VEOLIA

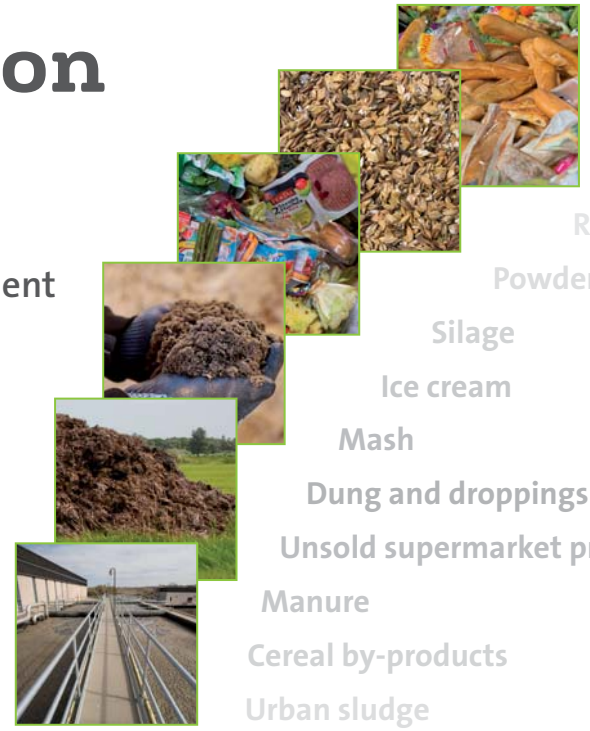
BIOMET™

Biowaste Methanization

WATER TECHNOLOGIES

An optimized solution to meet your needs

Specializing in the design and build of water treatment plants, Veolia Water Technologies recovers and recycles your biomass and biowaste in order to extract the most added value from it.



BIOMET™

A wet methanization process leveraging on an external agitation system with continual crushing.

BIOMET™ guarantees your energy and environmental performance by combining two separate steps:

Hydrolysis:

- Mixture breakdown by hydrolytic bacteria in order to obtain increased availability of organic matter and better yields

Anaerobic digestion:

- Producing biogas through the action of methanogenic bacteria

BIOMET™ benefits:

Performance

- Secures a biogas production of 10 to 20% more than conventional digestion/post-digestion processes
- Allows for optimized agitation at all steps

Flexibility

- Accepts a very wide range of inputs
- Adapts to the evolution of future waste inputs
- Tolerates a mixture with a higher rate of dry matter (24% and more) than conventional processes which are limited to 17%

Operational simplicity

- Stable performance whatever the loading rate due to the hydrolysis stage
- Easy maintenance thanks to external stirring and heating systems
- Allows the digester to be powered seven days a week while limiting the input reception to five days

Compactness

- Reduced retention time = reduced footprint (from 25 to 50%)

Methanization principle

Methanization (also called digestion or co-digestion) is the anaerobic degradation , due to lack of oxygen, of organic matter in the inputs. This takes place in a digester at a temperature between 35 and 55°C.
Methanization allows biogas to be produced. It is the result of many physical, chemical and biological combined processes.

Your prospects for resource recovery: The main challenges

BIOWASTE & BIOMASS

Liquid reception

Solid preparation

Deconditioning

Sanitizing

The keys to access resources:
- Characterization
- Flexibility
- Reactivity
- Variability

PRE-TREATMENT

- Increased biogas production
- Digestion process stability
- External maintenance
- Foaming control

BIOMET™

Cleaning

Biomethane

Biogas

ENERGY PRODUCTION

Processing biogas into biomethane for producing biofuels.

Bio CNG

Reinjection into the gas network

The proximity of a natural gas network offers a way to directly recover biomethane.

ENERGY RECOVERY

- Maximized profits
- Thermal optimization due to on-site heat generation

Electricity

Producing "green" electricity that can be used on-site or sold back to the network.

Co-generation

Heat Steam

Other potential reclaim uses:
- CO_2
- Algae
- Cooling production

Heating for livestock buildings, industrial or municipal buildings located nearby.

DIRECT RECOVERY IN A BOILER

DIGESTATE HANDLING

Phase separation

Liquids

Solids

On-site water balance
- Optimized polymer consumption

Non-transformed organic waste returned to the soil for fertilizing fields Two fertilizer spreading plans a year.

AGRICULTURAL WASTE RECYCLING

Struvia™

MATTER RECOVERY (phosphorous, nitrogen)

- On-site nitrogen balance
- No clogging
- Minimal consumption of reactive products

Stripping

Treating digestates

AGRONOMIC ENHANCEMENT

- Quality fertilizer for spreading plan

Composting

Sun drying

Heat drying

AGRICULTURAL REUSE

Obtaining a fertilizer that is rich in humic components. Composting is used to improve soil quality by improving fertility.

USE AS FUEL

Veolia Water Technologies' assets

- A key player in methanization processes for over 60 years
- A modular and standardized approach for efficient support throughout project
- Customized technical solutions adapted to your needs
- Optimized investment costs
- Controlled operating costs
- The ability to manage the combined flow of waste products and energy on your site
- Integrating the methanization unit into existing structures
- Access to partners for financing, operating and service
- Field experience and local presence
- The solidity, creativity and experience of a leading group
- A dedicated and committed team
- Feedback from operational sites around the world

Among our references

Artois Methanization
(Northern France)

Quantity of waste processed:
32,000 tons/year

Inputs:
Industrial sludge and grease, WWTP sludge, solid and category III waste, deconditioning, chicory roots...

Electric power produced:
8,000 MWh/year

Conserve Italia
(Pomposa, Italy)

Quantity of waste processed:
35,000 tons/year

Inputs:
1/3 fruit & vegetables, 1/3 WWTP sludge and 1/3 corn silage.

Electric power produced:
8,400 MWh/year

Samoëns
(French Alps)

Quantity of waste processed:
8,000 tons/year

Inputs:
WWTP sludge and biowaste.

Electric power produced:
785 MWh/year

Resourcing the world

Veolia Water Technologies
Kruger / 4001 Weston Parkway / Cary, NC 27513
Phone: 919.677.8310 • Fax: 919.677.0082
usmunicipal@veolia.com • www.veoliawatertech.com