

The background of the slide is a collage. At the top, there's a close-up of a circular opening in a ceiling with a complex network of pipes and cables. Below this, a green banner contains the 'BioBarrier' logo, which includes a stylized building icon. The main body of the slide is split: the left side features a graphic of a globe being held by two hands and surrounded by a large splash of water, while the right side shows a large, industrial-looking blue machine with various pipes and valves.

BioBarrier

MEMBRANE BIOREACTOR

Industry Leading Water Recycling Technology for Non-Potable Applications
Residential • Community • Commercial

BIO MICROBICS

BETTER WATER. BETTER WORLD.®



BioBarrier[®]

MEMBRANE BIOREACTOR

Single-Family & Residential Systems

BioBarrier[®] Membrane BioReactor (MBR): These advanced MBR systems are designed specifically treat all the wastewater (blackwater and greywater) generated onsite from single-family homes to other small-flow applications that far exceed effluent requirements. NSF/ANSI Standard 350 certified for Water Reuse (the first to receive this distinction), this provides new construction and renovation/repair projects in "water-constrained areas" with new opportunities for water recycling.



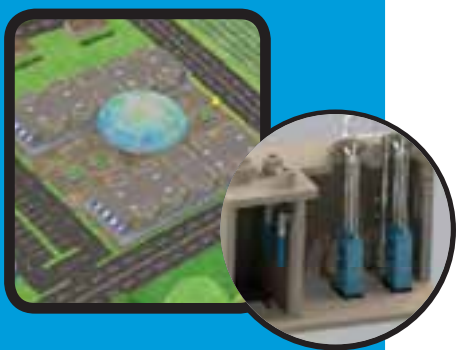
Multi-Family & Community Systems

BioBarrier[®] HSMBR[®] (High Strength Membrane BioReactor): Exceeding typical treatment effluent requirements of the local regulations, our multi-family FAST[®] systems provide small communities, sub-divisions, apartment dwellings, and other residential developments with highly treated effluent to provide opportunities for total wastewater recycling. An increase in property value is guaranteed with less aesthetic disturbance of property value due to above ground system components.



Small & Large Commercial Systems

BioBarrier[®] HSMBR[®]: Offering versatility and consistent high performance for commercial properties with kitchens and cafeterias, the BioBarrier[®] HSMBR[®] produces high-quality effluent specifically designed for water reuse applications.



Mighty Mike

***Mighty Tough
on Cleaning!***

Use Mighty Mike[®] environmentally-friendly Products!
Call 1-866-652-4539 or email solutions@sciencofast.com



ONSITE BLACKWATER/GREYWATER WATER RECYCLING SYSTEMS



The BioBarrier® MBR (Membrane BioReactors) and BioBarrier® HSMBR® (High Strength Membrane BioReactors) systems help to conserve water by providing an alternative way to treat and reuse all wastewater generated on the property.

Meeting the increasingly stringent needs of specialized residential and commercial applications, the BioBarrier MBR System is the only system needed for total onsite treatment of blackwater (toilets, kitchen sink and dishwashers) and greywater (lavatories, showers, laundry, drains, etc.).

Why a BioBarrier® MBR?

As the first wastewater recycling system to be certified NSF/ANSI Standard 350 for water reuse, the BioBarrier MBR is effective and proven to remove Fecal Coliform, E. Coli, and other harmful pathogens from greywater and blackwater, in addition to being NSF/ANSI Standard 245 certified for Nitrogen Removal.

Uniquely suited for water reuse applications, the BioBarrier allows for water to be recycled for internal uses (i.e. toilet flushing, outdoor landscape irrigation, etc.), reducing potable water use usually by over 40% for an average home!

RESIDENTIAL

- Single-family homes
- Multi-Family Properties
- Apartment Complexes

COMMERCIAL

- Schools/Universities
- RV/Mobile Home Parks
- Country Club/Golf Courses
- Restaurants/Cafes/Pubs
- Office/Business Parks
- Resort Areas/Hotels
- Shopping Centers/Food Courts
- Military Posts/Army Barracks
- Guard/Police/Fire Stations
- Recreational Facilities
- Highway/Motorways Rest Areas
- Power Stations
- Laundries
- Wineries/Farmsteads
- Supermarkets/Grocery Stores
- Food Packaging Plants
- Beverage Facilities

...and more!

BioBarrier HSMBR
HIGH STRENGTH MEMBRANE BIOREACTOR

BioBarrier
MEMBRANE BIOREACTOR



SIMPLE, LOW-COST, ROBUST SOLUTION

BioBarrier MEMBRANE BIOREACTOR	Maximum Treatment Capacity			# of Modules / Module Footprint	Module(s) Shipping Weight***	
	Volume per System	USA-rated systems People per System	EU-rated systems People per System		Pounds	Metric
BioBarrier® MBR 0.5*	500 gpd (1892 lpd)	1-8	1-10	(1) = 21" (53 cm) L x 14" (36 cm) W	36 lbs	16 kg
BioBarrier® MBR 1.0*	1000 gpd (3487 lpd)	1-16	1-20	(2) X 21" (53 cm) L x 14" (36 cm) W	72 lbs	33 kg
BioBarrier® MBR 1.5*	1500 gpd (5675 lpd)	6-24	10-30	(3) X 21" (53 cm) L x 14" (36 cm) W	108 lbs	49 kg
BioBarrier® MBR 2.0**	2000 gpd (7571 lpd)	18-32	25-40	(4) X 21" (53 cm) L x 14" (36 cm) W	144 lbs	65 kg
BioBarrier® MBR 2.5**	2500 gpd (9464 lpd)	25-40	35-50	(5) X 21" (53 cm) L x 14" (36 cm) W	180 lbs	82 kg
BioBarrier® MBR 3.0**	3000 gpd (11350 lpd)	35-48	45-60	(6) X 21" (53 cm) L x 14" (36 cm) W	192 lbs	87 kg

For larger applications > 3000 GPD (11350 lpd), a versatile design BioBarrier® can be used in parallel for additional flow and level of treatment.

BioBarrier HSMBR HIGHESTRENGTH MEMBRANE BIOREACTOR	Maximum Treatment Capacity		# of Modules / Module Footprint	Module(s) Shipping Weight***	
	Volume Per System	People Per System		Pounds	Metric
BioBarrier® HSMBR® 1.5*	1500 gpd (5675 lpd)	Consult Factory	Module dimensions/ weight can be provided for shipping specifications.	144 lbs	65 kg
BioBarrier® HSMBR® 3.0**	3000 gpd (11350 lpd)	Consult Factory		288 lbs	131 kg
BioBarrier® HSMBR® 4.5**	4500 gpd (17034 lpd)	Consult Factory		432 lbs	196 kg
BioBarrier® HSMBR® 6.0**	6000 gpd (22712 lpd)	Consult Factory		648 lbs	294 kg
BioBarrier® HSMBR® 9.0**	9000 gpd (34069 lpd)	Consult Factory		864 lbs	392 kg

For larger applications >9000 GPD (34069 lpd), the BioBarrier® HSMBR®'s versatile design can be used in parallel for additional flow and treatment levels.

NSF/ANSI Standard 350 & 350-1 establish material, design, construction and performance requirements for onsite residential and commercial water reuse treatment systems:

***Class R** Single family residential dwellings, *NSF/ANSI Standard 40 class 1, NSF/ANSI Standard 245 (nitrogen reduction), NSF/ANSI Standard 350 class R (water reuse) certified systems. Treatment Capacity / Volume / People per module are given as guidelines for suggested use.

****Class C** Multi-family residential units and commercial facilities

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

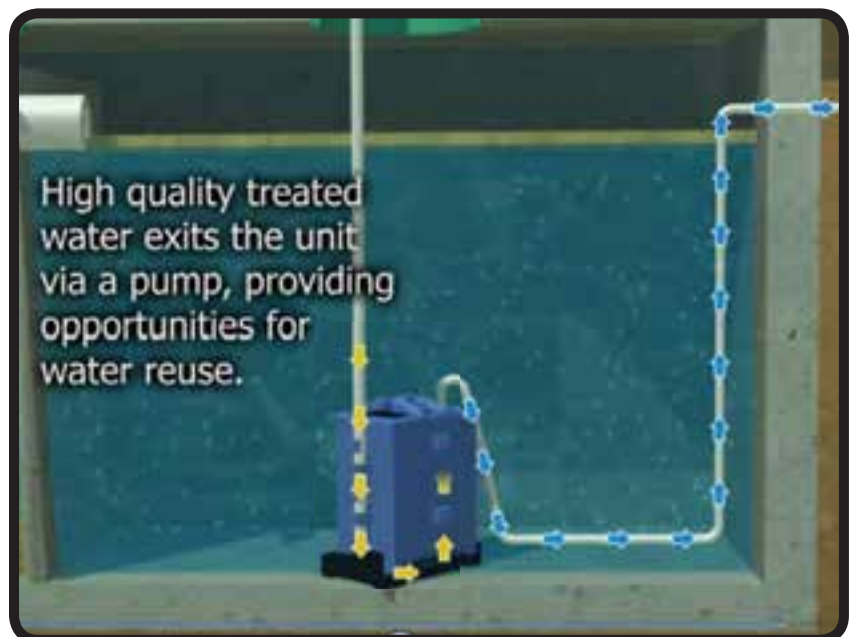
Systems can be doubled-stacked and bolted together, which can affect final size. Please see Product Drawing for design specifications and recommended exterior tankage sizing. Electrical options are available to meet all worldwide electrical specifications (volt/phase/frequency).

Greywater only ranges are 50-100% greater than those shown.

The "hydraulically driven" BioBarrier® uses passive aeration and process control technology to dramatically improve secondary wastewater treatment applications. Thus, on-site applications for the BioBarrier® are simple to design and operate because it does not require external pumps, valves and the associated control system; nor, costly chemicals, additives, or add on disinfection.

Designers, installers, regulators and property owners each benefit from BioBarrier's advanced features. The pre-engineered, modular system ships installation-ready for new or existing tanks. The system completed a 1-year NSF test, 1-year Canadian test, and 9-month European test, each without need for maintenance or cleaning.

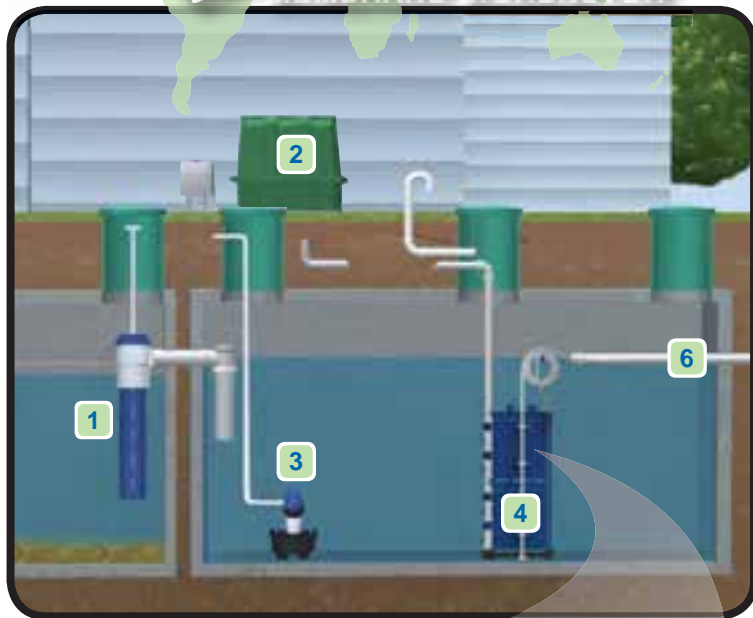
Treated wastewater (i.e. treated effluent) can be used for restricted indoor water use, such as toilet and urinal flushing, and outdoor water use, such as landscape irrigation.



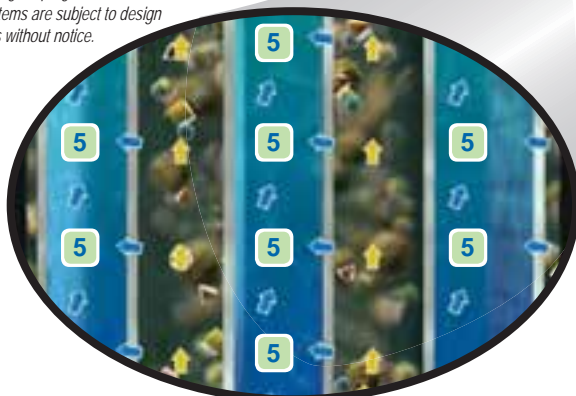
OTHER SYSTEMS & PRODUCTS AVAILABLE
TO SUIT YOUR PARTICULAR NEEDS:

BioBarrier

MEMBRANE BIOREACTOR



In the Interest of technological progress, BioBarrier® MBR and HSMBR® Systems are subject to design and/or material changes without notice.



How Does the System Work?

- 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 of wastewater.
- 3 Once inside the treatment tank, suspended treatment occurs. Optional added components, such as the 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 to reduce clogging. This ensures superior robust performance.
- 5 The membrane pore size specifically designed to allow for microfiltration and ultrafiltration processes.
- 6 Clear, odorless, treated water is ready for various re-use applications.

FAST® Wastewater Treatment Systems

- RetroFAST® Septic System Enhancement
- MicroFAST® Wastewater Treatment System
- NitriFAST® Wastewater Treatment System
- HighStrengthFAST® Treatment System
- MyFAST® Wastewater Treatment System

Horizontal Tricking Filter Technology

- SeptiTech® STAAR™ Residential
- SeptiTech® STAAR™ Commercial

Stormwater Treatment Solutions

- BioSTORM® Stormwater System
- StormTEE® Litter Control Screen

Marine Sanitation Technology

- MarineFAST® LX-Series
- MarineFAST® M-&MX-Series
- MarineFAST® DV-Series

Influent/Effluent Screening Solutions

- BioSTEP® Screened Pumping Systems
- MyTEE® Grit Control Screen
- SaniTEE® Wastewater Screen

Other Management Solutions

- Lixor® Submerged Aeration Systems
- FOGHog® Traps & Tablets
- ABC®-N Clarifiers & Devices

Water Treatment Solutions

- SciCHLOR® Hypochlorite Generators
- SciBRINE® BrineMakers
- Mighty Mike® CPT Tablets

Environmentally-Friendly Cleaning Solutions

- Mighty Mike® All Purpose Cleaner
- Mighty Mike® Laundry Detergent
- Mighty Mike® Marine Multi-Purpose Cleaner
- Mighty Mike® Marine Liquid Descaler
- Mighty Mike® Industrial Descaler

With over 50,000 installations in more than 60 countries, our Fixed Integrated Treatment Technologies (FITT®) are the result of decades of experience, research & development, and real world operating history.

Awards, Technology Approvals, and Certifications

- **2012 President's "E" Award** for Excellence in Exports, granted by the President of the United States, presented by the U.S. Department of Commerce
- **2011 Technology Innovation Award** (Decentralized Commercial Outlets) – Frost & Sullivan – FAST® Technology
- **2011 New Product of the Year Award** – Recycling Category. Environmental Protection Magazine (EPonline.com) "The financial, environmental and social benefits of 'recycling' are indisputable." – BioBarrier® MBR Technology
- **2011 Kansas Governor's Exporter of the Year** – presented by the Governor of Kansas and Kansas Department of Commerce
- **2010 North American Technology Innovation Award** (Water/Wastewater) – Frost & Sullivan – FAST® Technology
- **2009 Technology Merit Business Achievement Award**, Water/Wastewater – Environmental Business Journal (EBJ) – BioBarrier® MBR Technology
- **2002 U.S. Export Achievement Certificate**, US Dept. of Commerce, US & Foreign Commercial Service
- **2000 U.S. EPA Environmental Technology Innovator Award** – U.S. EPA, Region 1 – SeptiTech® Technology
- Australian Dept of Transportation & Royal Australian Navy - Technology Approval
- Canadian Great Lakes (CGL) Maritime Certification – Canadian Coast Guard
- Canadian Standards Association (CSA) International Electrical Certification
- CE – European Electrical Systems (including a "Tropical Certification Rating")
- China Classification Society (CCS) 中国船级社 – FAST® Technology Approval
- EN 12566-3, Packaged and/or site assembled domestic wastewater treatment plants for up to 50 People, PIA GmbH tested - BioBarrier® MBR 0.5, 1.0, & 1.5
- GreenSpec® (BuildingGreen.com Product Directory) listed...Provides accurate, unbiased...information [to]...improve the environmental performance, and reduce the adverse impacts of buildings
- IAPMO (International Association of Plumbing & Mechanical Officials) Listed – Fat Oil & Grease Interceptors/Traps R&T File #2586 – FOGHog® FH-20 & FH-50
- IMO (International Maritime Organization) MARPOL Annex IV (2010) – provides guidance for the Navigation and Vessel Inspection Circular (NVIC) No. 1-09, US EPA and other effluent standards as may be required – FAST® Technology
- Massachusetts Title 5 Innovative/Alternative System - Technologies Listed under "General Use Permit for Nitrogen Reduction", "Provisional Use," & "Remedial Use"
- NSF/ANSI Std 40, class 1 Certified – MicroFAST®, BioBarrier® MBR and SeptiTech® Systems up to 1500 GPD – Recognized in domestic and international trade by regulatory agencies at the local, state/province, and federal levels.
- NSF/ANSI Std 245 (Nitrogen Reduction) Certified – MicroFAST®, BioBarrier®-N MBR, BioBarrier® MBR and SeptiTech® Systems up to 1500 GPD
- NSF/ANSI Std 350 class R (Water Reuse) Certified – BioBarrier® MBR 0.5, 1.0, & 1.5
- PDI (Plumbing & Drainage Institute) Certified – Standard PDI-WH201 and PDI-G101 grease interceptors – promotes the advancement of innovative plumbing products.
- Poland – Aprobata Techniczna (Technology Approval) ze Instytut Ochrony Srodowiska (Institute of Environmental Protection)
- România – Avizează Favorabil – Consiliul Tehnic Permanent Pentru Constructii – Ministerul Dezvoltării Regionale Si Turismului
- Russia – Technology Approval – Федеральная Служба По Надзору В Сфере Защиты Прав Потребителей И Благополучия Человка (Federal Service of Environmental Protection)
- Russia – CPT Свидетельство о Российских Стандартах (Certification of Russian Standards) – BioSTORM® – All sizes
- Russia – PMPC (Russian Maritime Register of Shipping) МЕЖДУНАРОДНОЕ СВИДЕТЕЛЬСТВО О ПРЕДОТВРАЩЕНИИ ЗАГРЯЗНЕНИЯ СТОЧНЫМИ ВОДАМИ - International Sewage Pollution Prevention Certificate
- SASO (Saudi Arabian Standards Organization) Certified
- ETL (UL) – Listed to US electrical certification requirements
- U.K. – United Kingdom Department of Trade – FAST® Technology Approval
- U.S. Coast Guard – 33CFR159, MEPC.159(55) – FAST® Technology Approval for Type II MSD (Marine Sanitation Devices)
- U.S. EPA-ETV (Environmental Technology Verification) – validates the performance of technology that may improve the protection of the environment. – RetroFAST®, Report No. 03/08/WQPC-SWP – SeptiTech®, Report No. 02/04/WQPC-SWP

...and MORE!



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