



BIOGAS-BIOMETHANE FROM OF-MSW

PRETREATMENT

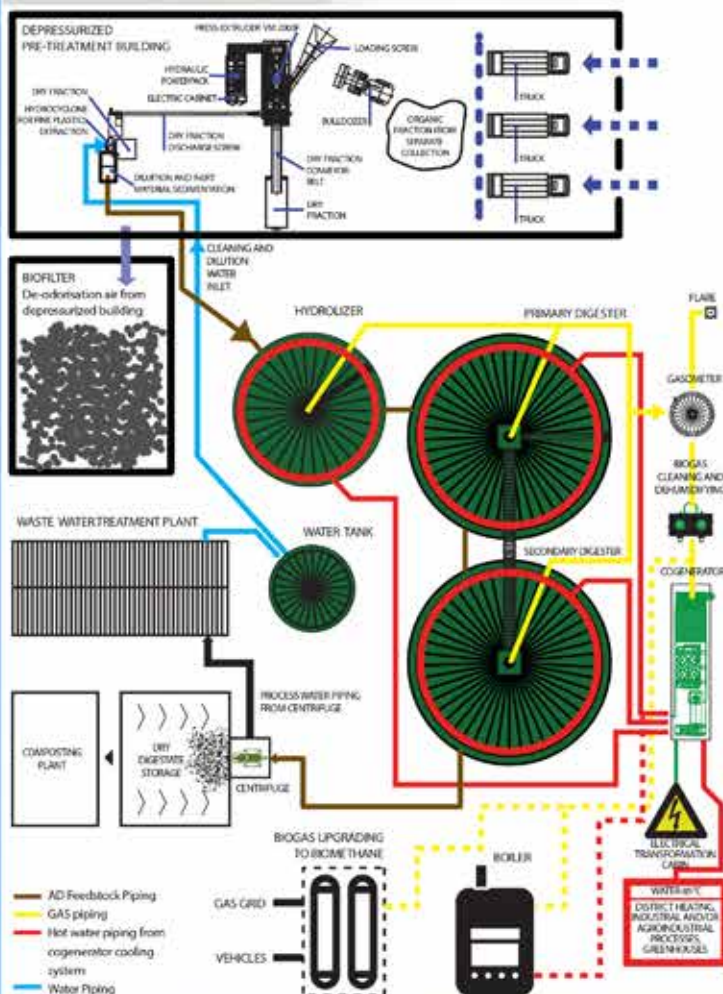
Depressurized feedstock reception building

Automatic or manual loading area

High efficient press-extruder that allows for obtaining two separated fraction from OF-MSW: a biodegradable organic wet fraction and a dry non-biodegradable fraction. Physical separation and not dimensional separation is the operating principle of the machine. The organic material fluid has an optimal homogeneity that enables a high efficient anaerobic digestion

Mixing and cleaning system of the biodegradable fraction from the press extruder to remove fine plastics and inert materials.

The fluid is prepared for the immission in the Anaerobic Digestion system



ANAEROBIC DIGESTION

CSTR (Continuous-flow Stirred-Tank Reactor) double stage Anaerobic Digestion working in mesophilic regime with equalization and primary hydrolysis process in a separated tank

Connection in series allows for a high efficiency in the digestion process obtaining a well stabilized digestate with no foul smell and maximum biogas production

Mesophilic regime is the most stable in terms of biochemical reactions

Digesters and piping are completely made of industrial stainless steel (instead of concrete walls and plastic roof)

External stainless steel gasometer for safety and easy maintenance

Easy access for cleaning and maintenance

Double pumps, flexible and redundant mixing system to increase reliability

Industrial electrical systems and high quality valves

The plant is supplied with inverter controlled mixing members installed externally to reduce maintenance cost and to increase the technical lifespan

Supervision system (PLC) and remote control with cameras in the digesters

Easy operations management

Different biodegradable solid and liquid waste are accepted thanks to the equalization and primary hydrolysis tank on top

ENERGY

BIOMETHANE OPTION

Biogas desulphurisation and cooling system + biogas upgrading to biomethane through the DMT Carborex MS[®] membrane system.

Use of a boiler equipped with biogas/biomethane burner for the process heat

Electrical energy from the grid or installation of a cogenerator engine dimensioned on the installation needs

Biomethane injection into the gas grid or for vehicles

COGENERATION OPTION

Biogas desulphurisation and cooling system

Cogenerator engine fuelled with biogas to produce electrical energy and hot water (85°C) for the process and for district heating network

HEAT OPTION

Direct use of raw biogas to fuel a boiler to produce thermic energy only

AIR-WATER-DIGESTATE TREATMENT

AIR: pretreatment building is kept in depression and the air is sent to a biofilter to prevent the spreading of bad odours outside

WATER: wastewater treatment plant to treat the water coming out from the solid/liquid separation system with oxidizing, nitrification, denitrification tanks and sedimentation tanks

DIGESTATE: solid/liquid separation system through flotation followed by dewatering with centrifuges and filter belt presses

Stabilized solid digestate output ready to be sent to a composting plant for the final refining according to the existing legal framework



WT ENERGY



BIOGAS-BIOMETHANE FROM BIOMASS

PRETREATMENT

Solid/liquid biomass reception area (depressurized building in case of specific feedstock)

Automatic or manual loading area

Mechanical shredding

Chemical-physical pretreatment (different types of physical treatments possibly preceded by chemical treatment)

Chemical pretreatments (acid-basic hydrolysis)

Biological pretreatments (enzymatic hydrolysis)

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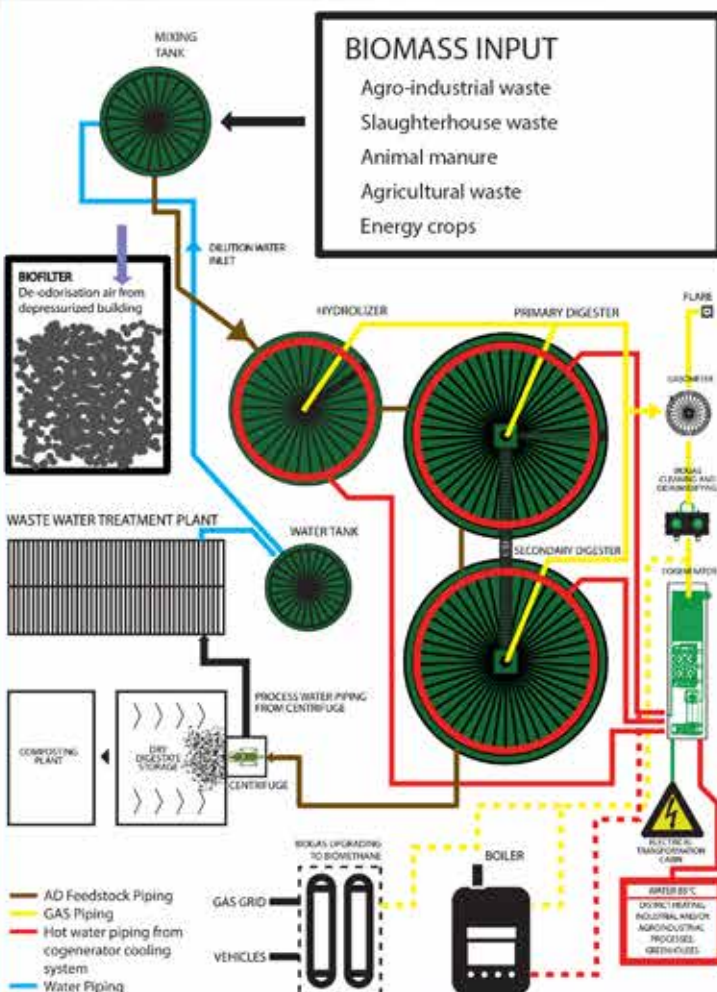
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