GärOnA

Anaerobic lab fermentation system with integrated gas analysis

Product description

Meaningful fermentation tests are necessary for an efficient biogas manufacturing. With the test results, you can describe the microbiological processes and the degradation characteristics of new substrates. The procedures for fermentation tests are specified, among others, in the VDI guideline 4630.

Now, the batch and continuous fermentation tests can be carried out fully automatically with the system “GärOnA”.

The pressure range in the fermentation vessels can be minimized. This has a positive effect on the solubility equilibrium of methane, carbondioxide and other gas components in the liquid phase.

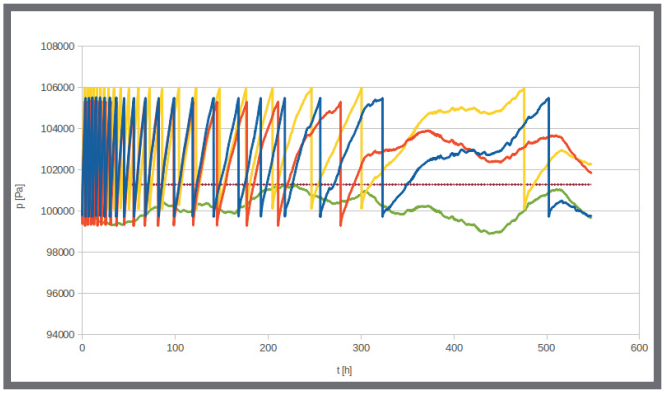
While the depressurization a biogas sample from a vessel is fed automatically to the gas chromatograph where it is analysed. It is possible to record the change of the methane formation or the time course of the methane formation rate.

The fully automated lab fermentation system “GärOnA” allows very easy and exactly the investigation of anaerobic digestion process, combined with a wide information content.

GärOnA - Incubator unit and gas chromatograph on the top

Advantages

- Compact and portable lab analyzer
- Fully automated and controlled fermentation vessels
- Pressure measurement for determination of formed biogas quantity
- On a roll-off magnetic stirrer 15 measuring stations und 1 measuring cell as a reference
- Controlled depressurization via valve manifolds
- Determination of different gas components with integrated gas chromatograph (CO_2, CH_4, trace gases)
- Waterless incubation by an incubator unit
- Compensation of temperature and air pressure changes for accurate data evaluation
- 2000 programmable runs on the Online-GC
- Automatic measuring value recording and



Example of the time course of pressure raw data during the digestion of different substrates

Specifications

Fermentation test system

Measuring stations:	15 + 1 measuring cell as a reference
Fermentation vessels:	Laboratory bottles of DURAN® glass, 500 mL, with GL 25 or GL45
Measuring range:	± 100 mBar
Temperature measurement:	Caps with integrated pressure sensor
Pressure control:	Automatic depressurization via 3 valve manifolds

Incubator

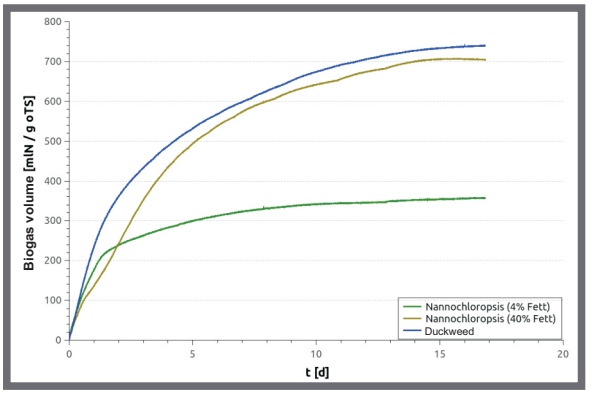
Outer dimensions:	835 x 650 x 1025 mm (W x D x H)
Inner dimensions:	600 x 400 x 480 mm (W x D x H) (115 Liter incubation chamber)
Weight:	150 kg (with internal installations)
Power supply:	230 V, 50 Hz, 460 W
Permissible incubation temperature:	4 ... 65 °C

Online gas chromatograph

Version:	Mobile gas analyzer “MobilGC”, 19” with thermal conductivity detector and up to 2 columns
Column temperature:	150 °C (up to 300 °C selectable temperature programs)
Transferline:	Heated up to 60 °C
Sample loop:	200 µL (10 ... 1000 µL selectable)
Carrier gas:	Argon (selectable depending on the detector)
Measuring range:	Depending on the configuration
CO_2	0 ... 100 Vol.-%
CH_4	0 ... 100 Vol.-%
H_2	0 ... 5 Vol.-%
Detection limits:	Depending on the configuration
CO_2	0.1 Vol.-% (1000 µL loop)
CH_4	0.1 Vol.-% (1000 µL loop)
H_2	50 ppm (1000 µL loop)
Dimensions:	560 x 450 x 220 mm (W x D x H)
Weight:	25 kg
Power supply:	230 V, 50 Hz, 800 W

Measuring cap with integrated sensor unit

Reaction vessels with pressure transducer caps on roll-off magnetic stirrer



Example of a timing program: biogas formation of different substrates

We are here for you

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The system GärOnA has been developped in cooperation between ECH and GMBU.

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