



DIGESTATE MANAGEMENT



OUR SOLUTIONS

Benefits & Impacts

Reduce digestate handling costs, improve gas production and digester throughput, concentrate nutrients, and reclaim clean water for reuse or discharge.

ULTRAFILTRATION (UF)

- Recover 65-85% of digestate as a transparent filtrate free of pathogens and suspended solids with very low levels of phosphorus and organic nitrogen
- Filtrate is ideal for high-volume application to fields and will not clog irrigation systems
- Concentrate is rich in undigested volatile solids and bacteria that can be recycled to the digester to increase solids retention time, thereby boosting gas production and allowing higher volumetric throughput of feedstock
- Concentrate is also a phosphorus-rich slurry that can be cost effectively transported to fields further away or used to produce value-added composts and fertilizers

TWO-STEP REVERSE OSMOSIS (TSRO)™

- UF filtrate is converted into clean water for reuse or discharge and a concentrated liquid fertilizer
- Water reclamation reduces digestate hauling, spreading, and lagoon storage requirements while decreasing freshwater consumption

FACILITY BENEFITS



Use UF to create low-phosphorus filtrate for cost-effective land application or sewer discharge



Reduce digestate disposal costs



Increase daily loading rates to boost tip fee revenues while maintaining efficient gas production



Reduce regulatory and operating risks of land application

HOW IT WORKS

Technology & Performance

ULTRAFILTRATION

- Proven, polymer-free membrane technology with demonstrated results at commercial digester
- Stainless steel tubular design handles high temperatures, high solids, high viscosities, and extremes in pH
- Designed to last 10-15 years in challenging applications with little downtime, maintenance, or repair
- Cleans quickly and automatically using standard cleaning solutions
- Can operate in batch or continuous modes and be mounted horizontally or vertically

UF Equipment



TWO-STEP REVERSE OSMOSIS

- Unique combination of Forward Osmosis (FO) and Reverse Osmosis (RO) membrane technologies can reduce UF filtrate volume by 65-90%
- Highly reliable, non-biological, and polymer-free solution to purify UF filtrate
- Produces clean water ready for reuse or discharge and a value-added product high in ammonia nitrogen and potassium
- Highly automated design requires minimal operator attention with demonstrated results at commercial digester

TSRO Equipment





Digestate



UF Filtrate

FOOD WASTE DIGESTATE ULTRAFILTRATION

PARAMETER	UNITS	DIGES-TATE	UF FILTRATE	UF CONC.	PERCENT CONCENTRATED BY UF (%)
Total solids	%	2.79	1.32	5.66	53%
Total suspended solids	mg/L	18,400	140	55,500	99%
Total volatile solids	mg/L	16,000	4,140	38,600	74%
Total Kjeldahl nitrogen	mg/L	2,000	1,090	3,780	46%
Phosphorus	mg/L	445	15	814	97%
Potassium	mg/L	1,060	888	682	16%

Data from filtering digestate food waste with 70% filtrate recovery.

Contact us today for a quote
844.934.4378

We will help you...

- Reduce digestate disposal costs
- Boost revenues by processing more feedstock and making more biogas
- Increase digester efficiency and throughput



EXPLORING Filtration

Call to learn how a Digestate Filtration System can help your facility. We will assess your current situation and recommend the best solution for you.



TESTING Filtration

We will pilot test your feedstock at our facility in Michigan and provide a thorough report and proposal for a full-scale system.



IMPLEMENTING Filtration

We deliver, install, and commission your new filtration system and teach employees how it works, ensuring it meets your expectations.



MAINTAINING Filtration

The filtration system will become an integral part of your facility, allowing you to streamline operations, significantly reduce costs, and increase your revenues.

JUST ASK OUR CUSTOMERS...



Ultrafiltration is a useful tool for biogas developers and digester operators. We believe it can be used to concentrate feedstocks like manure prior to digestion, thereby reducing hauling costs, and concentrate volatile solids and bacteria in digestate that can be returned to the digester to enhance gas production while minimizing hydraulic residence time. This means we can digest manure from more cows through the same size digester, reducing the capital costs and footprint for digestion facilities.



- Dan Nemke, CTO at Dynamic Group