BIO MICROBICS®

Established in 1996 to focus on water ecology and technology innovation through three companies, BioMicrobics, SeptiTech, and Scienco/FAST. At the forefront of sustainable design and with more than 80,000 installed systems in over 80 countries, these systems meet the highest performance standards for treatment of water, greywater, wastewater, stormwater, and more! BioMicrobics has developed a number of innovative products dealing with the treatment of water – where infrastructure and drainage are not available. Our systems are designed and engineered with sustainability and user practicality in mind.

BioBarrier® MEMBRANE BIOREACTOR

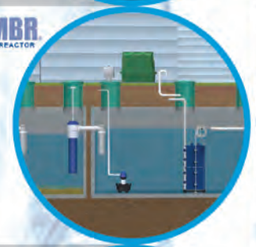
Single-Family & Residential Systems

The BioBarrier® MBR is NSF/ANSI Standard 40 (Class 1), 245 for Nitrogen reduction, and 350 for Water Reuse (the first to receive this distinction!), as well EN12566-3 certified to provide new construction and renovation/repair projects in "water-constrained areas" with new opportunities for water recycling.

BioBarrier® MEMBRANE BIOREACTOR / BioBarrier® HSMBR® HIGH STRENGTH MEMBRANE BIOREACTOR

Small & Large Commercial Systems

These advanced Membrane BioReactor (MBR) and High-Strength Membrane Bioreactor (HSMBR®) systems are designed specifically treat all the wastewater (blackwater and greywater) generated from small to larger property applications that far exceed effluent requirements.



BioBarrier® HSMBR® HIGH STRENGTH MEMBRANE BIOREACTOR

Multi-Family & Community Systems

There are a lot of factors, from the type of wastewater generated to the amount of flow expected and geographical terrain situations are taken into consideration. BioBarrier® HSMBR® systems can be applied to large office buildings, wineries and food processing factories, among other enterprises.

Often, BioMicrobics Systems are installed in below ground, locally-sourced tanks.

"We selected the BioBarrier® MBR based on its competitive cost & projected effluent quality, including our particular need to bring total nitrogen to below drinking water standards in the effluent."
–Dr. James Englehardt, UM, Chief Investigator for NET-ZERO Water Dorm

INNOVATIVE ONSITE WASTEWATER PRODUCTS

BIO MICROBICS®
BETTER WATER. BETTER WORLD.™
16002 West 110th St. • Lenexa, KS 66219 USA
1-800-753-3278 • ph: 1-913-422-0707 • f: 1-913-422-0808
www.biomicrobics.com • sales@biomicrobics.com

SeptiTech®
a subsidiary of BioMicrobics, Inc.
69 Holland Street • Lewiston, ME 04240 USA
1-800-318-7967 • ph: 1-207-333-6940 • f: 1-207-333-6944
www.septitech.com • info@septitech.com

SCIENCO/FAST®
a subsidiary of BioMicrobics, Inc.
12977 Maurer Indust'l Dr • Sunset Hills, MO 63127 USA
1-800-652-4539 • ph: 1-314-756-9300 • f: 1-314-756-9306
www.sciencofast.com • solutions@sciencofast.com

www.biomicrobics.com

BioBarrier® MEMBRANE BIOREACTOR

Advanced Wastewater Treatment with Ultrafiltration Processes

NSF/ANSI 350 Certified for Water Reuse

Reliable, Proven, Long-Term Performance with Low Maintenance

AWARD-WINNING INTEGRATED WATER TECHNOLOGY

INDUSTRY LEADING WATER RECYCLING TECHNOLOGY
RESIDENTIAL • COMMERCIAL • COMMUNITY

BETTER WATER. BETTER WORLD.™

www.biomicrobics.com

BioBarrier®
MEMBRANE BIOREACTOR

The rise in demand for sustainable technologies to the world's water needs, green-building incentives, changes in regulations, water shortages, and the rising cost of water have all become principal drivers towards sustainable solutions. MBR module systems replace the traditional clarifier, sand filter and disinfection processes used in most conventional wastewater treatment processes by removing the total suspended solids with UF/MF (ultrafiltration/ microfiltration) membranes.

While conventional treatment processes focus on the degradation of the waste and nutrients (i.e. Nitrogen and Phosphorous), the membranes physically separate much smaller microorganisms and contaminants that create turbidity. The membrane modules are submerged in a biological tank or side streams tank, with the water being drawn through the membranes under vacuum, leaving the suspended biomass material in the biological aeration tank. The MBR systems produce consistent effluent quality even in varying influent conditions

Install BioBarrier® MBRs directly in locally-sourced, water-tight tanks; the above ground blower can be installed up to 100 ft [30.5 m] away!

Engineered to fit most residential (small to large) and commercial applications, the BioBarrier treats the water to 99.9% clean of contaminants. These pre-engineered, package plants utilizing the MBR technology will achieve better treatment and is by far the most effective for removing pollutants from the wastewater.

- BioBarrier® HSMBR® (High Strength Membrane BioReactors) larger commercial (restaurants, hotels/resorts, wineries, breweries, and other specialty applications) systems to achieve higher water quality standards.
- BioBarrier® GWMBR™ (Grey-Water Only) treatment and reuse for greywater sources (i.e. sinks, showers, washing machines, and other non-blackwater sources).
- BioBarrier® MarineMBR™ is ideal for total blackwater/greywater sources and water reuse onboard boats, ships, workboats, yachts, ferries, and more!

HOW IT WORKS!

1. In the primary settling zone, a SaniTEE® device is used to prevent large solids from entering the treatment zone.
2. A remote, above-ground blower introduces air (oxygen) into the treatment module to facilitate a robust circulation and aeration of wastewater.
3. Once inside the treatment tank, suspended treatment occurs. Optional LIXOR® System can be used for extra aeration for higher than normal BOD concentrations.
4. Immersed in the treatment tank, the BioBarrier® module(s) and air grid(s) create an upward flow between membrane plates providing vigorous scouring action.
5. Water passes through the membranes for microfiltration and ultrafiltration processes.
6. Clear, odorless, treated water exits the system.

BioBarrier MEMBRANE BIOREACTOR

See also -N (higher Total Nitrogen Reduction) versions are available. Consult factory for more information.

NSF/ANSI Standard 40 class 1, 245 (nitrogen reduction), 350 class R (water reuse) certified systems establish material, design, construction and performance requirements wastewater treatment systems:

*Class R Single-family residential dwellings,

*Class C Multi-family units & commercial facilities

EN-12566-3 Packaged wastewater treatment plants for up to 50 people, tested conform the EU Norm by PIA with the percentage reduction of influent pollutants. During the 38-week documented test performance of the following levels were acheived: COD reduction 97.2%, BOD reduction 98.9%, Suspended Solids reduction 99.8%, NH4-N reduction 96.2%, fecal coliforms 99.9%.

UNIT	MAXIMUM TREATMENT CAPACITY* Volume/Module	~People: USA	International
0.5 (-N)	500 GPD (1800 LPD)	1 - 8	1 - 10
1.0 (-N)	1000 GPD (3400 LPD)	1 - 16	1 - 20
1.5 (-N)	1500 GPD (5500 LPD)	6 - 24	10-30

Note: MBR module capacities are best rated based on biological oxygen demand (BOD), hydraulic and other project-specific considerations. Actual capacity may vary with local conditions and performance goals.

BioBarrier MEMBRANE BIOREACTOR / BioBarrier HSMBR HIGH STRENGTH MEMBRANE BIOREACTOR

See also -N (higher Total Nitrogen Reduction) versions are available. Consult factory for more information.

UNIT	MAXIMUM TREATMENT CAPACITY*	
2.0 (-N)	2000 GPD (7.5 m^3/D)	Consult Factory
2.5 (-N)	2500 GPD (9.4 m^3/D)	Consult Factory
3.0 (-N)	3000 GPD (11.3 m^3/D)	Consult Factory
HSMBR® 1.5 (-N)	1500 GPD (5.5 m^3/D)	Consult Factory
HSMBR® 3.0 (-N)	3000 GPD (11.3 m^3/D)	Consult Factory
HSMBR® 4.5 (-N)	4500 GPD (17 m^3/D)	Consult Factory
HSMBR® 6.0 (-N)	6000 GPD (22.7 m^3/D)	Consult Factory
HSMBR® 9.0 (-N)	9000 GPD (34 m^3/D)	Consult Factory

For additional flows larger than 9000 GPD [34 m^3/D] or unusual applications requiring other treatment levels, please consult factory.

*Treatment capacity: As a "guideline" for suggested use, the individual MBR module capacities are rated based on biological oxygen demand (BOD), hydraulic load and other project-specific considerations. Only residential domestic strength applications may be designed as total number of people per module. Actual capacity may vary with local requirements, conditions and performance goals.

Electrical Options: Electrical components are available to meet all worldwide electrical specifications (volt/phase/frequency). See product drawing(s) for options and more information.

BioBarrier MEMBRANE BIOREACTOR — SUMMARY OF AVERAGE INFLUENT AND EFFLUENT OF THE MBR BIOBARRIER 0.5 SYSTEM

Parameters	Influent	Effluent
Flow, gpd	455	455
BOD, mg/L	200	<5
TSS, mg/L	180	<2
COD, mg/L	480	16
TKN, mg/L	61	1.4
Total Nitrogen, mg/L	61	5.5
Q-NH_3, mg/L	4.2	0.5
Liquid Temperature, °C	7 - 31	8 - 31
No. of days in Operation	375	375

For the initial (start-up) mixed liquor suspended solids (MLSS) concentration of the system was less than 300 mg/L, the MLSS concentration allowed building up to as high as 12,000 mg/L, before the sludge was wasted from the system. It took about eight (8) months before sludge wasting was required.

Nearly 95% of the sludge was wasted; the remaining 5% of solids was used as microbial seed for the biological process.

BioMicrobics wastewater & greywater treatment systems are award-winning "integrated water strategy" for the rural/ urban environment. As a popular alternative to onsite septic systems, the technologies are tested and certified by 3rd-party programs. The systems allow long-term operational performance with easy and low-cost maintenance.