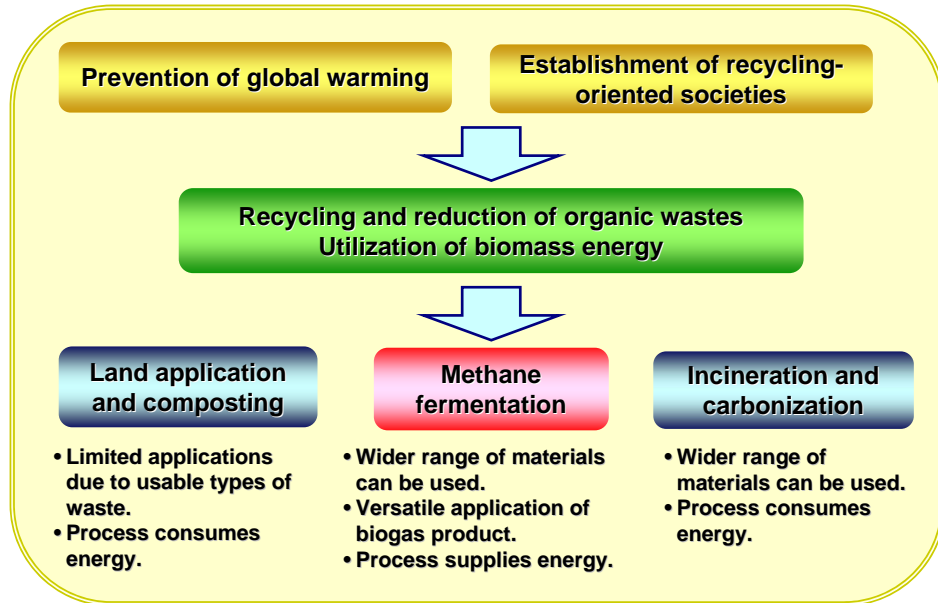


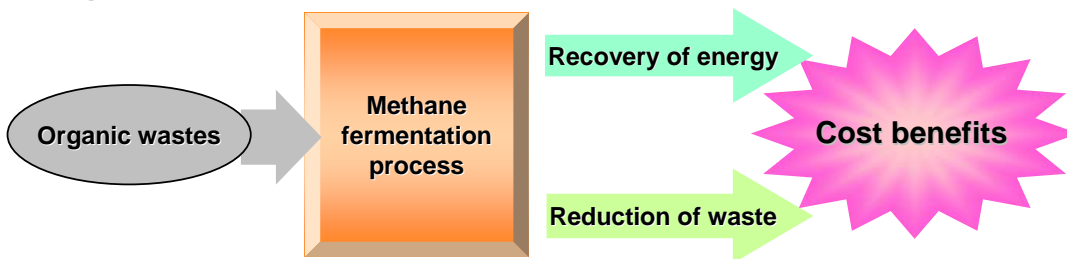
Answer to the needs for efficient utilization of organic wastes

Prevention of global warming and the establishment of recycling oriented societies have added to growth in demand in the field of recycling/reduction of organic wastes.



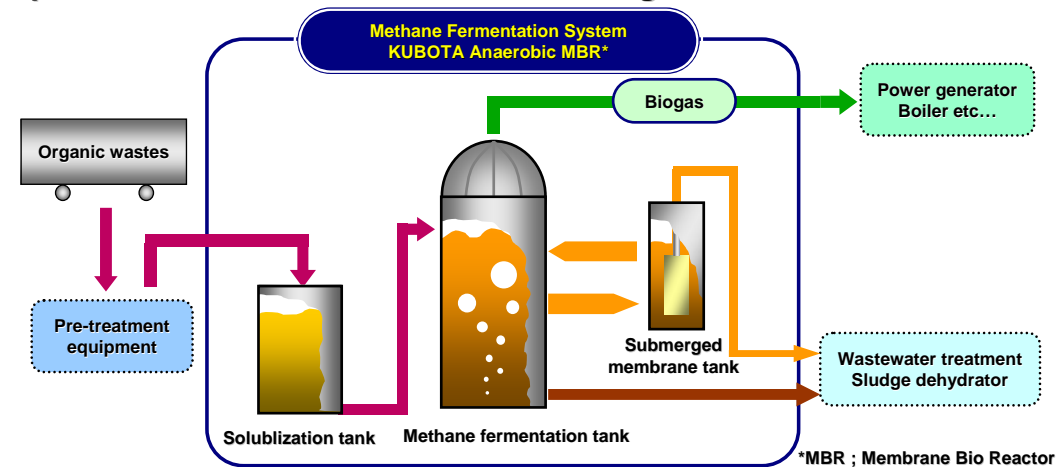
Pursuit of cost benefits through application of methane fermentation system

Methane fermentation process is capable of both reducing the operational energy expenses of a plant/process by utilizing the produced biogas as well as the costs due to subcontracted waste disposal services by reducing the waste volume leaving the plant.



Features of methane fermentation system employing submerged membrane unit

Kubota, a leading manufacturer of wastewater treatment equipment, offers this reliable system supported by its wealth of practical experiences as well as advanced technologies.



Application of submerged membrane separation tank

- Stabilized fermentation
- Power-saving
- Decreased footprint

The diagram shows a tank with a submerged membrane unit. "Ammonia" is shown as an inhibitor being removed from the "Methane bacteria" environment. "Organic matter" is being processed by the bacteria. "Permeate (Inhibitor)" is shown being filtered out through the membrane.

Methane bacteria are susceptible to inhibition from the buildup of ammonia and other chemical components. Kubota's methane fermentation system employs a submerged membrane unit capable of removing these dissolved inhibitors via filtration while simultaneously enhancing efficiency in the fermentation process by maintaining methane generating bacteria in high concentration.

Unit formation of methane fermentation

- Price reduction
- Prompt delivery
- Smaller footprint

Installed for Y Company
Alcohol stillage :20t/d (44,000 lb/d)
Installation area:180m² (1,900sq.ft.)

Installed for Ho Company
Alcohol stillage :60 t/d (132,000 lb/d)
Installation area:290m² (3,100sq.ft.)

Kubota Methane Fermentation System Employing Submerged Membrane Unit

KUBOTA Anaerobic MBR Installations

KUBOTA Anaerobic MBR has been applied for various processes / plants as shown in the table below.

Customers	Locations	Capacity	Start-up
K company (Dressing/sauce production)	USA	Salad dressing WW 400t/day	Jul. 2008
Sa company (Shochu distiller)	Japan	Alcohol stillage 65t/day	Mar. 2009
M company (Dairy factory)	Japan	Dairy products 30t/day	Nov. 2008
Ho company (Shochu distiller)	Japan	Alcohol stillage 60t/day	Nov. 2008
F company (Shochu distiller)	Japan	Alcohol stillage 12t/day	Oct. 2008
D company (Shochu distiller)	Japan	Alcohol stillage 60t/day	Mar. 2007
Y company (Shochu distiller)	Japan	Alcohol stillage 60t/day	Mar. 2007
S company (Shochu distiller)	Japan	Alcohol stillage 60t/day	Nov. 2006
H company (Awamori distiller)	Japan	Alcohol stillage 15t/day	Jan. 2006
B company (Jelly manufacturer)	Japan	Syrup and Jelly 6.5t/day	Mar. 2004
P company (Delicatessen maker)	Japan	Potato waste 5.2t/day	Sep. 2003
Association of N Sanitary Facilities	Japan	Raw garbage etc. 5t/day	Mar. 2003
Association of K Sanitary Center	Japan	Raw garbage 16t/day	Mar. 2003
I company (Confectionery maker)	Japan	Red beans etc. 2t/day	Apr. 2004
Association of S Sanitary Facilities	Japan	Raw garbage etc. 8t/d	Apr. 2000

Case Studies



S-Company
Feedstock: Alcohol stillage 60t/d
Recovery of energy: Boiler



K-Company
Feedstock: Salad dressing wastewater 400t/d
Recovery of energy: Boiler

KUBOTA Anaerobic MBR, a methane fermentation system employing submerged membrane unit is capable of minimizing organic waste processing costs as well as providing efficient production of clean energy.

Recovery of clean energy from organic waste

KUBOTA Anaerobic MBR

8th New Energy Conservation Award 2003



by Minister of Economy, Trade and Industry,
New Energy Division, Japan

Kubota

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This advanced membrane technology can provide a stabilized, power-saving fermentation reaction while reducing the scale of the anaerobic system.