MINNESOTA POLLUTION CONTROL AGENCY

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January 1, 2025

Daniel Westrich, Manager of Regulatory Affairs
BioMicrobics, Inc.
16002 West 110th Street
Lenexa, KS 66219

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

Description:	Sewage Treatment System, Attached Growth
Manufacturer:	BioMicrobics, Inc.
Product Name:	MicroFAST® (with and without chlorine disinfection)
Model Number:	MicroFAST 3.0, MicroFAST 4.5, and MicroFAST 9.0 (Max Design Flow 3000, 4500, and 9000 GPD per unit)
Product Listing:	Category A (residential sewage)

Dear Daniel Westrich:

Thank you for your application for product renewal for BioMicrobics' MicroFAST Model Series, including the following models: MicroFAST 3.0, MicroFAST 4.5, and MicroFAST 9.0. This renewal is conditional based on the results of a comprehensive review of BioMicrobics' manuals submitted for initial registration of the product.

In accordance with Minn. R. 7080 to 7083, the MPCA has reviewed BioMicrobics' 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 A2** ($cBOD_5$ of 15 mg/L, TSS of 15 mg/L)
- **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 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 3000, 4500, and 9000 gallons per day per unit, as shown in Table 1, Table 2, and Table 3.

Subject to this determination, the MicroFAST Model Series 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 or misrepresented by the manufacturer or any other person without permission by the MPCA.

Table 1. MicroFAST Model Series with Chlorine Disinfection (and Dechlorination)

Product Name Model	Treatment Process	Design Flow (gpd)	BOD_5 Removed (lbs/day)	Highest Treatment Level	Nutrient Removal	Important Product Use Information
MicroFAST with Norweco Bio-dynamic tablet feeder, LF 3000, specified chlorine and dechlorination tablets, and minimum 250 gallon chlorine contact tank Model 3.0	Attached and Suspended Growth	3000	6.0	A	TN	• Notice of Product Listing o MPCA Letter o Conditions of Registration o Expiration Date • MicroFAST Manual o Submitted Drawings o Known Limitations o Installation o Operation & Maintenance o Owners Information o Regulators Checklist o Service Contract • Management Plan for MicroFAST Unit • Management Plan for Chlorination/ Dechlorination Devices • Operating Permit Template
MicroFAST with Norweco Bio-dynamic tablet feeder, LF 3000, specified chlorine and dechlorination tablets, and minimum 375 gallon chlorine contact tank Model 4.5	Attached and Suspended Growth	4500	9.0	A	TN	
MicroFAST with Norweco Bio-dynamic tablet feeder, LF 4000, specified chlorine and dechlorination tablets, and minimum 750 gallon chlorine contact tank Model 9.0	Attached and Suspended Growth	9000	18.0	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 chlorine disinfection device. Dechlorination is also required. 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 with Chlorine Disinfection (and Dechlorination).

Product Name Model	Treatment Process	Design Flow (gpd)	BOD5 Removed (lbs/day)	Highest Treatment Level	Nutrient Removal*	Important Product Use Information
MicroFAST Norweco Bio-dynamic tablet feeder, LF 2000, specified chlorine and dechlorination tablets, and minimum 250 gallon chlorine contact tank Model 3.0	Attached and Suspended Growth	3000	6.0	B	TN	• Notice of Product Listing o MPCA Letter o Conditions of Registration o Expiration Date • MicroFAST Manual o Submitted Drawings o Known Limitations o Installation o Operation & Maintenance o Owners Information o Regulators Checklist o Service Contract • Management Plan for MicroFAST Unit • Management Plan for Chlorination/ Dechlorination Devices • Operating Permit Template
MicroFAST Norweco Bio-dynamic tablet feeder, LF 2000, specified chlorine and dechlorination tablets, and minimum 375 gallon chlorine contact tank Model 4.5	Attached and Suspended Growth	4500	9.0	B	TN	
MicroFAST Norweco Bio-dynamic tablet feeder, LF 4000, specified chlorine and dechlorination tablets, and minimum 750 gallon chlorine contact tank Model 9.0	Attached and Suspended Growth	9000	18.0	B	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]; CBOD5 was 3 mg/L; TSS was 5 mg/L. Fecal coliform bacteria are expected to be less than 10,000 cfu/100mL with the use of the chlorine disinfection device. Dechlorination is also required. 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 3. MicroFAST Model Series without disinfection.

Product Name Model	Treatment Process	Design Flow (gpd)	BOD_5 Removed (lbs/day)	Highest Treatment Level	Nutrient Removal*	Important Product Use Information
MicroFAST Model 3.0	Attached and Suspended Growth	3000	6.0	A2	TN	• Notice of Product Listing o MPCA Letter o Conditions of Registration o Expiration Date • MicroFAST Manual o Submitted Drawings o Known Limitations o Installation o Operation & Maintenance o Owners Information o Regulators Checklist o Service Contract • Management Plan • Operating Permit Template
MicroFAST Model 4.5	Attached and Suspended Growth	4500	9.0	A2	TN	
MicroFAST Model 9.0	Attached and Suspended Growth	9000	18.0	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 percent removed]; $CBOD_5$ was 3 mg/L; TSS was 5 mg/L. Fecal coliform bacteria are expected to be greater than 10,000 cfu/100mL without the use of disinfection devices. 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) 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:

    - 3000 gallons per day for the MicroFAST Model 3.0
    - 4500 gallons per day for the MicroFAST Model 4.5
    - 9000 gallons per day for the MicroFAST Model 9.0

4. Septic tank capacity for dwellings shall meet the manufacturer's size requirements consistent with National Sanitation Foundation (NSF) Standard 40 and 245 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 3.0, Model 4.5, and Model 9.0) and for the disinfection components using the Norweco Bio-Dynamic tablet feeder, the required tablets for chlorination and dechlorination, and the chlorine contact tank used in each system. Each component must be installed in accordance with the manufacturer's installation manual.

6. BioMicrobics, Inc., along with the Advanced Designer and Installer, are responsible to ensure that proper flow splitting devices are used to split flows when flow splitting is needed. 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. All systems shall be designed and operated with (a) suitable alarm device(s) that monitors the MicroFAST Model Series (Model 3.0, Model 4.5, and Model 9.0) and the Norweco Bio-Dynamic chlorine tablet feeders, if disinfection is required, should any of the system components malfunction.

8. The treatment products contained in this notice of product registration are considered a Minnesota-registered product for Type IV systems. The effluent, following treatment in the MicroFAST Model Series, is required to be uniformly distributed to the soil for final treatment and dispersal.

9. When the MicroFAST Model Series (Model 3.0, Model 4.5, and Model 9.0) are used in systems to achieve Treatment Level A and Treatment Level B, effluent loading rates to the soil, method of distribution, and vertical separation requirements shall meet the minimum requirements contained in Minn. R. 7080.2350 for flows less than 5000 GPD. For flows greater than 5000 GPD, final treatment and dispersal must also meet 7081.0270, which requires a minimum two (2) feet of vertical separation during operation, after accounting for groundwater mounding.

10. When the MicroFAST Model Series (Model 3.0, Model 4.5, and Model 9.0) are used in systems to achieve Treatment Levels A2, 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. 7080.2350 for flows less than 5000 GPD.

    For flows greater than 5000 GPD, final treatment and dispersal must also met 7081.0270, which require a minimum three (3) feet vertical separation during operation, after accounting for groundwater mounding.

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

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

13. The level of maintenance required for the MicroFAST Model Series and the Norweco Bio-Dynamic Tablet Feeders for the chlorination and dechlorination components shall be as specified in the products Operation and Maintenance Manual. This includes, but is not limited to, inspections and maintenance at six month intervals, or more frequently, as required for Norweco tablet replacement.

14. Specific items related to chlorination and dechlorination include the following:

    - The Norweco Blue Crystal Residential Disinfecting Tablets (i.e. Bio-Max Dechlorination Tablets) shall be used in all systems designed to achieve Treatment Level A.

    - The Norweco Bio-Sanitizer Residential Disinfecting Tablets (i.e. Bio-Max Dechlorination Tablets) shall also be used in all systems designed to achieve Treatment Level B.

    - Each system must be regularly supplied with the proper chlorination and dechlorination tablets. Routine monitoring is also required to substantiate system disinfection performance.

    - All tablet chlorinator systems must be followed by a contact tank of the required size with a minimum 30 minute detention time, at average daily flow, to meet the required treatment level.

    - Chlorine contact tank design/geometry must be configured to assure the required residence time in the tank is achieved. Consideration must be considered for proper baffling and inlet pipe configuration so that the majority of the wastewater follows a flow path that assures proper contact time for disinfection while minimizing short-circuiting.

    - The tablet feeders shall be checked at regular service intervals, based on tablet consumption, for proper operation of the devices.

    - The following schedule was identified by the manufacturer for refilling tablet feeders for chlorine disinfection to achieve Treatment Level A and Treatment Level B and for refilling tablet feeders to ensure adequate dechlorination prior to soil dispersal:

Treatment Level A
(1,000 cfu/100mL)

Daily Flow (gpd)	Average Flow (gpm)	Tablet Feeder Model	Days Between Bio-Sanitizer Disinfecting Tablet Refill	Days Between Bio-Max Dechlorination Tablet Refill
3000	2.08	LF 3000	69	98
4500	3.12	LF 3000	58	65
9000	6.25	LF 4000	58	65

Treatment Level B
(10,000 cfu/100mL)

Daily Flow (gpd)	Average Flow (gpm)	Tablet Feeder Model	Days Between Bio-Sanitizer Disinfecting Tablet Refill	Days Between Bio-Max Dechlorination Tablet Refill
3000	2.08	LF 2000	114	98
4500	3.12	LF 2000	76	65
9000	6.25	LF 4000	76	65

15. The chlorination and dechlorination disinfection components shall be monitored at regular service intervals for the following parameters: 1) total residual chlorine shall be greater than one (1) mg/L in the chlorine contact tank and 2) total residual chlorine shall be less than 0.1 mg/L after the dechlorination component.

16. For systems registered as meeting the requirements for Treatment Level A and B, testing for fecal coliform bacteria is also required during the first year for each local operating permit, when reduced vertical soil separation is employed.

17. 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.

18. Training shall be provided to MPCA-licensed Subsurface Sewage Treatment System practitioners before designing, installing, or providing service to MicroFAST Model Series (Model 3.0, Model 4.5, and Model 9.0) treatment systems and to the Norweco chlorination and dechlorination disinfection components registered for use in Minnesota.

19. 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, 2027. 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