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ARKA

"LABIO™"

Analytical Instrument
for conducting various

Anaerobic Digestion tests

An IIT certified product

A product of Arka BRENStech Pvt. Ltd.

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The Laboratory Scale Fermenter

The Laboratory Scale Fermenter is designed to simulate the anaerobic digestion process with real life parameters. The 25 and 50 Litres anaerobic digester can perform continuous testing e.g., by controlling the mixing and the temperature.

The Laboratory Scale Fermenter is designed as a testing unit to determine the potential biogas output of any biodegradable substrate in various operational modes.

Laboratory Scale Fermenter study is a must for various reasons for both solid as well as liquid substrates, few examples which can be studied from the lab scale digester units are:

- Effect of the pre treatment on Anaerobic Digestion
- Digester stability - actual field scale
- Dewater ability and outlet slurry characteristics
- Methane yield obtainable from the a particular substrate
- Seeding and/or feeding strategies
- Gas composition/trace contaminants
- Nutrient/additive requirements
- Microbiological behavior
- Microbiological growth rate
- Process optimization
- Volatile Solids
- Effect of inhibitory substances - Actual field scale

Arka Labio has several advantages to other similar reactors on the market:

-Arka Labio bioreactors are extremely user friendly and specifically designed with ease of use and maintenance in mind.
-Labio bioreactors can be remotely operated on simplified HMI in your mobile or Laptop.
-Continuous acquisition of data allows for technical analysis of the process
-Automated Heating system allows for independent heating and cooling.
-Labio bioreactors are suitable for both low and high solid content feedstock.
-Labio bioreactors have been designed to

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be highly flexible for both feeding and process monitoring & control
-The viewing ports allow for visual inspection of foam formation during the fermentation.

Multiple Uses:

• Schools/Colleges/Training - A real time working model which can be the best training equipment for any student. This unit can produce biogas continuously for various studies. This can be a perfect academic tool to help captivate as well as educate students about the waste management and biogas generation.
• Laboratories - Perfect testing unit for any laboratory working on Anaerobic Digestion of solid or liquid substrates.
• Research
• Optimization of gas production or substrate degradation
• Pilot Plant - Based on the sizing it can be a perfect simulation tool for with real life parameters. This unit can easily help to understand the day to day biogas production from various substrates as well as it can help in understanding the external effects of other parameters on the field scale digester against which one can before hand be prepared . Lab scale digester not only helps to study the new substrates but it is a perfect tool to simulate the co-digestion of the various substrates together.

This Design is Robust, Scalable and Reliable:

• The Laboratory scale digester is designed and manufactured in New Delhi and is a robust easy to use and operate anaerobic digester. Digesters are available in Stainless Steel or Acrylic models, which are air tight and provided with automated stirring systems with programmable cycles. The temperature is also regulated and controlled by the heating system, settings of which can be changed, if required, based on the system requirements. Maintenance is quite easy as the entire digester cover is detachable and the unit is also provided with a drain point. The system also accompanies the pH and temperature sensors and monitors. Based on the requirement of the storage, the biogas storage bags are de-signed . Similarly, the biogas meter is included based on the requirements. Other safety equipments are also include e.g., over and under pressure unit, valves etc. Above system also comes with a proper manual. Further a series of digesters (4-8 Nos) combined together on single unit are also available. This unit is specialized item designed for in depth study of gas yield for longer periods. This unit can further be used for enzyme or nutrient development studies and also for process optimization. This entire unit is equipped with high degree of automation.

Technical Details:

Reactor Type: CSTR (Completely Stirred Tank Reactor) for continu-ous / batch operations
Volume: 25 and 50 litres capacity
Dimensions: Based on the volume the reactor
Agitation: 2 rpm - 200 rpm
Heating: 10°C - 70°C; Automatic Heating
Material: SS 304 or Acrylic Digester

Control: Agitation and Heating system Gas Storage: 10 Ltrs - 1000 Ltrs (PVC/neoprene rubber/aluminum bags)
Display Unit: pH and Temperature display unit
Rack System: Based on the size the rack system is also available (optional)
Biogas Meter: Digital/Analog
Biogas analyser: CH_4, CO_2, and H_2S measurement
Delivery: 8-10 weeks

Biogas test plant ABPL-50T (refer to the above information) *

Biogas testing plant with following scope of equipment or technical data:
- **No. of Reactors**: 1
- **ReactorType**: CSTR (Completely Stirred Tank Reactor), for batch/continuous operations
- **Reactor Capacity**: 50L Capacity
- **Material**: Stainless Steel (SS304)
- **Agitation** (2 to 200RPM) and Heating System (15°C to 75°C), Automatic Heating and thermostat
- **pH Sensor** (1 to 14)
- **Display Unit** for pH, Agitation and Temperature
- **Biogas meter** (Analog)
- **Biogas Storage:** PVC Storage (1000L capacity)
- CH_4 measuring range: 0-100%
- CO_2 measuring range: 0-50%
- H_2S measuring range: 0-1000 ppm

Few of ArkaBRENStech's esteemed clients are IIT-BHU, Banaras, National Institution of Engineering (NIE), Mysore, Meera Green Fuels Pvt. Ltd. Mumbai, Aruna Green Ventures Pvt. Ltd., Bangalore.

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*This brochure is for reference purpose only. Arka BRENStech keeps the right to change the design (but not the specification) for the betterment. The respective patent is pending.