



Biogenic CO₂ determination *According to ISO 13833:2013*



EMISSION MONITORING SYSTEMS
www.metlab.se



Precision CO₂ Sampling Solution

Built on over a decade of hands-on experience with the ISO 13833 standard, METLAB proudly introduces the next-generation Biogenic CO₂ sampler. The CO₂-C14G2 provides precise, reliable flow-proportional CO₂ sampling in liquid absorbents, all in a compact design—ideal for continuous operation at waste incineration plants as well as portable use in emissions laboratories.

Key benefits

Reliable Performance

Built for industrial environments, the unit ensures long-term dependability and accurate proportional sampling, even under variable gas flow conditions and long sampling periods.

Seamless Integration

Featuring analogue input and output signals, the sampler is easy to integrate with facility control systems, remote control of sampling and monitoring of sampling gas flow and O₂ levels for leak detection.

Intuitive Operation

A 5.7" touch display provides a simple, user-friendly interface that reduces training needs.

Compact and Versatile

Suitable for permanent or portable use, with wall-mount or tabletop options.

Safety First

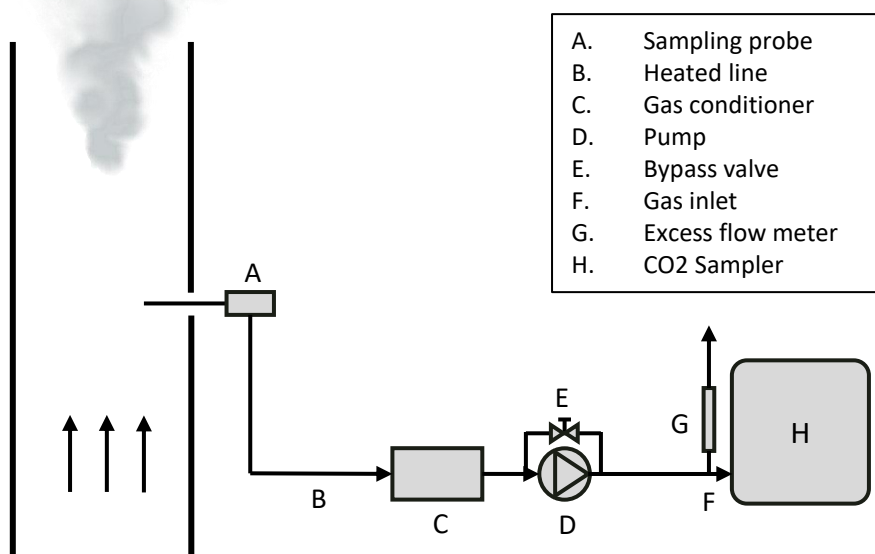
Absorption bottles are secured in locked stands within a stainless-steel cabinet to minimize risks.



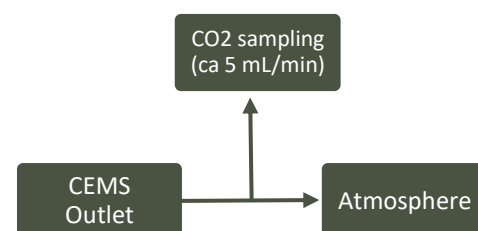
METLAB CO₂-C14G2

System overview

Flue gas is drawn via a heated sampling probe and line to a gas conditioner that removes moisture. A dedicated pump and bypass valve then regulate the sample stream to the CO₂ sampler, maintaining an excess flow of ca 0.5 L/min.



Optional setup



An optional downstream configuration leverages the existing CEMS outlet, provided the gas composition remains unaltered and the sampled stream is dry. While this approach offers a cost-effective solution, it introduces the drawback of sample interruption during CEMS maintenance or technical issues.

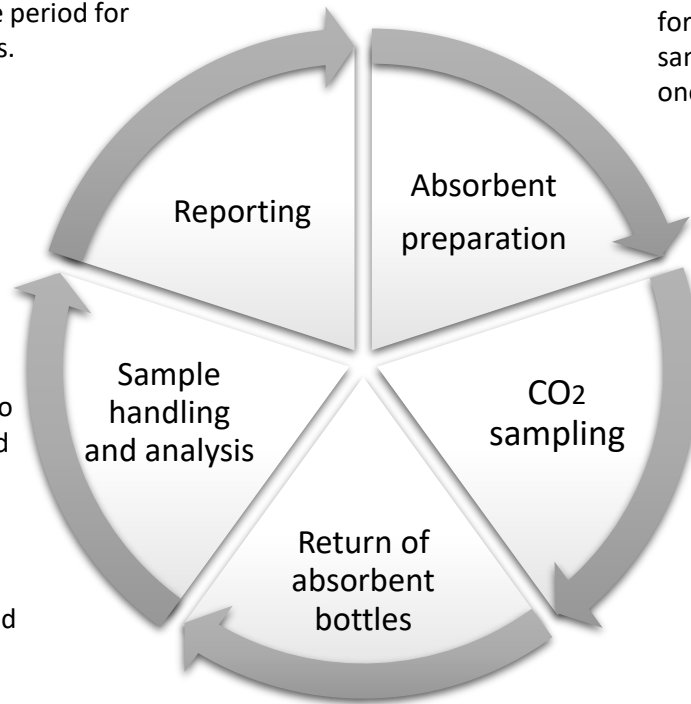
Measurement procedure

The chart below illustrates the complete measurement procedure, from preparation to reporting.

METLAB delivers report to the customer. The report includes biogenic/fossil proportion results and an evaluation of sampling performance during the period for quality control purposes.

METLAB prepares a 4 M NaOH solution in a nitrogen-controlled environment to prevent CO₂ absorption. The solution is dispensed into bottles designed for easy installation in the sampler, each corresponding to one sampling period.

- METLAB divides the sample into subsets in a nitrogen-controlled environment.
- Radiocarbon (C14) analysis is conducted by an accredited partner laboratory.
- Each sample is partially archived for a retention period of three months.



The absorbent bottle is connected to the METLAB CO₂-C14G2 sampler unit. Sampling is typically conducted on a monthly basis.

The used absorbent bottle containing the sample is collected by METLAB



METLAB CO₂-C14G2 sampler unit



Absorbent bottle and transport container

Reporting

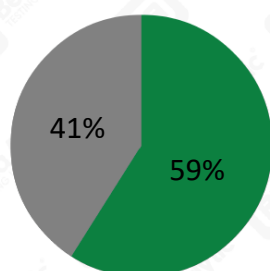
METLAB ISO 13833 reports are designed to provide a transparent overview of the measurement process, with results that are clear and easy to interpret.

- **Transparent performance snapshot** – Clear graphs translate raw measurements into an intuitive narrative.
- **Leak detection at a glance** – O₂ overlay instantly flags sampling-train leakage, protecting data integrity.
- **Operational context** – Boiler-load trend reveals whether abnormal firing influenced results.
- **Documented proportionality** – Sampling-rate-to-flow plot demonstrates strict adherence to §8.3 proportional sampling.
- **Audit-ready report** – Clear structure and concise commentary support an efficient auditor review.

Included charts

Every METLAB report includes clear charts that cover the entire sampling period—from start to finish—so you can spot abnormalities instantly. If you need custom charts, we adapt the report to your needs

Laboratory Number Beta-761538
Percent modern carbon (pMC) 62.53 +/- 0.16 pMC
Atmospheric adjustment factor (REF) 106.3; = pMC/1.063



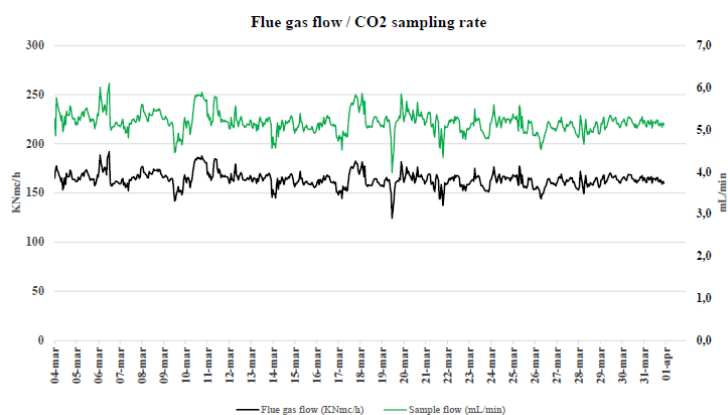
Proportion of Biogenic and Fossil carbon

Precise results from accredited analysis



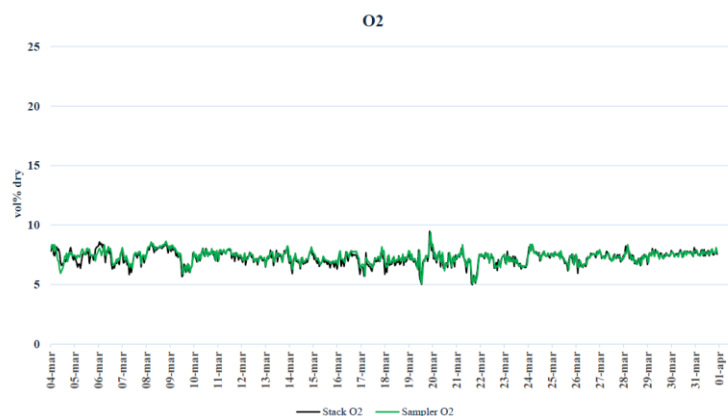
Want to know more?

Please contact us at
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Proportional sampling

Proven proportionality of sampling rate to flue gas flow for the entire sampling period



Leak monitoring

Comparing O₂ level after absorbent bottle to stack O₂ level