

MeMo[®]- PLAN

Integrated solution for
anaerobic digester
monitoring

Supervision software for recipe simulation and operating conditions optimization
Secure the monitoring, stabilize production, better the rentability



*Strong expertise and unique know-how on the
monitoring and optimization of biogas plants*

Simplicity, Performance and Reliability

BioEnTech Expertise

Our expertise : BioEnTech is an innovative company dedicated to anaerobic digestion and **information system**, with a **strong expertise** in support, **monitoring and modeling** of bio-processes.

The MeMo® suite of Monitoring solutions : BioEnTech develops **software solutions** dedicated to the monitoring of AD Plants, and services of operational support.

Our solution MeMo is an information system packaged with expert modules **tailored** to each anaerobic digestion application: farm biogas plants, solid municipal waste, industrial waste or urban wastewater treatment plants.

Live support : BioEnTech offers **support services**, for either a daily monitoring or a regular in-depth analysis: dysfunctions analysis, process simulation, continuous improvement.

Thanks to MeMo®, any necessary and relevant information is already formatted and available; hence we can propose **personalised and relevant advice**.

MeMo® solutions

Supervision and decision help software :

Our team developed continuous **calculation tools**, which allow us, based on on site sensors, to precisely **estimate key parameters indicators and biological state** (VFA, NH₄⁺, alkalinity ratio, COD removal,...).

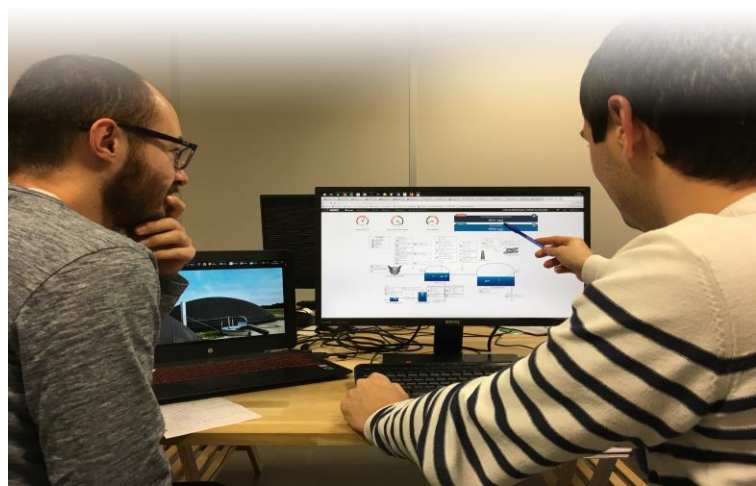
Secure : Estimation of **biological stability** of the digester and anticipation of drifts.

Monitoring help : **recipe advices** to optimize biogas production and energy recovery from the matter.

Simple : centralisation of all plant datas, automated and customizable reports, didactic interface

Services

Audit of anaerobic digester,
Analysis and biological follow up,
Help to start,
Data science and digitalization
of bioprocesses
Simulations of operating conditions
and feed in strategy



Method for MeMo software

Substrates characterization with IR-SCAN method



Full analysis in
only 4 days

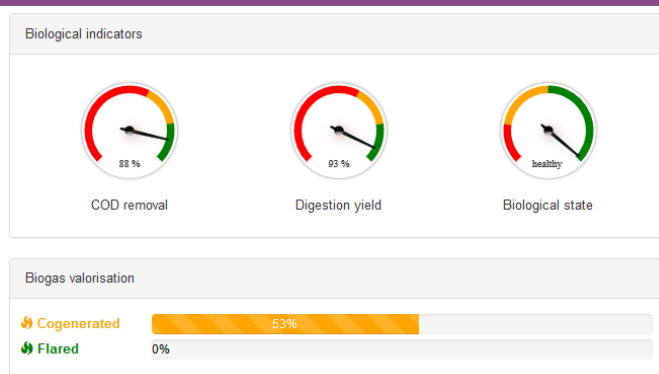


- % proteins
- % sugar
- % lipids
- BMP
- Total nitrogen
- Biodegradability
- kinetic

Knowledge of biological status through MeMo

Real time calculation of anaerobic digestion Key parameter indicators : VFA, alkalinity, chemical oxygen demand (COD), ammoniac, micro-organism activity,...

This data is used to continuously diagnose the biological state of the digester. This allows to limit acidosis risk through our alerts



Biological dashboard

Recipe advices through MeMo

Decision support

Substrate	Current	Recommended	
Fumier bovin	3270	2216	kg/j
Ensilage Maïs	760	561	kg/j
Lisier	3731	2660	kg/j
Freinte bière	0	842	L/j
Lactoserum	200	0	kg/j

Recipe suggestions

Furthermore, **operating decision support** is advising on **ideal feed in recipe**. It is each day computing the best intake.

This allows to **reach goals of biogas production and energy recovery** while **minimizing operating risks on the digester**.

Simulation de recettes par PLAN

The app PLAN[®] is designed for the **definition of your feed in strategy**. It allows to simulate different recipes, and anticipate the impacts on digester performances.

The **simulations of performances by PLAN[®]**, based on MeMo[®] and IR-SCAN[®], are representative and **adapted to each plant technical and biological characteristics**.

Datas traceability

Automatic calculation of operating reports

MeMo[®] **gather** and **archive** every relevant data : monitoring of supplies, inputs recipe, online sensors, analytical follow up, maintenance operations.

Reports are fully customized by the operator on relevant data for him.

ROI Driven monitoring

Secure the monitoring

- Biological status anticipation
- Live calculation of KPI
- Live biological monitoring
- Web interface

Stabilize biogas production

- Suggestions of receipt depending on biogas production objectives*
- Control of co-digestion, simulation of new inputs impact

Better the rentability

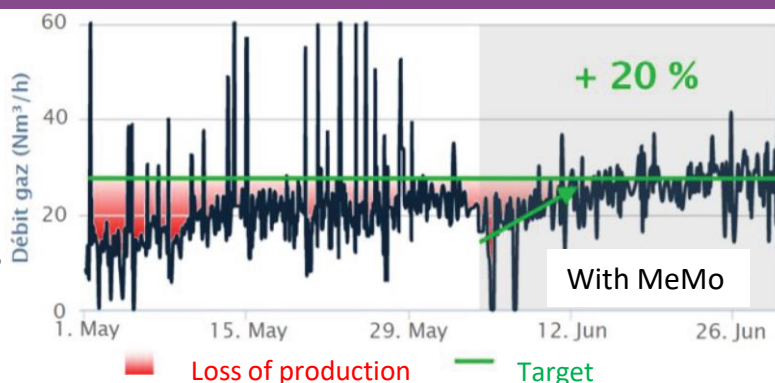
- Increase biogas production
- lower the flair use
- Increase energy recovery

* The plant operator has to organize the input gathering.

Return on experience

MeMo gains from operator :

- Production **increase** of 20%
- **Better** energy recovery from inputs 10%
- **Secure** inhibitor risks (acidosis, nitrogen)
- **Secure** biogas production.
- **Remote monitoring** of biological parameters



Owner feedback :

« MeMo answers my needs in terms of plant securization on rentability and problem solving. »

Quick support and et biological follow up subscription

Quick operating support

BioEnTech propose an immediate expertise for the regular monitoring of the process.

Interpretation et recommendations

BioEnTech, based on all the parameters mesured and calculated as well as their dynamics, furnish a detailed interpretation, derives identification and improvement suggestions.

Return on investment < 1 year*

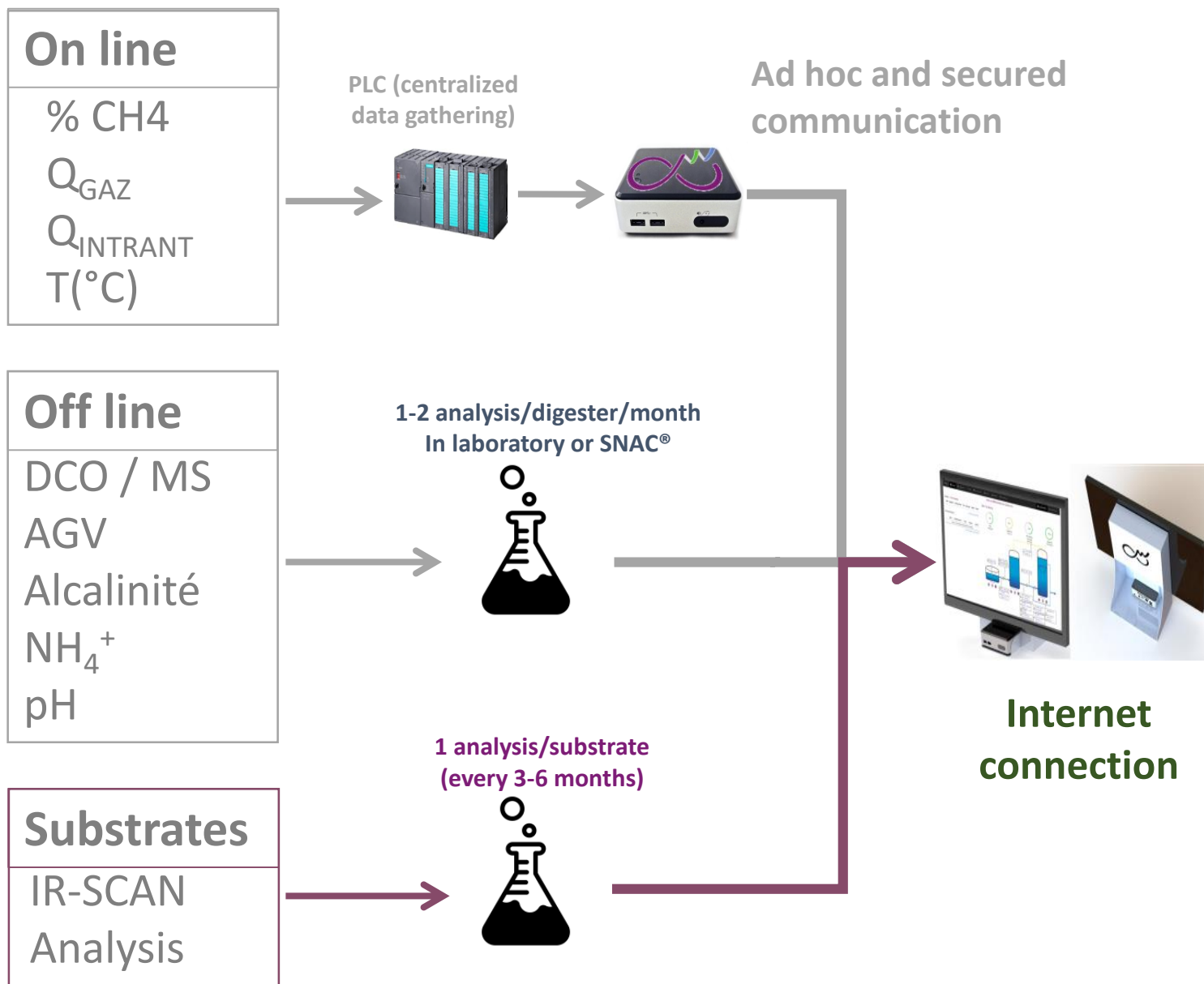
Pilotage	Biological stability	Biogas Production	COD Removal	Substrates energy recovery	Risk
	+++				
ROI		More Energy	Better performance	More efficiency	Simulation of recipe to test performances

*Depending on process, substrates and actual operations.

Process prerequisite

To install MeMo solution, BioEnTech needs following online and offline sensors :

- Sensors datas from PLC or SCADA
- Laboratory analysis



Communication Prerequisite

BioEnTech could propose different **secured communication solutions** :

- **MeMo Box** to plug on PLC with internet connection or simcard
- **FTP server** for datas exchange where client is pushing sensors datas

Innovations

BioEnTech collaborates with two reputed academic partners for it's R&D.



BioEnTech : a unique know how

Digitalization

of bioprocesses

Secure

the process

Stabilization

of biogas production

Better

the Return on Investments

*Operation assistance,
Expertise of bioprocesses,
Data science engineering,
Analytical services*

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