

RESPIROMETER

DETERMINATION OF AEROBIC OR ANAEROBIC BIODEGRADABILITY OF SOLID AND LIQUID SAMPLES

- 🌿 Plastic materials (ISO 14855-1, ASTM D 5338)
- 🌿 Organic waste (solid or liquid samples)
- 🌿 Food production
- 🌿 Compost
- 🌿 Wastewater



Modular Respirometry Systems

ADVANTAGES

Per each reactor chamber there are:

- 🌿 Mass flow controllers for precise setting and measurement of gas flow in each reactor
- 🌿 Graphical presentation of test parameters, productions
- 🌿 Automatic humidification

SENSOR TECHNOLOGY

- 🌿 Optical NIR:CO₂ and CH₄
- 🌿 Electrochemical or paramagnetic O₂ sensor
- 🌿 Other sensors: H₂, H₂S, NH₃









Respirometry solid state samples

FEATURES

- 🌿 6-12 measurement channels
- 🌿 Temperature from 5 to 70°C
- 🌿 Automatic leak detection
- 🌿 Aerobic or anaerobic bio- process measurement

MEASURING/MONITORING BIODEGRADABILITY OF DIFFERENT TYPES OF MATERIALS:

-  soil, compost, plastic, and organic biodegradable materials
-  yeast activity in beverage industry
-  monitoring the activity of lactic acid bacteria's in milk fermentation
-  respirometric measurements of activated sludge for efficient biological wastewater treatment
-  different applications in biotechnology, biology, and ecology
-  user friendly experiment set up and control



ID	CO2	Respiration	Temp	Humidity	Pressure	Flow	CO2	Respiration	Temp	Humidity	Pressure	Flow	CO2	Respiration	Temp	Humidity	Pressure	Flow
1	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	0.000	20.0	50.0	1013.25	0.000
2	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	0.000	0.000	20.0	50.0	1013.25	0.000
3	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	0.000	0.000	20.0	50.0	1013.25	0.000
4	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	0.000	0.000	20.0	50.0	1013.25	0.000
5	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	0.000	0.000	20.0	50.0	1013.25	0.000
6	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	0.000	0.000	20.0	50.0	1013.25	0.000
7	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	0.000	0.000	20.0	50.0	1013.25	0.000
8	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	0.000	0.000	20.0	50.0	1013.25	0.000
9	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	0.000	0.000	20.0	50.0	1013.25	0.000
10	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	0.000	0.000	20.0	50.0	1013.25	0.000
11	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	0.000	0.000	20.0	50.0	1013.25	0.000
12	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	0.000	0.000	20.0	50.0	1013.25	0.000
13	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	0.000	0.000	20.0	50.0	1013.25	0.000
14	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	0.000	0.000	20.0	50.0	1013.25	0.000
15	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	0.000	0.000	20.0	50.0	1013.25	0.000
16	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	0.000	0.000	20.0	50.0	1013.25	0.000
17	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	0.000	0.000	20.0	50.0	1013.25	0.000
18	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	0.000	0.000	20.0	50.0	1013.25	0.000
19	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	0.000	0.000	20.0	50.0	1013.25	0.000
20	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	0.000	0.000	20.0	50.0	1013.25	0.000
21	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	0.000	0.000	20.0	50.0	1013.25	0.000
22	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	0.000	0.000	20.0	50.0	1013.25	0.000
23	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	0.000	0.000	20.0	50.0	1013.25	0.000
24	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	0.000	0.000	20.0	50.0	1013.25	0.000
25	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	0.000	0.000	20.0	50.0	1013.25	0.000
26	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	0.000	0.000	20.0	50.0	1013.25	0.000
27	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	0.000	0.000	20.0	50.0	1013.25	0.000
28	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	0.000	0.000	20.0	50.0	1013.25	0.000
29	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	0.000	0.000	20.0	50.0	1013.25	0.000
30	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	20.0	50.0	1013.25	0.000	0.000	0.000	0.000	20.0	50.0	1013.25	0.000

Text data files for easy graphic analysis.

EASY MS EXCELL EXPORT.

CHARACTERISTICS

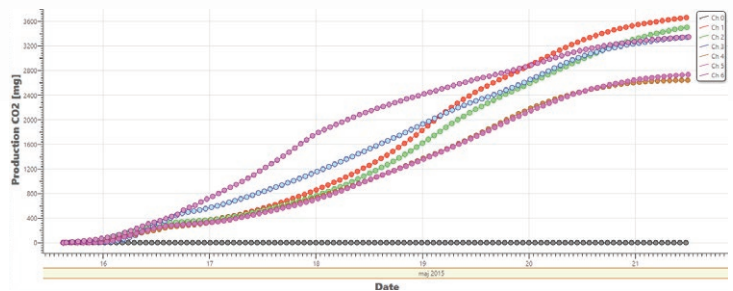
- Measuring Parameters
- Test material
- Number of channels
- Temperature
- MFC on each channel

TEHNIICAL DATA

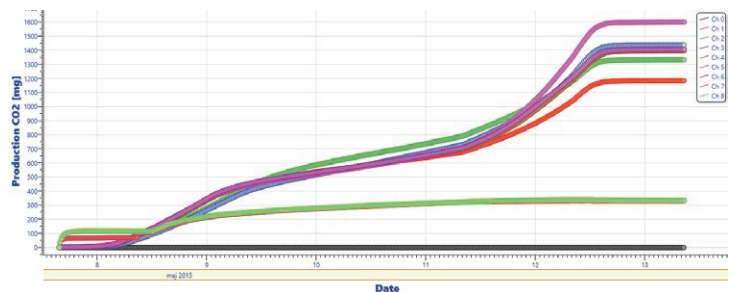
- Sensors: carbon dioxide, oxygen and methane, temperature, pressure, humidity, flow rate
- Granules, powder, liquid, solid material or wastewater
- 6 or 12, more on request
- 5 - 70°C
- +/- 1.5% FS, 100-1000ml/min

RESPIROMETER APPLICATIONS

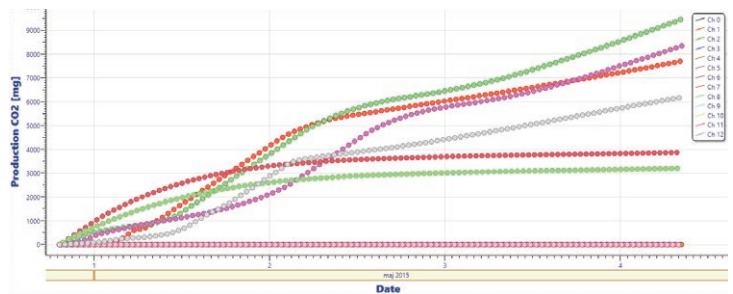
Study of respirometry of milk samples with addition of different types of probiotics: Linex, Linbi, Waya, Yogermin and yeast. Study of influence of different food additives on milk fermentation.



Testing biodegradation of different types of plastic materials in compost with addition of different active substances.



Yeast fermentation with different concentrations of substrate and different additives like sugar, kefir and milk.



RESPIROMETRY SOFTWARE – ERS12

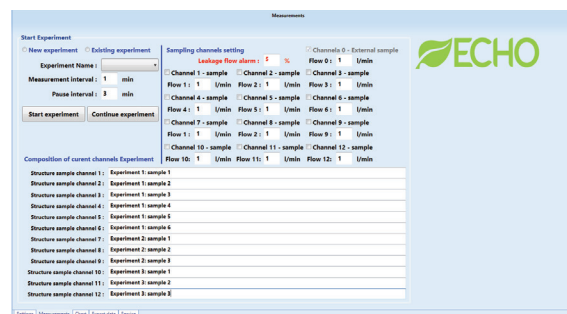
MEASURING SCREEN

- Continuous biodegradation progress monitoring in each reactor
- Checking the pre-set flow rates for each channel
- Monitoring of CO₂ and O₂ concentration in each reactor
- Measurement of humidity, pressure, and temperature of sample
- Graphical User Interface GUI



SETTING SCREEN

- Setting the flow rate per each channel
- Measurement time and pause interval setting between each channel
- Control and alarm setting for leakage alarm



Remote control for experiments monitoring and set up

MANUFACTURER

Echo d.o.o.
Stari trg 37, Slovenske Konjice 3210

tel: +386 (0)3 759 23 80
info@echo.si
www.echoinstruments.eu

DISTRIBUTOR



Rua Gregório Lopes LT 1512 B
1449 - 041 Lisboa | Tel.: 21 722 08 70 | Email: geral@tecnilab.pt
www.tecnilab.pt