

## METHANIZATION UNIT



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### Experimental capabilities

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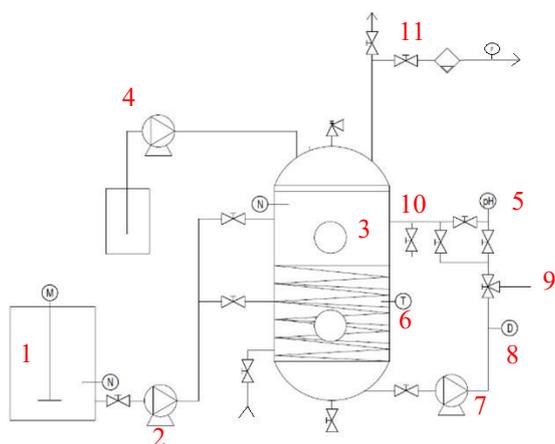
**Study of liquid effluent treatment in an anaerobic environment (in batch)**  
**Production with biogas monitoring: methane and CO<sub>2</sub> (option T61)**  
**Determination of chemical oxygen demand (COD) and monitoring during recirculation processing**  
**Tracking parameters such as pH and temperature**  
**Determination of the methanogenic potency of an effluent**  
**Reaction kinetics**  
**Influence of temperature**  
**Material balance**

## Operating principle

The GPBT60 bench allows the study of the methanization of liquid effluents in batches. Anaerobic digestion is a process of degradation of organic matter in the absence of oxygen. This degradation takes place thanks to the action of various bacteria and leads to the production of biogas. The rugged design of this equipment makes it perfectly suited for use in a school setting. Its anodized aluminum structure on wheels gives it a very high robustness as well as great flexibility of integration into your premises. The manufacture of this equipment complies with the European Machine Directive.

## Illustrations

## Technical details



### 1. Primary Organic Matter Reservoir

- Materials: high-density polyethylene
- Volume 200 L
- Drain valve
- Low level detector
- Variable speed marine propeller agitator

### 2. Feed pump

- Variable speed peristaltic pump

### 3. Anaerobic anaerobic digestion plant

- Made of stainless steel
- Volume 80 L
- electric heating jacket with insulation
- temperature sensor
- two industrial glass portholes with a diameter of 100mm
- 2 liquid supply taps
- 1 nitrogen inlet for bubbling
- 1 safety valve
- High level detector
- Bottom valve

### 4. Peristaltic pump for admixtures

- Adjustable pump 0-10L/min
- Continuous or pH-dependent operation possible (lime addition)
- 20L HDPE feeder trays

### 5. pH electrode

- Removable pH electrode
- Swing and isolation valves
- support plate for a beaker (calibration)

### 6. Temperature sensor type Pt 100

### 7. Recirculation pump

- Flexible variable speed impeller pump
- Flow rate: 0-40 L/min

### 8. Digital Flow Meter

- Technology: Electromagnetic
- Scale: 0.2 - 50 L/min

### 9. Treated effluent outlet

- Three-way valve

### 10. Sampling

- Effluent sampling

### 11. Biogas type

- Ventilation valve for the air of the methanizer
- Separator filter for gas conditioning
- Volumetric meter of the gas produced

### 12. Biogas analysis unit (optional GPBT61)

- biogas analyzer including a pellet drying unit and an industrial gas analyzer (ULTRAMAT23) for the measurement of CO<sub>2</sub> and CH<sub>4</sub> (0-100%).

The bench is installed on an aluminium profile structure equipped with 4 directional castors with brakes.

It includes an electrical box with all the necessary safety features (differential circuit breakers, thermal circuits, emergency stop button, disconnect switch, etc.). A 10-inch touch screen allows the machine and operating modes to be controlled. It also displays the measurements.



1.

# GPBT60



## Services required

- Electrical supply : 400 Vac – 50 Hz – 20 A
- Electrical network : 3 phase(s) + Neutral + Earth.
- Water drain : on the floor
- Dimensions: (LxWxH mm): 2350 x 800 x 1950
- weight (Kg): 240

Note : if the equipment installation is operated by our staff, all supplies and exhaust connections required must stand at less than 2m from the machine

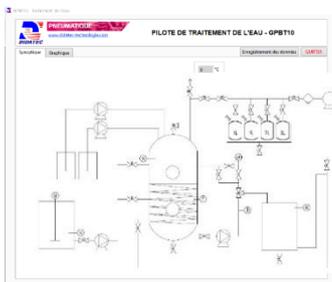
## Documentation

- User's manual
- Pedagogical manual
- Technical documentation of the components
- Lab exercises
- Wiring diagram
- Hydraulic diagram
- Certificate of conformity CE

## Options

The bench is also equipped with supervision software as standard. The connection to the PC is made by Wifi. The software is divided into two parts:

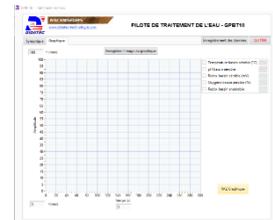
### SYNOPTIC :



An image containing diagram, sketch, drawing, technical drawing Auto-generated description

### GRAPH:

In this graphic window, you will find the possibility to draw measurement curves as a function of time by selecting the desired quantities and to save the measurements.



## Option: Biogas Analysis (not included) GPB T61

- Biogas Conditioning Unit with CO2 and CH4 Analyzer (0-100%)
- Ref : GPBT61



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version : FT-GPBT60-STD-A