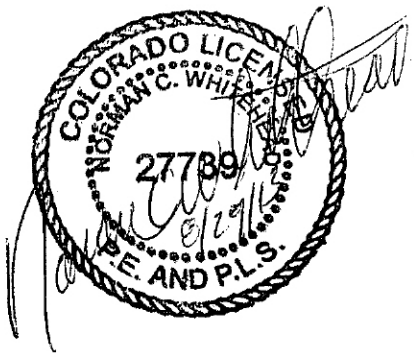
Scarp Ridge
Sewage Disposal Report
for the
Gunnison County Sketch Plan

Prepared by

Norman Whitehead, P.E.-P.L.S.
NCW & Associates, Inc.
Crested Butte, Colorado
(970) 349-6384

8/27/13



The proposed site consists of seven existing buildings and ten proposed buildings on 145 acres located north of Irwin Lake. The project is also located within the Town of Crested Butte's water shed.

Existing Buildings

The existing buildings are listed a follows:

1) The old Irwin Lodge.
2) The storage shed located at the Lodge site.
3) The wastewater treatment facility building for the Lodge.
4) The Movie Cabin.
5) The Movie Cabin Restroom Building.
6) The Cat Barn.
7) The Maintenance Barn.

The existing Lodge has proposed wastewater facilities that would be treated by the existing onsite treatment facility. The onsite treatment facility is not currently active but it is still permitted by the State. It is anticipated that this facility will be activated as part of the Lodge remodel.

The Movie Cabin Restrooms do not have a discharge.

The remainder of the buildings do not have waste facilities.

Proposed Buildings

The proposed builds consist of the following:

1) Overlook Cabin (400 to 1,500 square feet) (No ISDS)
2) Silver Hill Cabin No. 1 (2,500 - 8,000 square feet) (ISDS)
3) Silver Hill Cabin No. 2 (1,500 to 3,500 square feet) (ISDS)
4) Ruby Cabin (1,500 to 5,000 square feet) (ISDS)
5) Alpine Hut (300 to 1,500 square feet) (ISDS)
6) Upper Alpine Hut (300 to 1,500 square feet) (No ISDS)
7) Lottie Cabin (1,500 to 5,000 square feet) (ISDS)
8) Robinson Creek Cabin (1,500 to 5,000 square feet) (ISDS)
9) Clara Cabin (1,500 to 5,000 square feet) (ISDS)
10) Clara Cabin Storage (400 to 1,500 square feet) (No ISDS)

The proposed locations of the buildings due not lend themselves to a centralized wastewater system. The proposed sewage disposal will be by use of Individual Sewage Disposal Systems (ISDS). The area has shallow bed rock and thus may require elevated leach fields and/or

advanced treatment systems. None of the proposed buildings will have facilities that will generate more than 2,000 gallons per day.

The advanced treatment systems will be of a type that have State approval, two of which are the Advantex and the Bio-Microbics systems.

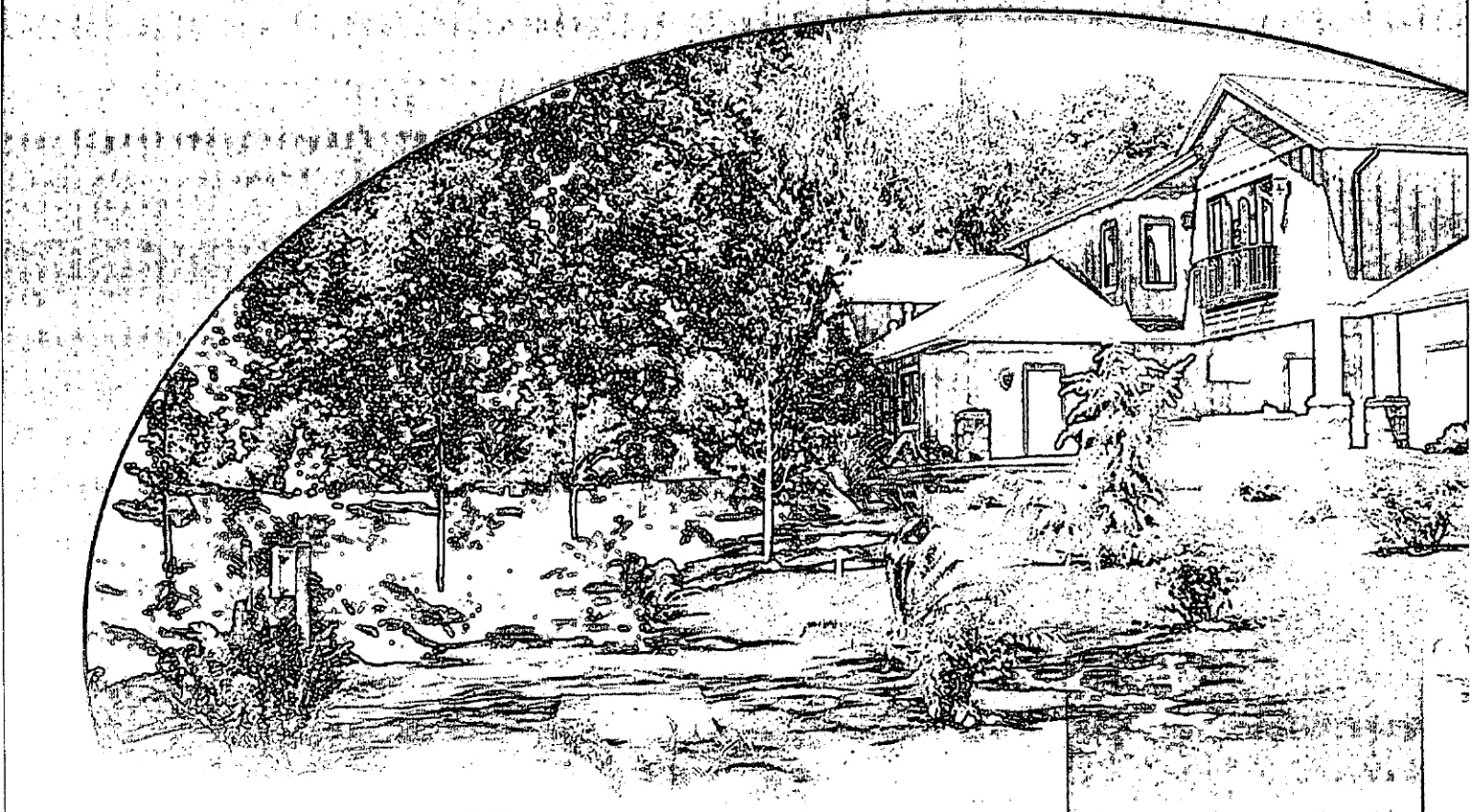
An on-site meeting with the County's Environmental Health Inspector will be scheduled for sometime in mid September 2013.

All of the proposed systems will conform to the Gunnison County, the Town of Crested Butte and the State of Colorado sewage disposal regulations.

AdvanTex® Treatment Systems

AX20

Manufactured by **Orenco Systems®, Inc.**



AdvanTex® is one of the most sustainable wastewater treatment systems available for household use. The filter unit is flush to the ground and blends into landscaping.

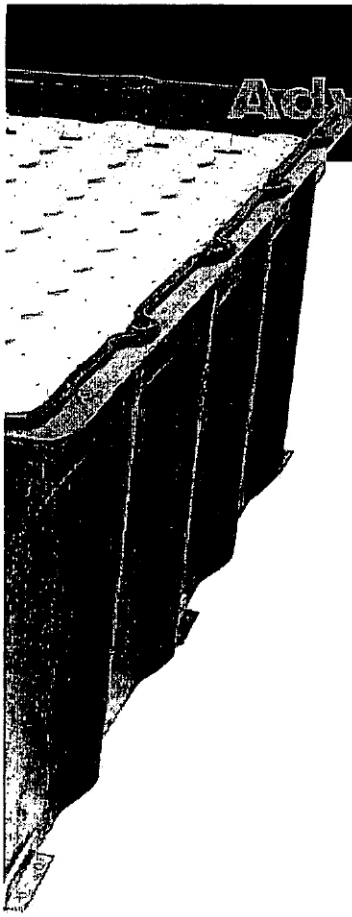
Reliable, Sustainable Treatment For Residential Wastewater

Applications:

- Single-family homes
- Small commercial properties
- New construction, repairs
- Tight lots, other site constraints
- Poor soils, shallow bury
- Stringent permit requirements
- Nitrogen reduction, disinfection
- Surface discharge

Orenco Systems®, Inc.
814 Airway Avenue, Sutherlin, Oregon, USA 97479
Toll-Free: 800-348-9843 • +1-541-459-4449 • www.orenco.com

AdvanTex® – Treatment Systems



A Sustainable Technology

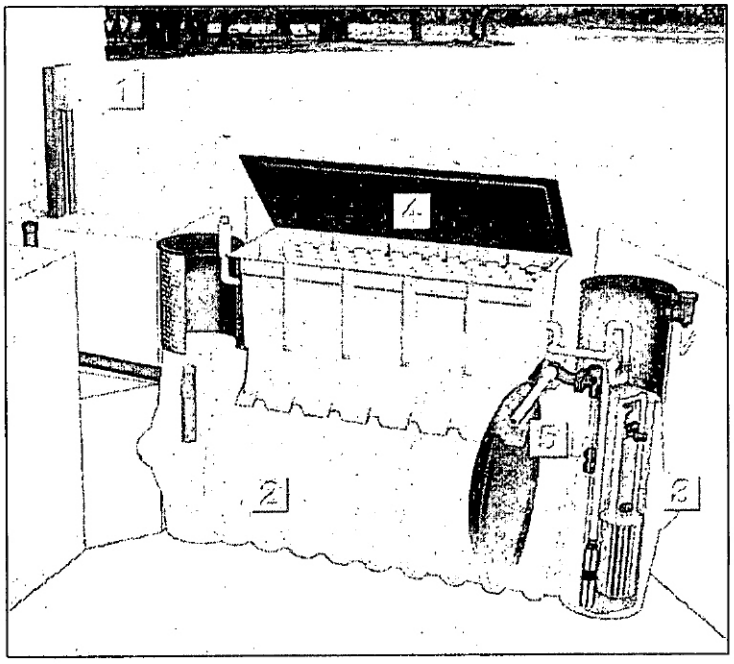
In the patented* AdvanTex Treatment System, household sewage flows into the processing tank, where it separates into scum, sludge, and liquid effluent. Filtered effluent is dosed to the AdvanTex filter pod, where it trickles through sheets of a synthetic textile. There, naturally occurring microorganisms remove impurities from the effluent. After recirculating between the tank and the AdvanTex filter, the effluent is discharged to the soil via irrigation or a drainfield.

The system's pump runs only a few minutes an hour, using just a few cents worth of electricity a day. Because solids decompose in the tank, the tank requires pumping only every 8–12 years, under normal use. Using little energy, generating a minimum of sludge, and purifying wastewater for beneficial reuse, AdvanTex Systems are one of the most environmentally sustainable technologies for home wastewater treatment.

More than 26,000 of Orenco's textile filters have been installed at homes, businesses, and community treatment systems throughout the United States, Canada, Europe, and Australasia. Third-party testing shows that AdvanTex Treatment Systems do a better job of treating wastewater than most municipal sewers. And field testing shows that AdvanTex Treatment Systems work under real-world conditions.

"The effluent from the filter units typically was clear with no odor . . . the increased loading rate allows for a decrease in the footprint required by filter units (compared to sand and gravel filters) . . . in an onsite treatment scenario, textile filter effluent could be utilized for landscape irrigation . . ."

Leverenz, Darby, and Tchobanoglous, "Evaluation of Textile Filters for the Treatment of Septic Tank Effluent," University of California at Davis, October 2000.



Typical backyard configuration of an AdvanTex® Treatment System.

The system has five main functional parts:

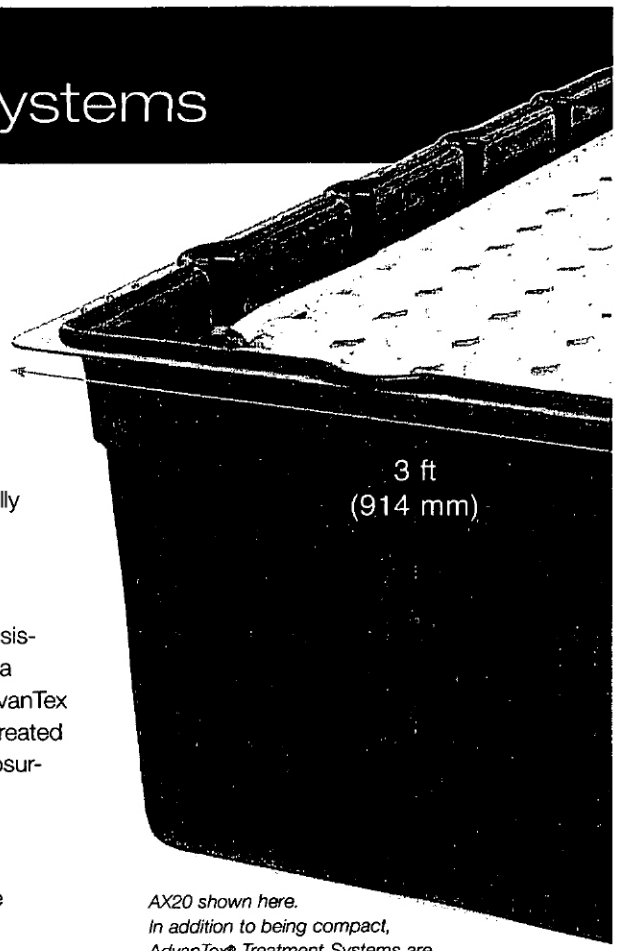
1. *VeriComm® Web-based monitoring system†*
2. *Processing tank*
3. *Biotube® pumping package*
4. *AdvanTex filter*
5. *Recirculating splitter valve*

† MVP digital programmable panels available as an option in some markets.

Other configurations and models available.

NOTE: * Covered by U.S. patent numbers 6,372,137; 5,980,748; 5,531,894; 5,480,561; 5,360,556; 5,492,635; 4,439,323; D461,870; and D445,476. Additional patents pending.

AdvanTex® – Treatment Systems



Finally! Residential Wastewater Treatment — That Works!

Orenco's AdvanTex® Treatment Systems are the ideal solution for environmentally sustainable treatment of residential wastewater flows.

Outstanding Wastewater Treatment

Unlike other onsite wastewater treatment technologies, AdvanTex provides consistent, reliable treatment under real-world conditions. Other systems work OK in a controlled testing environment, but don't hold up to normal household use. AdvanTex does. AdvanTex Treatment Systems process and discharge small amounts of treated wastewater throughout the day. Water so clean it can be reused for drip or subsurface irrigation, or discharged to shallow, inconspicuous trenches.

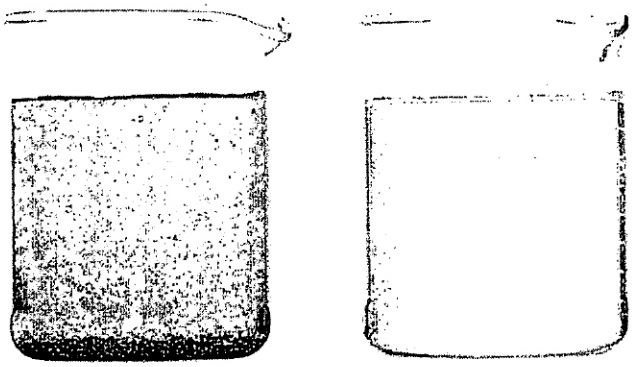
Fits Small Yards

AdvanTex Treatment Systems require very little space. The filter unit is 7.5 ft × 3 ft × 2.5 ft (2286 mm × 914 mm × 762 mm), small enough to fit under a deck or on top of the processing tank. And some jurisdictions allow a reduction in drainfield area with AdvanTex. So AdvanTex is ideal for small sites, or for homeowners who simply want more use of their yard.

AX20 shown here.
In addition to being compact, AdvanTex® Treatment Systems are easier to operate and maintain than other wastewater technologies. No odors. No power-hungry, noisy blowers. No activated sludge to manage or pump. No discharge of untreated sewage during peak flows or emergencies.

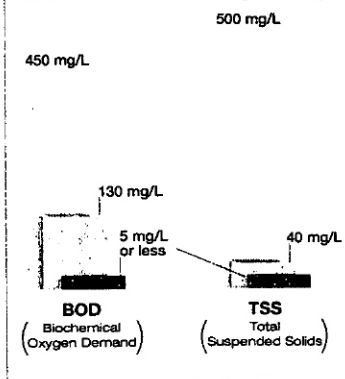
Low Lifetime Cost

AdvanTex Treatment Systems may cost a little more up front than other systems, but, thanks to low maintenance requirements, they cost much, much less over time. Power costs, pumping costs, and equipment replacement costs are a fraction of those for other technologies. Plus, AdvanTex filters protect your drainfield.



AdvanTex turns household wastewater into clear, odorless effluent you can reuse for subsurface irrigation.

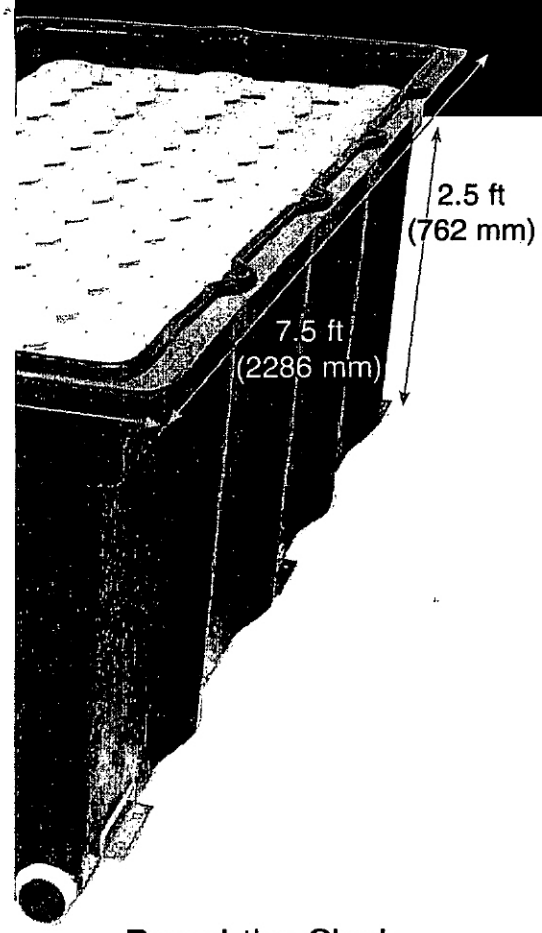
AdvanTex® Treatment Systems make raw wastewater up to 98% cleaner ... consistently producing effluent in the 5/5 mg/L range



Typical **Household** Raw Wastewater[1]
Typical **Filtered Septic Tank** Effluent[1]
Typical **AdvanTex®** Effluent[2]

1 Source: Derived from *Small and Decentralized Wastewater Management Systems*, Crites & Tchobanoglous, McGraw-Hill, 1998, p. 183.

2 Actual performance results, based on a six-month accumulative average from NSF (National Sanitation Foundation) testing on the AX20N at 500 gpd (1900 L/d), using composite sampling.



AdvanTex® Gives You Peace of Mind

Orenco's AdvanTex Treatment Systems are not just a product. They are part of a comprehensive program, for homeowners' peace of mind.

Authorized Dealers and Trained Installers

AdvanTex Treatment Systems are sold by authorized Dealers, who provide ongoing support and warranty service. Dealers ensure that AdvanTex Treatment Systems are set in place by trained installers, following Orenco's instructions.

Trained Service Providers

Like any onsite technology, your AdvanTex Treatment System benefits from regular maintenance by a trained service provider, following Orenco's instructions. Field maintenance report forms are digitally archived for future reference.

Complete, Carefully Engineered Package

Your AdvanTex Treatment System comes as a totally pre-manufactured package, including AdvanTex textile filter, Biotube® pumping package, and "smart" control panel. AdvanTex can be installed on most lots in less than a day.

Low Routine Maintenance Costs

AdvanTex Treatment Systems are easy to service, easy to clean, and generate no troublesome activated sludge. Since maintenance is minimal, so are the long-term costs. Each system comes with a Homeowner's Manual, with tips for preventive maintenance.

Low Power Costs

AdvanTex uses very little power... an average of $1.75–$2.00 per month (based on the national average of ten cents per kilowatt-hour). Compare that to the average power cost of $30.00–$60.00 per month (depending on your area) for many "activated sludge" aerobic treatment units!

Safe in Emergencies

AdvanTex Treatment Systems that are equipped with VeriComm® Control Panels automatically notify service providers of irregular conditions. And all systems are sized to allow for a minimum of 24 hours of wastewater storage, at average daily flows. So operators can provide "emergency" service during normal working hours, keeping service costs down.

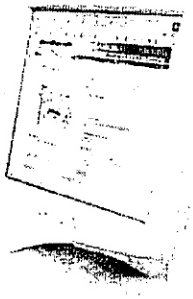
Child-Proof

The lid of the AdvanTex filter is affixed with recessed bolts, making it very tamper-resistant.

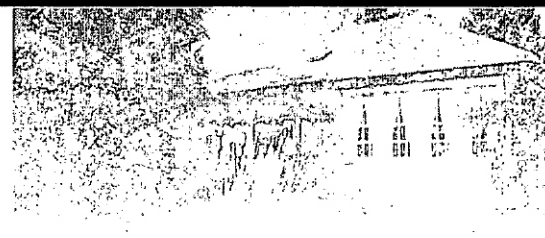
Warrantied

Orenco Systems®, Inc. provides a limited, multi-year warranty on all materials and workmanship. Length of warranty varies by region but is at least three years.

Round-the-Clock Monitoring



Your AdvanTex Treatment System may include a control panel with a remote telemetry unit and a round-the-clock, Web-based monitoring system, supervised by your service provider. You'll have even more peace of mind, knowing that the VeriComm® Monitoring System is continually and automatically verifying the operation of your system. For more information, go to **www.orenco.com** or **www.vericomm.net** and click on the icon for VeriComm's "On-Line Demo." (Non-telemetry control panels also available.)

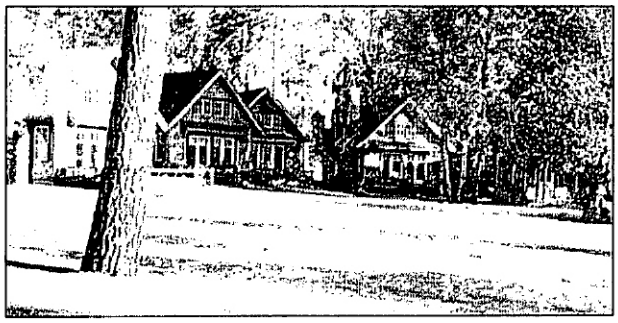


For Every Residential Site

There's a standard AdvanTex Treatment System model for every site condition, design flow, and regulatory requirement.

AdvanTex Treatment Systems are particularly well suited for . . .

- small sites
- failing systems
- poor soils
- nitrogen reduction
- environmentally sensitive sites
- stringent treatment standards
- pretreatment of moderately high-strength waste



Alberta, Canada

"We've installed about 500 AdvanTex Treatment Systems for all sizes of homes, and, typically, the treated wastewater looks just like water. Our winter temperatures can be as low as –38° F (–39° C). In the middle of December, we started up an AdvanTex Treatment System on a 13,000 ft² (1200 m²) home that averages 1200 gpd (4500 L/d). Two weeks after start-up, the owners entertained 30 family members and guests for a full week. It worked great!"

Bruce Silvester, Onsite Specialties, Inc.

Deschutes County, Oregon

"I specified an AdvanTex Treatment System for a cluster of 12 luxury homes in the Metolius River Resort, along a premier trout stream in eastern Oregon. AdvanTex worked well because the site has an extremely small footprint and the system was easy to install. Also, the treatment unit is right in front of the Resort's office, so it was super important that there be absolutely no smell, and there isn't. Plus, we didn't have to search for the right treatment media, since it's all included. I would use AdvanTex any place you'd use a conventional recirculating filter."

Steve Wert, CPSS, WWS
Wert & Associates, Bend, Oregon

Tucson, Arizona

"Nearly 1,000 AdvanTex Treatment Systems have been installed in Arizona, primarily due to poor soils, seasonal high water tables and/or nitrogen in the groundwater. In Tucson, homeowners and their treatment system designers have also had to deal with limiting site constraints, shallow rock shelves, and small building envelopes. The AdvanTex system, followed by a subsurface drip system, was the answer. Plus, the installed systems go almost unnoticed in yards and landscaping."

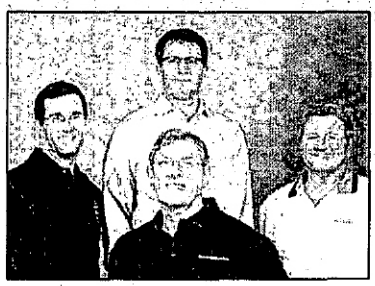
Todd Christianson,
Premier Environmental
Products, LLC

Newport, Rhode Island

"I spent six years looking for the right wastewater system for my second home, which is on a small island. Even with seasonal flows, our AdvanTex Treatment System is working great . . . so great, I decided to become a dealer! We entertain often, so we use a lot of water, but we've never had a problem. And the system was easy to transport and install."

Peter Kent, Atlantic Solutions, Ltd.

AdvanTex® – Treatment Systems



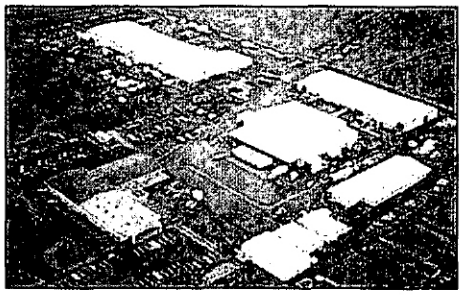
Orenco Systems is owned and managed by engineers who develop wastewater systems that work — systems based on sound science.

Clockwise from left:
Eric Ball, P.E., Jeff Ball, P.E., Hal Ball, P.E., (front) Terry Bounds, P.E.

AdvanTex® Treatment System AXN Models meet the requirements of NSF-ANSI Standard 40 for Class I Systems.

Powered by **Franklin Electric**

Carefully Engineered by Orenco



Your health is our priority. At Orenco Systems, we are committed to "Changing the Way the World Does Wastewater®."

Orenco Systems has been researching, designing, manufacturing, and selling leading-edge products for small-scale wastewater treatment systems since 1981. The company has grown to become an industry leader, with about 250 employees and with more than 300 points of distribution in North America, Australasia, Europe, Africa, and Southwest Asia. Our products and technologies have been installed in more than 60 countries all over the world.

Orenco maintains an environmental lab and employs dozens of scientists and engineers. Orenco's systems are based on sound scientific principles of chemistry, biology, mechanical structure, and hydraulics. As a result, our research appears in numerous publications, and our engineers are regularly asked to give workshops and offer trainings.

Distributed by:

Orenco®
Orenco Systems®, Incorporated
814 Airway Avenue
Sutherlin, OR 97479 USA
T: 800-348-9843
T: 541-459-4449
F: 541-459-2884
www.orenco.com
www.vericomm.net

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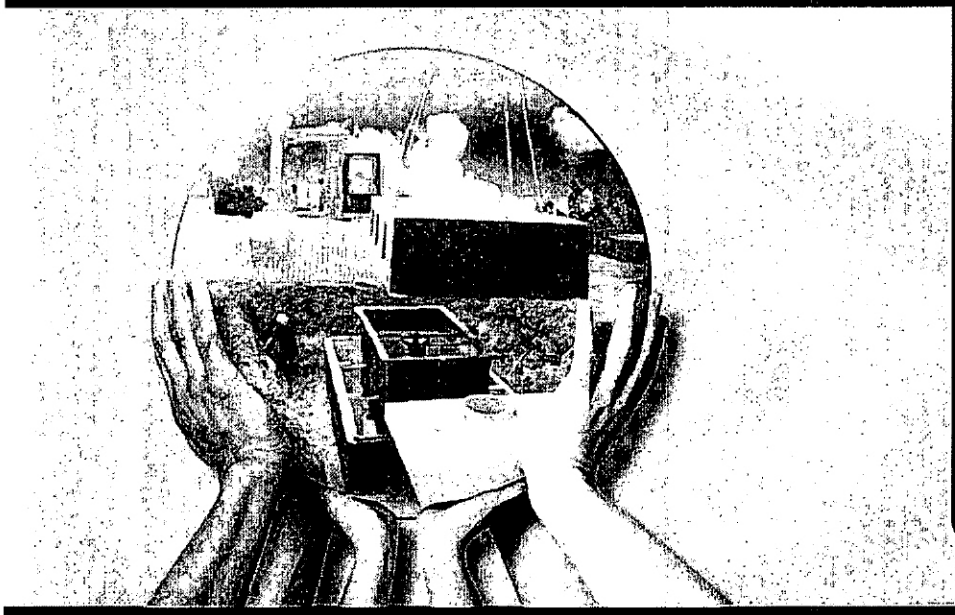
Orenco Systems®, Inc.

FAST® wastewater treatment systems®

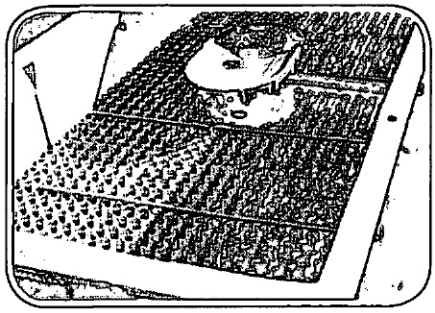
Residential • Community • Commercial



BIO-MICROBICS INCORPORATED

Better Water. Better World.®

FAST® Fixed Integrated Treatment Technology



As the industry standard for decentralized wastewater treatment systems, our FAST® systems provide alternative wastewater treatment options for those residing outside the reach of municipal (public) treatment plants.

FAST® systems can be used for new construction, existing tanks, or renovation of failed systems, including those in nitrogen sensitive areas or limitations with distance to groundwater and/or smaller dispersal field size requirements. Engineered to fit most applications, typical applications include:

RESIDENTIAL
- Single-family homes
- Multi-Family Properties
- Clustered Subdivisions
- Suburban Subdivisions
- Housing Developments
- Recreational Facilities
- Apartment Complexes
- Military Facilities
- Communities/Villages
- Small Municipalities

COMMERCIAL
- Restaurants
- Schools/Universities
- RV & Mobile Home Parks
- Office Parks
- Resort Areas/Hotels
- Highway Rest Areas
- Country Club/Golf Courses
- Shopping Centers
- Grocery stores
- Food/Beverage Facilities

MARINE
- Tug & Work Boats
- Luxury Yachts
- Commercial Vessels
- School/Research Boats
- Offshore Vessels
- Tankers
- Container Ships
- Aircraft Carriers
- Cruise Ships
- Offshore Oil Platforms

Innovative Ideas, Proven Products

FAST® systems integrate the advantages of a completely immersed fixed-film technology for exceptional microbial growth during low, average and peak usage. Increasing sludge settleabilty and eliminates sludge bulking, the innovative FAST® wastewater treatment systems are easy to maintain and extraordinarily reliable.

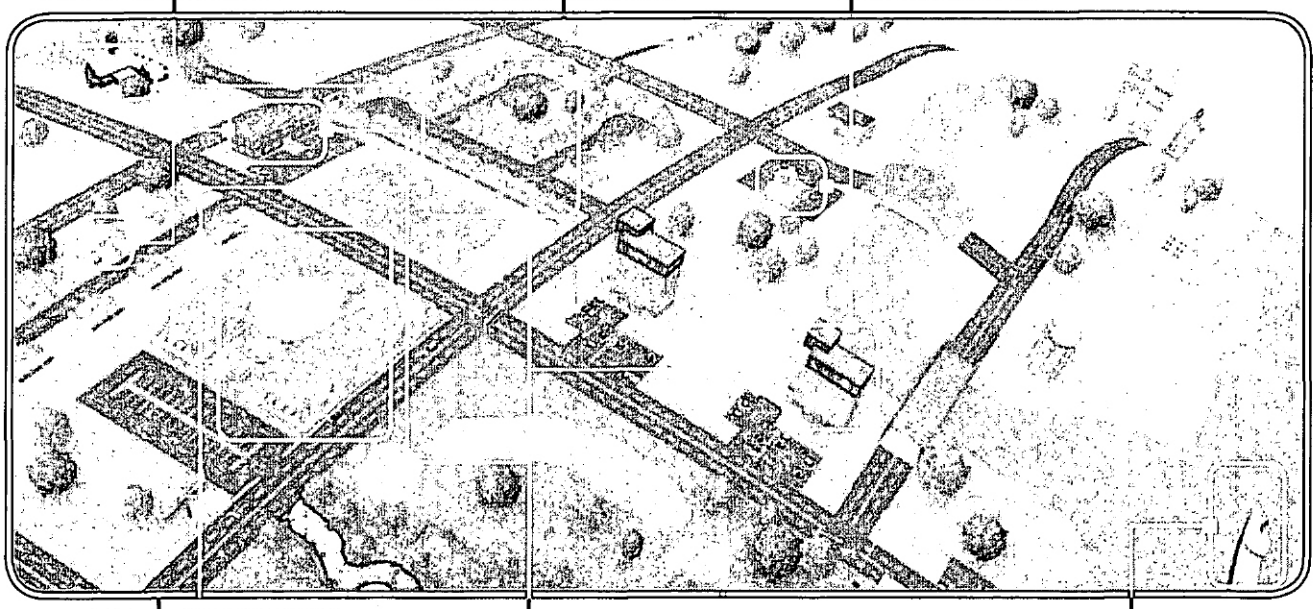
Nitrogen Reduction

The FAST® technology lessen the impact of harmful influent ammonia levels by consistently reducing the total nitrogen at exceptionally high removal rates. The NSF®/ANSI® 245 certified MicroFAST® and other FAST® systems are engineered to take all aspects of the treatment into consideration.

MicroFAST wastewater treatment systems
Versatile and robust, these systems are designed for individual homes, clustered subdivisions, and other domestic-strength flow applications.

RetroFAST wastewater treatment systems
A simple upgrade to deliver high levels of treatment to enhance/renovate a septic system; see our S.O.S.-Save Our Septic® Warranty Program.

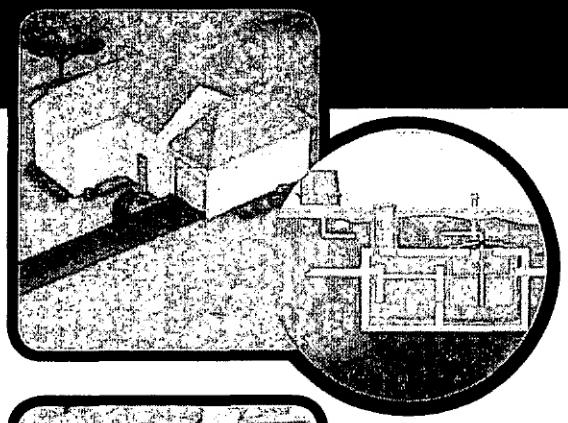
HighStrengthFAST wastewater treatment systems
Meeting the unique challenges of high-strength commercial applications or properties with a higher loading with robust, low-maintenance treatment systems.



MyFAST wastewater treatment systems
Ideal for small communities or commercial properties, the MyFAST® maintains consistent high performance, low maintenance, and sludge management all in one tank.

NitriFAST wastewater treatment systems
For use with a MicroFAST® system to provide second stage nitrification to achieve even higher levels of nitrogen reduction.

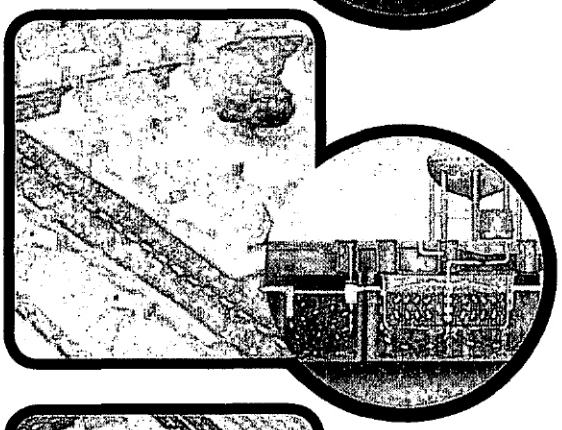
MarineFAST SEWAGE TREATMENT SYSTEMS
Certified Type II Marine Sanitation Devices (MSDs) for virtually every type of vessel or offshore structure.



Residential Small Systems

RetroFAST. wastewater treatment systems

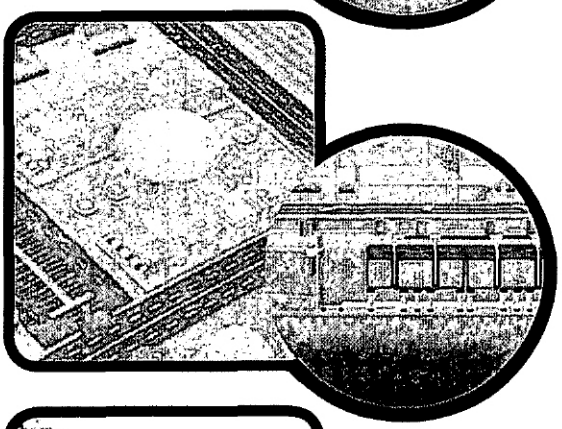
MicroFAST. wastewater treatment systems



Multi-Family & Community Systems

MicroFAST. wastewater treatment systems

MyFAST wastewater treatment systems

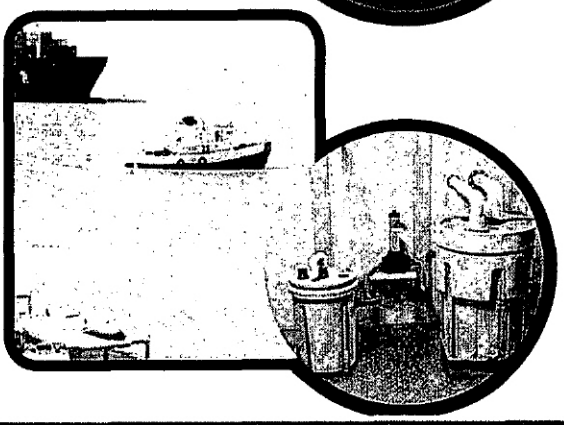


Small & Large Commercial Systems

MicroFAST. wastewater treatment systems

HighStrengthFAST. wastewater treatment systems

MyFAST wastewater treatment systems



Marine Sanitation Systems

Certified Type II Marine Sanitation Devices (MSDs) ideal for small leisure vessels to large commercial ships and oil platforms.

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

ENVIRONMENTALLY-SAFE, MIGHTY TOUGH ON CLEANING!

NEED SOME HOUSEHOLD PRODUCTS? Use the environmentally-friendly *Mighty Mike® All-Purpose Cleaner* and *Mighty Mike® HE Liquid Laundry Detergent* to effectively clean, naturally deodorize and remove the toughest stains and odors without damaging surfaces or leaving residues! **TO ORDER: 1-866-652-4539** or **solutions@sciencofast.com**

GENERAL FAST® PRODUCT INFORMATION

RetroFAST wastewater treatment systems	Maximum Treatment Capacity*		Module Dimensions*** (L x W x H) [-18" (45.7cm) dia. opening required]	Weight***	
	Volume/Module**	People per Module**		Pounds	Metric
RetroFAST® 0.150	150 GPD (567 LPD)	1 to 3	22" (55 cm) x 24" (61 cm) x 32" (81 cm)	74 lbs	34 kg
RetroFAST® 0.250	250 GPD (947 LPD)	1 to 4	27" (67 cm) x 30" (76 cm) x 34" (85 cm)	125 lbs	57 kg
RetroFAST® 0.375	375 GPD (1420 LPD)	1 to 5	39" (98 cm) x 30" (76 cm) x 34" (85 cm)	156 lbs	71 kg

MicroFAST wastewater treatment systems	Maximum Treatment Capacity*		Module Dimensions*** (L x W x H)	Weight***	
	Volume/Module**	People per Module**		Pounds	Metric
MicroFAST® 0.5	500 GPD (1893 LPD)	1 to 8	59" (150 cm) x 30" (76 cm) x 56" (130 cm)	165 lbs	75 kg
MicroFAST® 0.625	625 GPD (2366 LPD)	1 to 10	60" (152 cm) x 43" (109 cm) x 55" (130 cm)	185 lbs	84 kg
MicroFAST® 0.75	750 GPD (2839 LPD)	1 to 11	60" (152 cm) x 43" (109 cm) x 55" (130 cm)	200 lbs	91 kg
MicroFAST® 0.9	900 GPD (3407 LPD)	1 to 14	59" (150 cm) x 48" (122 cm) x 57" (145 cm)	215 lbs	98 kg
MicroFAST® 1.5	1500 GPD (5678 LPD)	6 to 21	82" (208 cm) x 55" (140 cm) x 58" (147 cm)	456 lbs	207 kg
MicroFAST® 3.0	3000 GPD (11356 LPD)	10 to 42	71" (180 cm) x 59" (150 cm) x 81" (206 cm)	725 lbs	329 kg
MicroFAST® 4.5	4500 GPD (17034 LPD)	18 to 63	145" (368 cm) x 73" (185 cm) x 51" (130 cm)	1600 lbs	726 kg
MicroFAST® 9.0	9000 GPD (34068 LPD)	30 to 126	145" (368 cm) x 73" (185 cm) x 76" (193 cm)	2300 lbs	1044 kg

Larger Applications>9000 GPD *Multiple FAST® treatment modules can be used in parallel and/or series for additional flow or desired treatment levels.*

HighStrengthFAST	Maximum Treatment Capacity*		Module Dimensions*** (L x W x H)	Weight***	
	Volume/Module**	People per Module**		Pounds	Metric
HighStrengthFAST® 1.0	~900 GPD (3407 LPD)	Consult Factory	59" (150 cm) x 48" (135 cm) x 57" (130 cm)	227 lbs	103 kg
HighStrengthFAST® 1.5	~1500 GPD (5678 LPD)		82" (208 cm) x 55" (140 cm) x 58" (147 cm)	456 lbs	207 kg
HighStrengthFAST® 3.0	~3000 GPD (11356 LPD)		71" (180 cm) x 59" (150 cm) x 81" (206 cm)	725 lbs	329 kg
HighStrengthFAST® 4.5	~4500 GPD (17034 LPD)		145" (368 cm) x 73" (185 cm) x 51" (130 cm)	1600 lbs	726 kg
HighStrengthFAST® 9.0	~9000 GPD (34068 LPD)		145" (368 cm) x 73" (185 cm) x 76" (193 cm)	2300 lbs	1044 kg

Larger Applications>9000 GPD *Multiple FAST® treatment modules can be used in parallel and/or series for additional flow or desired treatment levels.*

MyFAST	Maximum Treatment Capacity*		AMS ZONE *Optional Lixor® system*	BMS ZONE *Optional Package*	OPTIONAL MyTEE® SCREENING DEVICE	
	Volume	People Served			Minimum Tank Volume	Units
MyFAST® 2.0	20000 GPD (75.7 m³/d)	up to 400+	4.0XD	Lixor® 2.0	5000 gallon [19 m³]	2
MyFAST® 4.0	40000 GPD (150 m³/d)	up to 600+	4.0XD	Lixor® 2.0	5000 gallon [19 m³]	2
MyFAST® 6.0	60000 GPD (225 m³/d)	up to 900+	6.0XD	Lixor® 3.0	7500 gallon [28 m³]	3
MyFAST® 8.0	180000 GPD (300 m³/d)	up to 1200+	(2) 4.0XD	Lixor® 4.0	10000 gallon [38 m³]	4
MyFAST® 12.0*	120000 GPD (450 m³/d)	up to 1900+	(2) 6.0XD	Lixor® 6.0	(2) 7500 gallon [28 m³]	6
MyFAST® 16.0*	160000 GPD (600 m³/d)	up to 2500+	(4) 4.0XD	Lixor® 8.0	(2) 10000 gallon [38 m³]	8

Larger Applications >160000 GPD, consult factory. *Multiple FAST® treatment modules can be used in parallel and/or series for additional flow or desired treatment levels.*

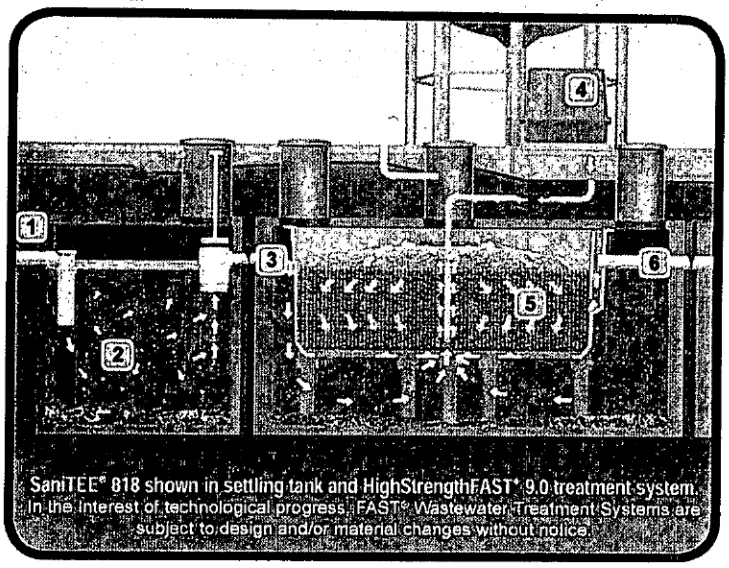
*Treatment capacity: Individual FAST® module capacities are rated based on biological (BOD), hydraulic and other project-specific considerations. All rated capacities are given as guidelines for suggested use. Actual capacity may vary with local conditions and performance goals.

**Volume/People per module: Please note that only residential applications or those applications requiring treatment for only sanitary wastewater may be designed from the volume and number of people per module. Actual capacity may vary with local conditions and performance goals.

***Module dimensions/weight provided only for shipping specifications. Please see design specifications for recommended exterior tankage sizing. Treatment modules shall be installed inside tanks that are locally approved and manufactured using watertight materials.

Electrical Options: Electrical components are available to meet all worldwide electrical specifications (volt/phase/frequency).

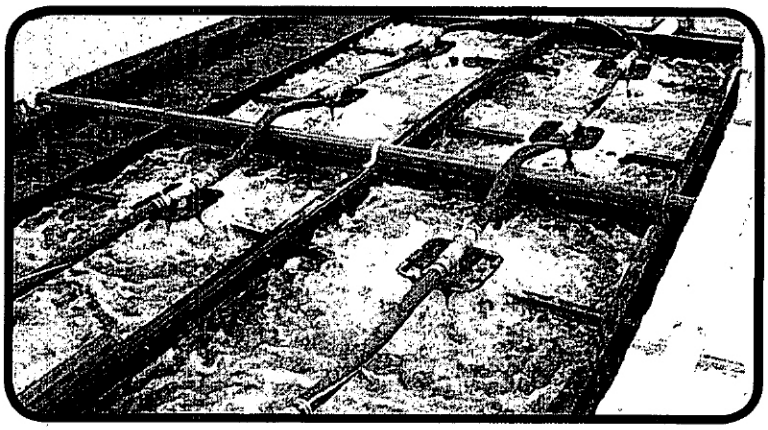
FAST Wastewater Treatment



SaniTEE® 818 shown in settling tank and HighStrengthFAST® 9.0 treatment system. In the interest of technological progress, FAST® Wastewater Treatment Systems are subject to design and/or material changes without notice.

How Does the FAST® System Work?

1. Wastewater enters the treatment system
2. Natural separation and settling processes occur in the primary settling zone.
3. In the primary settling zone for most large residential and commercial applications, a SaniTEE® device is used to prevent large solids from entering the treatment zone.
4. A remote, above-ground blower introduces air (oxygen) into the treatment module to facilitate a robust circulation of wastewater through the media's channeled flow path.
5. Bacteria become "fixed" or attached to the stationary media where the abundant, diverse and self-regulating population of microbes is consistently maintained in the aeration zone to metabolize the incoming waste.
6. Clear, odorless, treated water is ready for standard or innovative dispersal.



Other Systems and Products available to suit your particular needs:

Membrane BioReactor Technology
- **BioBarrier®**
- **BioBarrier® HSMBR®**

Stormwater Treatment Solutions
- **BioSTORM®**
- **StormTEE®**

Marine Sanitation Technology
- **MarineFAST® LX-Series**
- **MarineFAST® MX-Series**
- **MarineFAST® DV-Series**

Submerged Aeration Systems
- **Lixor®**

Grease Management Solutions
- **FOGHog®**

Influent/Effluent Screening Solutions
- **BioSTEP®**
- **MyTEE®**
- **SaniTEE®**

Biological Nutrient Removal Solutions
- **NitriFAST®**
- **ABC®-N**

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

Why can't wastewater treatment be simple?

With Bio-Microbics, it is. Our Fixed Integrated Treatment Technologies (FITT) are the result of decades of experience, research & development, and real world operating history.

With over 42,000 installations in more than 60 countries, these technologies are operating right now. Unnoticed. And that's just the way we like it.

Awards, Technology Approvals, and Product Certifications

- **Australian Department of Transportation & Royal Australian Navy** - Technology Approval
- **CGL** (Canadian Great Lakes) **Maritime Certification** – issued by the Canadian Coast Guard
- **CSA** (Canadian Standards Association) International Electrical Certification
- **CE** – European Electrical Systems (including a "Tropical Certification Rating")
- **CCS** (China Classification Society) 中国船级社 – FAST® Technology Approval
- **Environmental Business Journal** (EBJ) – 2009 Technology Merit Business Achievement Award, Water/Wastewater – BioBarrier® Membrane BioReactor Technology
- **EPonline.com** (Environmental Protection Magazine) – "2011 New Product of the Year" (Recycling) – BioBarrier® Membrane BioReactor Technology
- **Frost & Sullivan** – 2011 Technology Innovation Award (Decentralized Commercial Outlets)
- **Frost & Sullivan** – 2010 North American Technology Innovation Award (Water/Wastewater)
- **GreenSpec®** (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 by IAPMO R&T File #2586 – FOGHog® Fat Oil & Grease Interceptor FH-20 & FH-50
- **IMO** (International Maritime Organization) MARPOL 2010 – FAST® Technology Approval
- **Massachusetts Title 5** Innovative/Alternative System General Use Permit for Nitrogen Reduction
- **NSF/ANSI Std 40, class 1 Certified** – MicroFAST® 0.5, 0.75, 0.9, 1.5 & BioBarrier® MBR 0.5, 1.0, & 1.5 – Recognized in international trade by regulatory agencies at the local, state, and federal levels.
- **NSF/ANSI Std 245** (Nitrogen Reduction) **Certified** – MicroFAST® 0.5, 0.75, 0.9, 1.5, BioBarrier®-N MBR 0.5, 1.0, & 1.5, and BioBarrier® MBR 0.5, 1.0, & 1.5
- **NSF/ANSI Std 350 class R** (Water Reuse) **Certified** – BioBarrier® MBR 0.5, 1.0, & 1.5 – Treated effluent discharged from onsite treatment systems meeting reuse requirements, including indoor (toilet/urinal flushing) and outdoor (surface irrigation) uses.
- **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 Dezvoltarii Regionale Si Turismului
- **Russia – Technology Approval** – Федеральная Служба По Надзору В Сфере Защиты Прав Потребителей И Благополучия Человека (Federal Service of Environmental Protection)
- **Russia – СРТ 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** – FAST® Technology Approval for Type II MSD (Marine Sanitation Devices).
- **U.S. EPA–ETV** (Environmental Technology Verification) – RetroFAST® .250, .375 – validates the performance of technology that may improve the protection of the environment.
- ...and ***MORE!***

BIO-MICROBICS INCORPORATED
8450 Cole Parkway • Shawnee, KS 66227 USA
(800) 753-3278 • T: (913) 422-0707 • F: (913) 422-0808
www.biomicrobics.com • sales@biomicrobics.com

SCIENCO/FAST.
a division of Bio-Microbics, Inc.
12977 Maurer Industrial Dr • Sunset Hills, MO 63127 USA
(800) 652-4539 • T: (314) 756-9300 • F: (314) 756-9306
www.sciencoFAST.com • solutions@sciencofast.com

www.biomicrobics.com • www.sciencofast.com

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