

SAMPLING
SOLUTIONS

MEGA SYSTEM

CALIBRATION
& METROLOGY

HYDRA



- Compliant to the calculation method with **UNI EN ISO 14855:1** and **UNI EN ISO 14046**
- **12-channel** Respirometer with O₂ and CO₂ IR sensor for continuous measurements
- Precise flow adjustment with dedicated mass flow controllers for each channel
- Reports and graphs integrated into the software to calculate % biodegradability



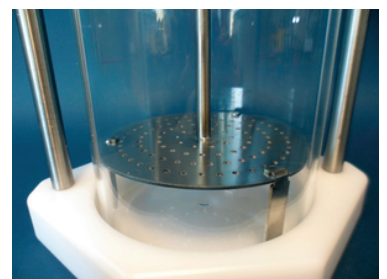
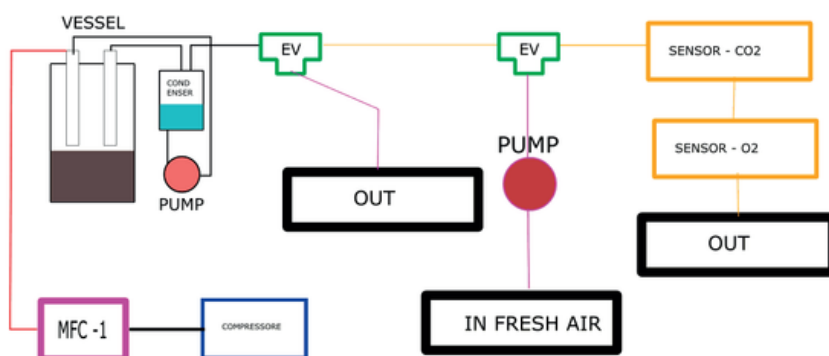
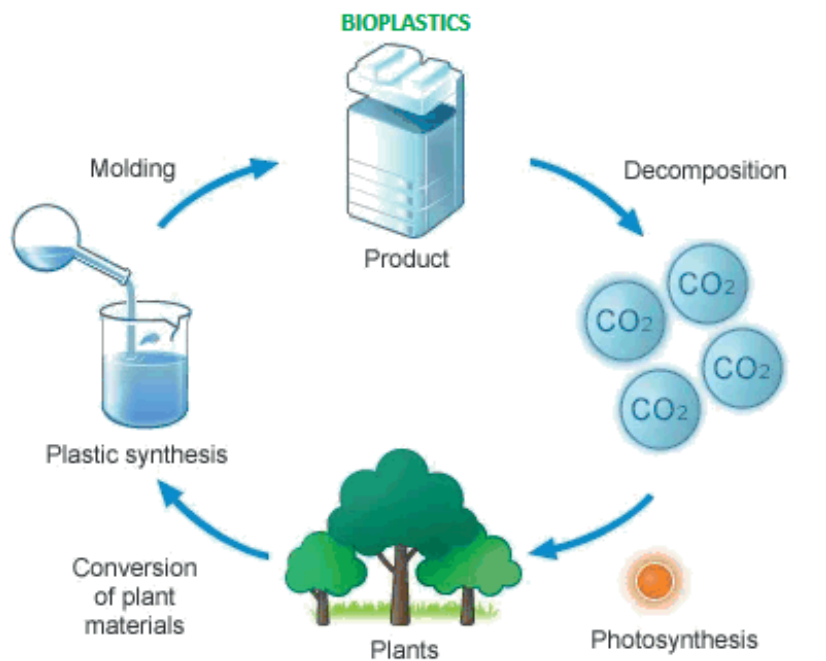
HYDRA

HYDRA is a **sequential respirometer with 12 channels** dedicated to calculating the end-result aerobic biodegradability percentages of **plastic material**, in compliance with UNI EN ISO 14855-1.

Biodegradable plastics decompose through the production of carbon dioxide: by measuring CO₂ produced and controlling the conditions during deterioration (temperature, flow rate, pH, oxygen consumed, humidity) it is possible to verify the **percentage of a material's biodegradability**.

The instrument can also be used for:

- **Analysis of biodegradability in aqueous media organic waste** in compliance with UNI EN ISO 14852:2021
- **Analysis of biodegradability of compostable packaging** in compliance with UNI EN ISO 13432:2002
- **R&D activities** in organic, ecological and pharmaceutical environments



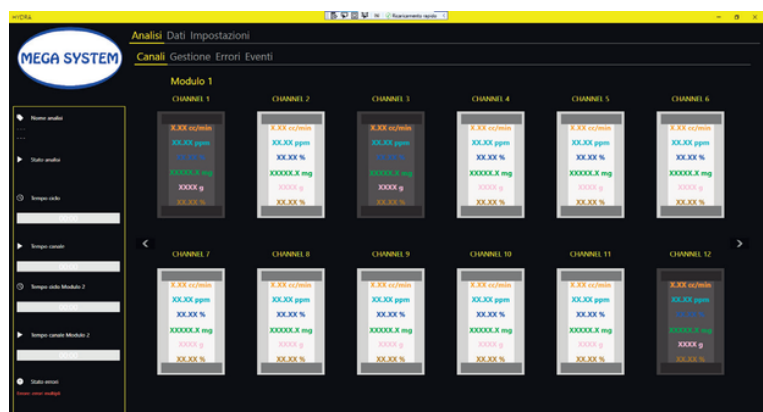
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TECHNICAL SPECIFICATIONS

- The material to be analysed is stored in a 2L glass vessel and inserted into a thermostatic chamber at a controlled temperature.
- Simple automatic fittings allow for quick error-proof pneumatic connection or easy removal of samples from the chamber; all pipes are numbered and coupled to the instrument inlets/outlets.
- The compressed air inlet is positioned at the bottom of the vessel to ensure complete diffusion throughout the sample.
- To avoid continuous manipulation of the samples, the system is designed to cool and recover condensation water extracted during the analysis by means of special peristaltic pumps that put the extracted water back into circulation, separately for each channel.
- The 12 mass flow controllers allow extremely precise adjustments of flow delivered to individual channels.
- A battery buffer and UPS system on the dedicated PC helps safeguard analytic data and records network failure events.

SOFTWARE SPECIFICATIONS

- The software can manage both **complete and partial analysis** (using fewer than 12 channels) and is designed to manage **multiple modules** from 12 channels, thus allowing **control of all Hydra systems with a single computer**.
- Both alarms and parameter change events by users are recorded and exported to the analysis report for full control of experimental conditions.
- All analysed data is recorded in tables exportable to Excel and at the same time the CO₂ and biodegradability curves produced are graphically calculated and drawn in real-time, thus reducing the time required for data analysis.
- The software provides for network connection and sending **notification e-mails** for any events and/or errors encountered during the analysis, and at the same time also allows reports to be sent.



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TECHNICAL SPECIFICATIONS

• OPERATING FEATURES

Working temperature (thermostatic chamber)	35 - 70 °C
Operative humidity	0 - 100% UR
Input pressure	3-6 bar

• ELECTRICAL FEATURES

Power	230 Vac / 60Hz
Consumption	250 w (thermostatic chamber) + 450 w (control unit)

• FEATURES

Vessel volume	2 L
Weight	60 Kg (control unit) + 60 Kg (thermostatic chamber)

• INTERFACE, DATA ARCHIVING

Display	LCD monitor for PC
Interface	RS232 - PC connection
Connectivity	RJ45 (LAN) for internal network connection and USB email sending

• FLOW PERFORMANCE

Range (standard)	0,1 - 1 L/min
Resolution	0.01 SL/min
Accuracy	1% SP between 35 and 100% of the range 0.35% FS between 2 and 35% of the range

• OPTIONS

Additional flow ranges
Additional Sensors (CO, NO, NO ₂ , CH ₄ , SO ₂)
Dedicated PC, equipped with monitor and UPS

• SUPPLIED WITH

Technical Manual
Test Report
Proprietary software for the interface

• SENSORS

Gas	Range	Resolution	Accuracy
Carbon dioxide (CO ₂)	0 - 3000 ppm	0.1 ppm	± 2% FS
Oxygen (O ₂)	0 - 21% vol	0.1% vol	± 2% SP

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