

January 31, 2023

Charlotte Peele, Regulatory Affairs/ Applications Specialist
BioMicrobics, Inc.
16002 West 110th Street
Lenexa, KS 66219

RE: Product Renewal #2 – Notice of Initial Proprietary Treatment Product Listing
Description: Sewage Treatment System, Membrane Bioreactor
Manufacturer: BioMicrobics, Inc.
Product Name: BioBarrier[®] MBR
Model Number: Models 0.5, 1.0, and 1.5 (design flows of 500, 1,000, and 1,500 gallons per day, respectively)
Product Listing: Category A (residential sewage)

Dear Charlotte Peele:

Thank you for your application for product registration for the BioBarrier[®] MBR. The system is a biological system that uses a membrane bioreactor for wastewater treatment.

In accordance with Minn. R. ch. 7080 through 7083, the MPCA has reviewed BioMicrobics, Inc. submitted materials requesting registration for Category A (residential) treatment product listing of the BioBarrier[®] MBR renewal application dated November 6, 2020. Based on the submitted documentation, the MPCA finds that the BioBarrier[®] MBR is eligible to be registered per Minn. R. ch. 7083.4030 as meeting the following treatment levels:

- **Treatment Level A** (cBOD₅ of 15 mg/L, TSS of 15 mg/L, and FC of 1,000 CFU/100ml)
- **Treatment Level A2** (cBOD₅ of 15 mg/L, TSS of 15 mg/L)
- **Treatment Level B** (cBOD₅ of 25 mg/L, TSS of 30 mg/L, and FC of 10,000 CFU/100ml)
- **Treatment Level B2** (cBOD₅ of 25 mg/L, TSS of 30 mg/L)
- **Treatment Level C** (cBOD₅ 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 BioBarrier[®] MBR model series is registered for systems with a design rated capacity from 500 gallons per day (gpd) to 1,500 gpd as shown in Table 1.

Subject to this determination, the BioBarrier[®] MBR 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 or any other person without permission by the MPCA.

Table 1. BioBarrier® MBR for up to Treatment Level A and for effluent Total Nitrogen (TN) of less than 10mg/L*.

Product Name Model	Treatment Process	Design Flow (gpd)	BOD ₅ Removed (lbs/day)	Highest Treatment Level	Nutrient Removal*	Product Information
BioBarrier® MBR Model 0.5	Membrane Bioreactor	500	0.92	A	TN	<ul style="list-style-type: none"> • Notice of Product Listing • BioBarrier® MBR Manuals <ul style="list-style-type: none"> ○ Submitted Drawings ○ Installation ○ O&M ○ Owner Information • Management Plan • Operating Permit Template
BioBarrier® MBR Model 1.0	Membrane Bioreactor	1,000	1.84	A	TN	
BioBarrier® MBR Model 1.5	Membrane Bioreactor	1,500	2.76	A	TN	

*Third-party testing showed BioBarrier® MBR effluent achieved the Total Nitrogen (TN) level of 10 mg/L [mean TN=9 mg/L with 79 percent removed]; CBOD₅ was <2 mg/L; TSS was <2 mg/L. Total nitrogen removal is highly dependent upon BOD and TKN loading, adequate alkalinity, temperature and toxicity; site specific alkalinity levels in the source water 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 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. ch. 7083.4040 (H).

3. Septic tank capacity for dwellings shall meet the manufacturer’s minimum and maximum size requirements. All concrete, poly, fiberglass, and other registered tanks that meet Minn. R. ch. 7080.1900 to 7080.2020 can be used for this product. The tank(s) shall be designed to withstand the pressures to which it will be subject to. The tank(s) and all pipe penetrations, risers, and other connections to the tank shall be watertight. See additional tank requirements in Table 2.

Table 2. BioBarrier® MBR Additional Tank Requirements

Product Name Model	Operating Water Level (inches)	Minimum Tank Height (inches)	Reactor Volume* (gallons)
BioBarrier® MBR Model 0.5	38	69	900 – 1,500
BioBarrier® MBR Model 1.0	38	69	1,800 – 3,000
BioBarrier® MBR Model 1.5	38	69	3,700 – 4,500

4. Each system must be delivered with an installation manual and owner’s manual for the BioBarrier® MBR System. Each component must be installed in accordance with the manufacturer’s installation manual.
5. BioMicrobics Inc., along with the Intermediate Designer/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.
6. All systems shall be designed and operated with (a) suitable alarm device(s) that monitors the BioBarrier® MBR and its components, should any of the system components malfunction.
7. The treatment product and associated models contained in this notice of product registration are considered a Minnesota-registered product for Type IV systems. The effluent, following treatment in the BioBarrier® MBR, is required to be uniformly distributed to the soil for final treatment and dispersal.
8. When the BioBarrier® MBR is used in systems to achieve 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. ch. 7080.2350.

9. 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 April 18, 2019, and subsequent documents submitted prior to this registration.
10. As a Type IV system, the system must be constructed and operated under the required local permits.
11. The level of maintenance required for the BioBarrier® MBR model series 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 by the manufacturer.
12. 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 manufacturer's website or other means.
13. Training shall be provided to MPCA-licensed Subsurface Sewage Treatment System practitioners before designing, installing, or providing service to BioBarrier® MBR products registered for use in Minnesota.
14. 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, 2025. Manufacturers desiring to continue product registration beyond this date must obtain MPCA renewal according to the requirements in Minn. R. ch. 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 Freya Linnett at 651-757-2724 or by email at freya.linnett@state.mn.us.

Sincerely,



This document has been electronically signed.

Freya Linnett
Environmental Specialist
Municipal Division

FL:map

cc: File