

BIOFerm™ Dry Fermentation

High-Solids Anaerobic Digester (HSAD)



Anaerobic Digester

BIOFerm™ Dry Fermentation is a batch-style, high-solids anaerobic digester. This system has no internal moving parts which allows for ease of processing:

- Contaminated food waste
- Yard waste
- Solid agricultural waste

After input material is piled into airtight garage-like fermenters, feedstock remains stationary while percolate is sprayed over the pile to jump-start digestion.

The BIOFerm™ Dry Fermentation process operates at a solids content of >25% and typically takes around 30 days per batch cycle.

Technical Components

- Gas-tight concrete fermentation chambers with hydronic floor heating
- COCCUS® percolate storage tank with hydronic floor and wall heating
- Percolate distribution system with individually adjustable spray nozzles, percolate pump and macerator
- Dual-membrane flexible gas storage container with gas dehumidification and desulfurization
- Enclosed mixing lobby with feedstock storage space (both optional)
- Biofilter to eliminate pollutants and odors from escaping into the atmosphere

Advantages

- Ideal for contaminated waste streams
- Material remains stationary throughout the process, eliminating moving parts
- Batch process and stationary system allow precise control over substrate removal for maximum energy yield
- Closed loop liquid cycle—liquid from digestion is re-circulated
- Virtually no pre-treatment or sorting of feedstock required prior to system loading, saving time and money for system operators
- Low system maintenance and repair costs
- Low parasitic energy consumption of 5-10%



About BIOFerm™

Based in Madison, Wisconsin, BIOFerm™ Energy Systems is a North American provider of turnkey gas processing and anaerobic digestion systems.

We additionally offer a spectrum of biogas services, such as: gas marketing, financing, project development, regulatory and financial oversight, power purchase agreement assistance, and consulting engineering.

Our company has experience from the installation of over 900 PSA systems (including ~90 Carbotech PSA gas processing plants) and over 450 anaerobic digestion facilities worldwide.

Community Food Waste Applications

Sustainable municipal organic waste management

Municipal Applications

Municipalities can divert organic waste from landfill to produce clean energy in the form of renewable natural gas (RNG) or heat/electricity while creating nutrient by-products by implementing a BIOFerm™ Dry Fermentation system.

These anaerobic digesters process contaminated organic municipal solid waste as they do not require screening or chopping of material prior to digestion. With reduced pre-processing needs, the system has lower operating costs and enables use of residential organics collection.

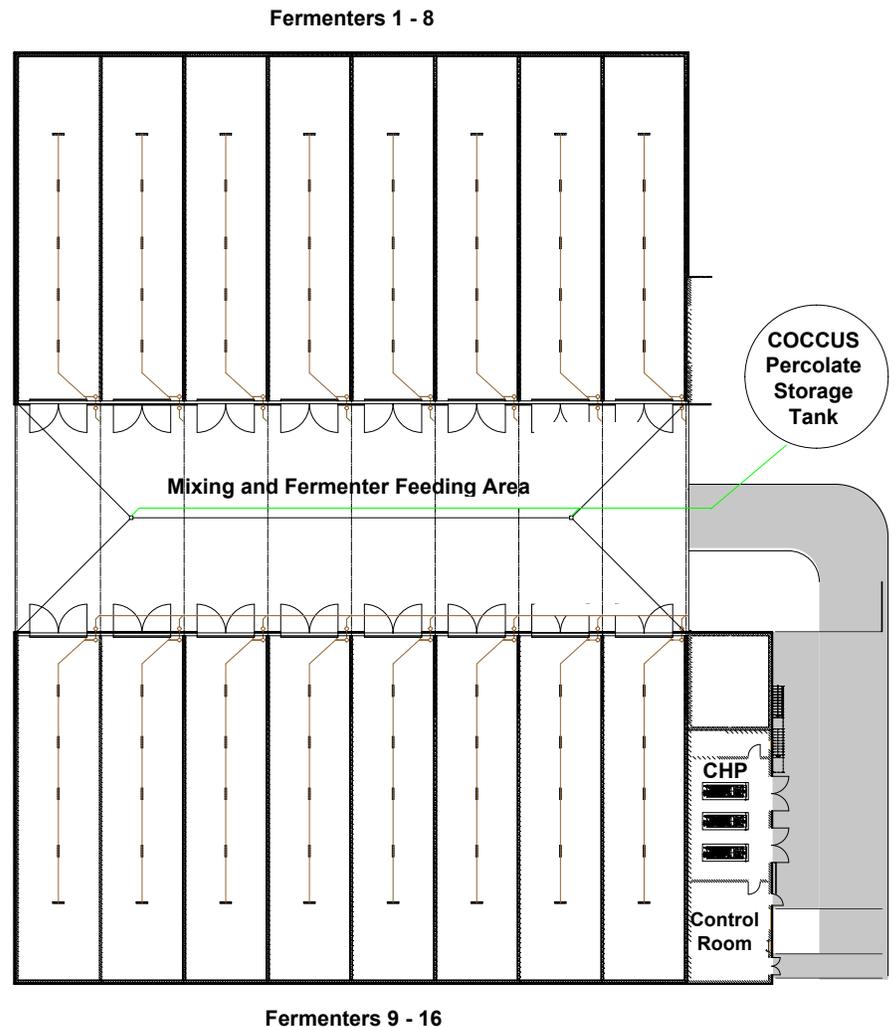
Odors are also completely contained and prevented from escaping into the atmosphere with our biofilter system and enclosed mixing/feeding lobby design.

Simultaneous to renewable energy production, utilizing anaerobic digestion helps municipalities reach their carbon reduction and sustainable waste management goals.

Seamless Integration with Composting

Organic material remaining at the end of a BIOFerm™ Dry Fermentation cycle (typically around 30 days) is in an advanced stage of decomposition and is reduced in volume by up to 40%.

These factors enable shorter composting times, increase overall composting processing capacity, and allow for easy integration of BIOFerm™ Dry Fermentation into existing composting facilities.



Organic Input (tons)	Number of Fermenters	Biogas Production (million scf)	Installed Electrical Capacity (kW)
8,000	4	24	300
20,000	8	60	760
50,000	16	150	1,900
70,000	24	210	2,600