



BioCore™ anaerobic and aerobic
advanced MBR technology



*Ultra-filtration combined with
enclosed biological treatment
for superior in-line waste stream
treatment and energy recovery*



Advancing Resource Recovery™

BioCore™ Advanced MBR: A Better Solution

A better way to solve water treatment challenges

Procorp BioCore™ Advanced MBR (membrane bioreactor) systems are the premier ready-made water treatment solution for low volume, high strength wastes such as R.O. concentrate, lactose, acid whey, etc.

Unlike conventional MBR, *BioCore Advanced MBR consumes virtually all the sludge, liquified waste and leachate*, thus dramatically reducing the cost to process, handle and dispose of these unwanted by-products.

BioCore converts by-product wastes into a recoverable energy resource providing electricity, steam or hot water for the facility. Most importantly, BioCore creates a physical barrier for compliance reliability – an enclosed, in-line system that minimizes space requirements, eliminates the need for chemical additives, eliminates undesirable outgassing, and is immune to weather and variable loading conditions.

BioCore operates as an anaerobic or aerobic process. Compact, modular systems are ideal for a host of industries requiring hydraulic capacities from 10,000 to 440,000 GPD:

- Dairy processing
- Meat harvesting
- Meat processing
- Rendering
- Ethanol production
- Food and food ingredient manufacturing
- Beverage production
- Pharmaceutical manufacturing
- Pulp and paper operations
- Municipal treatment facilities
- Landfills

Field proven, sustainable technology

BioCore™ Advanced MBR is the product of 12 years of Procorp research to develop the most robust system possible for our customers. Non-clogging ease of operation, dramatic energy savings, and reduced polymer costs are just a few of the field-proven results that our customers have noted over their previous systems.

BioCore is an innovative, patent pending treatment system that integrates the proven technology of ultra-filtration with the most effective biological treatment processes:

- Unique tubular ultra-filtration membrane operates in conjunction with a bioreactor hydraulic mixing and aeration unit eliminating the redundancies associated with conventional MBR methods
- Mixed liquor is fed through both the membrane unit for solids/liquid separation and the hydraulic mixing and aeration unit using a common pumping system
- The patent-pending cross flow design creates high cross flow velocity in the tubular membrane to eliminate clogging
- Efficient bioreactor mixing and/or oxygen transfer results in a clear, high quality effluent. Without physical or chemical pretreatment or post treatment, BioCore effluent is capable of compliance with the increasingly stringent effluent limitations being encountered across the country today.
- The five processes of conventional anaerobic MBR are achieved by the smaller footprint two unit BioCore system. The enclosed BioCore process is also more robust and stable under variable loading conditions.

BioCore utilizes the latest in tubular membrane technology. The use of



membranes to separate biomass provides an absolute barrier to suspended solids, resulting in the production of higher quality effluent than possible with standard solids/liquid separation methods.

Why BioCore? Why now?

With energy costs on the rise, more energy efficient wastewater management strategies are imperative to the success of any plant/ process operation. For example, in the ethanol industry, reducing energy costs to evaporate thin stillage to syrup, maximizing energy recovery from the thin stillage biomass, and increasing ethanol production efficiency are critical elements for plant profitability. BioCore transforms what has until now been considered a wastewater treatment problem into a renewable energy resource by creating biogas for generation of electricity, steam or hot water.

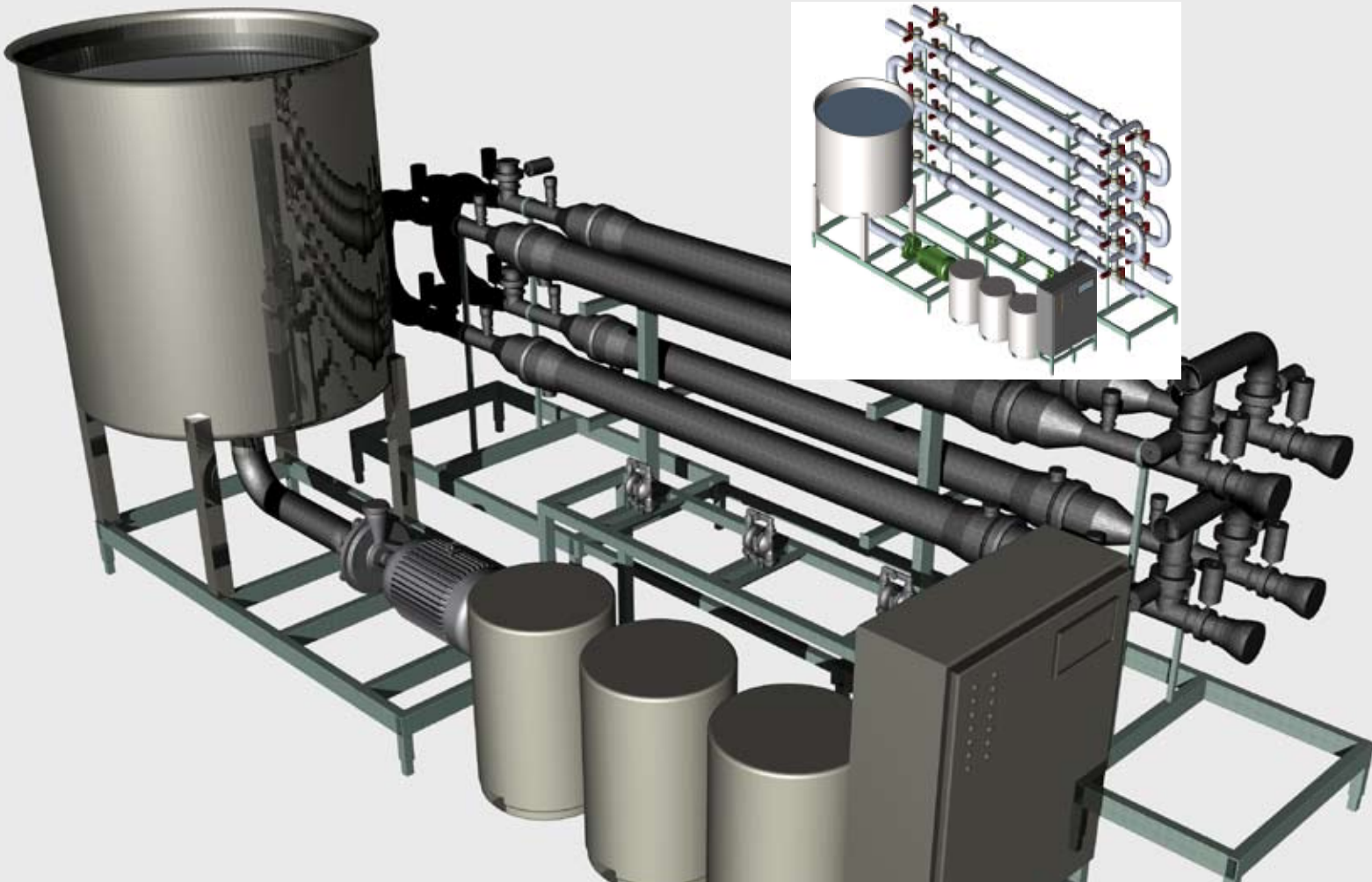
Encapsulated 8 mm tubes within 8" diameter fiberglass housings provide exceptionally large membrane surface area within an extremely compact, cost effective, low maintenance system. Modular BioCore systems are configured to meet your space limitations, and are easily expanded to accommodate future process requirements.

BioCore™ Anaerobic Treatment:

- Smaller footprint
- Higher efficiency
- Simpler control
- Easier maintenance
- Recoverable energy resource

BioCore™ Aerobic Treatment:

- Reduces F:M ratio
- Smaller footprint
- Flexibility
- Improved reliability
- Lower operating costs
- Less sludge
- More efficient use of pumps and tanks
- Consistent high quality effluent
- High level of organic/solids retention
- Significantly less chemical usage
- Easy to clean



Membrane Specifications

- UF (ultra-filtration) tubular membranes provide maximum treatment area within a small footprint
- Modular construction for easy installation and expansion
- 8" fiberglass membrane housing (27 square meters of membrane per housing; < 10 GPM permeate capacity per housing)
- <45 PSI operating pressure
- <120°F (50°C) operating temperature
- Five year service life on membranes (with proper maintenance under normal conditions. Maintenance includes one CIP (clean in place) once every four weeks, typically one to two hour duration.
- A choice of membrane configurations provides users with the most appropriate system. Selection is based on the overall flow, COD (chemical oxygen demand), and wastewater characteristics.
- Standard configurations are available for under 50K GPD to 440,000 GPD and COD/Day from under 2,500 to 22,000.
- Typical square footage area of BioCore systems range from 130 to 370 sq-ft

The BioCore On-Site Pilot Program evaluates your energy savings, ROI and more based on your actual process. Contact Procorp for more information and to discuss your application.



Better. Faster. Closer.

Procorp's passion is Advancing Resource Recovery in water and wastewater treatment. We implement the BioCore™ Advanced MBR technology and minimize our customer's risk by applying comprehensive engineering practices:

- Scientifically proven technology
- Water quality evaluation
- Process modeling and performance forecast
- Verification through bench scale testing in R&D
- Estimate of equipment and capital requirements
- On-site pilot testing to prove system performance
- Final equipment design and cost
- Manufacturing and factory testing of equipment packages
- Shipment and installation of skid-mounted, plug and play solutions
- On-site commissioning and training
- On-going technical support

To find out if pellet extraction is right for your application, please complete and submit the two-page Water Quality Questionnaire on our website. Or, call or email us for a copy.

Please visit our website for more information on BioCore and other Procorp water treatment products.

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