registration Renewal – Notice of Proprietary Treatment Product Listing

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|---|---|
| Description: | Sewage Treatment System, Attached Growth |
| Manufacturer: | Bio-Microbics, Inc. |
| Product Name: | MicroFAST® (With and Without Disinfection) |
| Model Number: | MicroFAST 0.4, MicroFAST 0.5, MicroFAST 0.625, MicroFAST 0.75, MicroFAST 0.9, and MicroFAST 1.5 (Max Design Flow 400, 500, 625, 750, 900, and 1500 GPD per unit) |
| Product Listing: | Category A (Residential Sewage) |

Dear Anna Cline:

Thank you for your application for product renewal for the MicroFAST wastewater treatment product, which includes the following models: MicroFAST 0.4, MicroFAST 0.5; MicroFAST 0.625; MicroFAST 0.75; MicroFAST 0.9; and MicroFAST 1.5 (with and without Ultraviolet Light Disinfection).

In accordance with Minn. R. 7080 to 7083, the Minnesota Pollution Control Agency (MPCA) has reviewed Bio-Microbics' submitted materials requesting registration for Category A (residential) treatment product listing of the MicroFAST Model Series in this application. Based on the submitted documentation, the MPCA finds that the MicroFAST Model Series is eligible to be registered per Minn. R. 7083.4030 as meeting the following treatment levels:

- **Treatment Level A** ($CBOD_5$ of 15 mg/L, TSS of 15 mg/L, and fecal coliform of 1,000 colonies per 100 ml) with disinfection
- **Treatment Level B** ($CBOD_5$ of 25 mg/L, TSS of 30 mg/L, and fecal coliform of 10,000 colonies per 100 ml) with disinfection
- **Treatment Level A2** ($CBOD_5$ of 15 mg/L, TSS of 15 mg/L)
- **Treatment Level B2** ($CBOD_5$ of 25 mg/L, TSS of 30 mg/L)
- **Treatment Level C** ($CBOD_5$ of 125 mg/L, TSS of 60 mg/L and Oil & Grease of 25 mg/L)
- **Total Nitrogen** (TN of less than or equal to 20 mg/L)

The MicroFAST Model Series is registered with a design rated capacity of 400, 500, 625, 750, 900, and 1,500 gallons per day per unit, as shown in Table 1 and Table 2.

Subject to this determination, the MicroFAST Model Series, including the MicroFAST 0.4, MicroFAST 0.5, MicroFAST 0.625, MicroFAST 0.75, MicroFAST 0.9, and MicroFAST 1.5 will be placed on the List of Registered Subsurface Sewage Treatment System (SSTS) Products. The product information listed in this

Notice of Proprietary Product Listing will be maintained on the MPCA website and may not be altered by the manufacturer without permission by the MPCA.

**Table 1. MicroFAST Model Series with Salcor Ultraviolet (UV) Disinfection**

| Product Name Model | Treatment Process | Design Flow (gpd) | $BOD_5$ Removed (lbs/day) | Highest Treatment Level | Nutrient Removal* | Important Product Use Information |
|---|---|---|---|---|---|---|
| MicroFAST with one (1) Salcor 3G UV Disinfection Unit<br><br>Model 0.4 | Attached and Suspended Growth | 400 | 0.8 | A | TN | • Notice of Product Listing<br>o MPCA Letter<br>o Conditions of Registration<br>o Expiration Date<br><br>• MicroFAST Manual<br>o Submitted Drawings<br>o Known Limitations<br>o Installation<br>o Operation & Maintenance<br>o Owners Information<br>o Regulators Checklist<br>o Service Contract<br><br>• Management Plan<br><br>• Operating Permit Template |
| MicroFAST with one (1) Salcor 3G UV Disinfection Unit<br><br>Model 0.5 | Attached and Suspended Growth | 500 | 1.0 | A | TN | |
| MicroFAST with two (2) Salcor 3G UV Disinfection Units, in parallel<br><br>Model 0.625 | Attached and Suspended Growth | 625 | 1.25 | A | TN | |
| MicroFAST with two (2) Salcor 3G UV Disinfection Units, in parallel<br><br>Model 0.75 | Attached and Suspended Growth | 750 | 1.5 | A | TN | |
| MicroFAST with two (2) Salcor 3G UV Disinfection Units, in parallel<br><br>Model 0.9 | Attached and Suspended Growth | 900 | 2.0 | A | TN | |
| MicroFAST with three (3) Salcor 3G UV Disinfection Units, in parallel<br><br>Model 1.5 | Attached and Suspended Growth | 1500 | 3.2 | A | TN | |

* Third-party testing showed MicroFAST effluent achieved the Total Nitrogen [TN] level of 20 mg/L [mean TN = 17 mg/L with 55 percent removed]; $CBOD_5$ was 3 mg/L; TSS was 5 mg/L. Fecal coliform bacteria are expected to be less than 1,000 cfu/100mL with the use of the Salcor UV disinfection device(s). Total nitrogen removal is highly dependent upon BOD and TKN loading, adequate alkalinity, temperature and

toxicity; site specific alkalinity levels in the source water supply should be evaluated and homeowners should be well educated in order to achieve optimal total nitrogen reduction.

**Table 2. MicroFAST Model Series**

| Product Name Model | Treatment Process | Design Flow (gpd) | $BOD_5$ Removed (lbs/day) | Highest Treatment Level | Nutrient Removal* | Important Product Use Information |
|---|---|---|---|---|---|---|
| MicroFAST Model 0.4 | Attached and Suspended Growth | 400 | 0.8 | A2 | TN | • Notice of Product Listing<br>o MPCA Letter<br>o Conditions of Registration<br>o Expiration Date<br>• MicroFAST Manual<br>o Submitted Drawings<br>o Known Limitations<br>o Installation<br>o Operation & Maintenance<br>o Owners Information<br>o Regulators Checklist<br>o Service Contract<br>• Management Plan<br>• Operating Permit Template |
| MicroFAST Model 0.5 | Attached and Suspended Growth | 500 | 1.0 | A2 | TN | |
| MicroFAST Model 0.625 | Attached and Suspended Growth | 625 | 1.25 | A2 | TN | |
| MicroFAST Model 0.75 | Attached and Suspended Growth | 750 | 1.5 | A2 | TN | |
| MicroFAST Model 0.9 | Attached and Suspended Growth | 900 | 2.0 | A2 | TN | |
| MicroFAST Model 1.5 | Attached and Suspended Growth | 1500 | 3.2 | A2 | TN | |

* Third-party testing showed MicroFAST effluent achieved the Total Nitrogen [TN] level of 20 mg/L [mean TN = 17 mg/L TN with 55% removed]; $CBOD_5$ was 3 mg/L; TSS was 5 mg/L. Fecal coliform bacteria are expected to be greater than10,000 cfu/100mL without the use of the Salcor UV disinfection device. Total nitrogen removal is highly dependent upon BOD and TKN loading, adequate alkalinity, temperature and toxicity; site specific alkalinity levels in the source water supply should be evaluated and homeowners should be well educated in order to achieve optimal total nitrogen reduction.

The registration of the treatment products in Minnesota is contingent upon compliance with the following conditions:

1. Products must be used in compliance with the MPCA rules and the plans and design specifications provided. Any deviation from the plans and specifications shall not be permitted unless authorized by the National Sanitation Foundation (NSF) and, in writing, by the MPCA for registered use.

2. The manufacturer shall have readily accessible information, specific to a product's registered use in Minnesota, for designers, regulators, installers, system owners, service providers and other interested parties for the following items: (a) product manual; (b) design instructions; (c) installation instructions;( d) information regarding operation

and maintenance; (e) homeowner instructions; and (f) a list of representatives and manufacturer-certified service providers, if any, as required by Minn. R. 7083.4040 (H).

3. The design flows for the registered MicroFAST Model Series are as follows:

    - 400 gallons per day for the MicroFAST Model 0.4
    - 500 gallons per day for the MicroFAST Model 0.5
    - 625 gallons per day for the MicroFAST Model 0.625
    - 750 gallons per day for the MicroFAST Model 0.75
    - 900 gallons per day for the MicroFAST Model 0.9
    - 1500 gallons per day for the MicroFAST Model 1.5

4. Septic tank capacity for dwellings shall meet the manufacturer's size requirements consistent with NSF Environmental Verification testing of the product and sewage tank requirements contained in Minn. R. 7080.1900 to 7080.2020. Sewage tank(s) shall be designed to withstand the pressures to which it will be subject to. Tanks and all pipe penetrations, risers, and other connections to tanks shall be watertight.

5. Each system must be delivered with an installation manual and owner's manual for the MicroFAST Model Series (Model 0.4, Model 0.5, Model 0.625, Model 0.75, Model 0.9 and Model 1.5) and for the Salcor 3G UV disinfection unit(s) used in the system. Each component must be installed in accordance with the manufacturer's installation manual.

6. Bio-Microbics, Inc., along with the Intermediate Designer/Advanced Designer and Installer, are responsible to ensure that proper flow splitting devices are used in splitting flows to multiple Salcor 3G UV disinfection units. Flow splitting devices must meet the following criteria: (a) designed specifically and reliably to split wastewater flows; (b) accessible for on-going operation and maintenance; (c) monitored to determine flow rates; (d) adjustable after construction should settlement occur; and (e) have infinite or continuous adjustment features.

7. For the MicroFAST Model Series (Model 0.4, Model 0.5, Model 0.625, Model 0.75, Model 0.9 and Model 1.5), each MicroFAST treatment unit shall be equipped with a sufficient number of Salcor 3G UV disinfection units to achieve Treatment Levels A and B as follows:
   (1) MicroFAST 0.4 and 0.5 will require the use of one Salcor 3G UV disinfection unit; (2) MicroFAST 0.625 will require the use of two Salcor 3G UV disinfection units, in parallel; (3) MicroFAST 0.75 will require the use of two Salcor 3G UV disinfection units, in parallel; (4) MicroFAST 0.9 will require the use of two Salcor 3G UV disinfection units, in parallel; and (5) MicroFAST 1.5 will require the use of three Salcor 3G UV disinfection units, in parallel. Flow to each Salcor UV disinfection unit shall not exceed the rated capacity of 500 GPD to ensure adequate disinfection prior to soil dispersal.

8. All systems shall be designed and operated with (a) suitable alarm device(s) should either or both of the MicroFAST Model Series (Model 0.4, Model 0.5, Model 0.625, Model 0.75, Model 0.9 and Model 1.5) or the Salcor 3G UV disinfection units malfunction.

9. This treatment product is a Minnesota-registered product for Type IV systems. For Treatment Levels A, A2, B, B2 and C, effluent loading rates to the soil, method of distribution, and vertical separation requirements shall meet the minimum requirements contained in Minn. R. 7080.2150 to 7080.2350. The effluent, following treatment in the MicroFAST Model Series, is required to be uniformly distributed to the soil for final treatment and dispersal.

10. Systems may only be designated as Type IV systems when designed and installed per the drawings submitted as part of the initial Application for Product Registration, dated August 27, 2008, and subsequent documents submitted prior to this registration.

11. As a Type IV system, the system must be constructed and operated under the required local permits.

12. The level of maintenance required for the MicroFAST Model Series and Salcor 3G UV disinfection components shall be as specified in the products Operation and Maintenance Manual. This includes, but is not limited to, annual inspections and maintenance. Salcor 3G UV disinfection units shall be serviced at six month intervals. The Salcor UV lamp shall be replaced at least once every two (2) years to ensure proper disinfection or more often as needed, to achieve the required fecal coliform bacteria treatment level.

13. For systems registered as meeting the requirements for Treatment Levels A or B, testing for fecal coliform bacteria is required per the local operating permits when reduced vertical soil separation is employed.

14. As specified in the Owner's Manual, limitations of the product are identified. The manufacturer is responsible to provide a listing of other known limitations, made available on the company's website or other means.

15. Training shall be provided to MPCA-licensed Subsurface Sewage Treatment System practitioners before designing, installing, or providing service to MicroFAST Model Series (Model 0.4, Model 0.5, Model 0.625, Model 0.75, Model 0.9 and Model 1.5) treatment systems and to Salcor 3G UV disinfection devices registered for use in Minnesota.

16. During the period of product registration and as part of the renewal process, systems using registered treatment products are subject to an audit by the MPCA.

**Please be advised that this registration expires December 31, 2026**. Manufacturers desiring to continue product registration beyond this date must obtain MPCA renewal according to the requirements in Minn. R. 7083.4040 (E). If the product has changed or is retested according to the protocol required for registration, renewal shall be based on the most recent test results. If the MPCA finds the product has changed in any way that may affect performance, it may not be renewed and must meet the requirements for initial registration.

The MPCA is in no way endorsing these products or any advertising, and is not responsible for any situation which may result from its use or misuse. The MPCA is not liable for any product failure and

these statements are not intended and cannot be relied upon to establish any substantive or procedural rights with the state of Minnesota or the MPCA, either express or implied, that can be enforced in litigation or any administrative proceeding.
If you have any questions, please contact Wendy Chirpich at 507-344-5248 or by email at wendy.chirpich@state.mn.us.

Sincerely,

Wendy Chirpich

*This document has been electronically signed.*

Wendy Chirpich
Environmental Specialist
Municipal Division

WC:lm