



The Sercon PyroEarth

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High-Precision Elemental Analysers for Isotope Ratio Mass Spectrometry (IRMS)

Engineered for analytical performance and operational efficiency, the Sercon PyroEarth provides robust elemental analysis capabilities tailored to the needs of isotope researchers across geosciences, environmental science, biogeochemistry, and related disciplines.

Equipped with a combustion and pyrolysis capable furnace, the PyroEarth allows versatile analysis for many applications in one space saving optimized benchtop design.



Features

- **Compact benchtop design:** Combustion and Pyrolysis options in one unit.
- **Flexible Auto sampling:** Zero-blank and liquid autosampler configurations; multiple carousel sizes available Fully software automated
- **Combustion and Pyrolysis capable furnace** – Allows for easy switching between Combustion and Pyrolysis applications within one analytical module.
- **Sample Versatility:** Supports organic/inorganic matrices including biological, environmental, petrochemical, pharmaceutical, and agricultural samples
- **Thermal Conductivity Detector (TCD):** Integrated TCD enables high-sensitivity elemental quantification (detection limit: <50 ppm) Auto Gas Save – Can automatically enter gas save at the end of a suite of samples saving expensive helium gas
- **Fully configurable setup** – Allows for maximum efficiency of consumables
- **Smart Oxygen Injection** – Uses minimal amount of O₂ required for full sample combustion
- **Ease of Maintenance:** Direct access to furnace tubes and traps

Modes

NC by Combustion Run time 6.5mins Carrier flow rate 65ml/min

A tin capsule containing the sample is introduced to the combustion reactor in the presence of oxygen to evolve CO₂, N₂, NO_x and H₂O species. Second reduction furnace reduces NO_x and removes excess Oxygen. H₂O is taken care of via chemical trap.

NCS by Combustion Run time 13 mins Carrier flow rate 65ml/min

Modified packings and an additional GC column allow $\delta^{34}\text{S}$ analysis of SO₂ alongside $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$.

O and H pyrolysis Run time 3.3 mins Carrier flow rate 60ml/min

The sample is introduced to the pyrolysis tube, a MgClO₄ trap removes water vapour, a Carbosorb trap removes any CO₂ and a GC column separates CO from N₂.

Reference materials and consumables

Trusted Performance for Demanding Labs: Reference Materials & Consumables

In high-precision laboratories, every detail matters. Sercon supports researchers and lab managers with a comprehensive range of ultra-pure reference materials and isotopically enriched compounds—engineered to meet the exacting standards of elemental and isotopic analysis.

Each product is delivered with a full Certificate of Analysis and MSDS, ensuring full traceability and compliance. Our interactive online catalogue makes it easy to identify the right standard—filter by element or delta value to streamline your selection process and keep your workflows efficient.

When it comes to maintaining instrument performance, Sercon Consumables are the reliable choice. Specifically developed for our elemental analysers, each component is rigorously tested, quality-assured, and continuously monitored across our own IRMS platforms to guarantee isotope-grade performance. The result? Maximum instrument uptime, consistent data quality, and total confidence in your results.

For labs where precision, reliability, and efficiency are non-negotiable, Sercon is the partner of choice.

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sercon-consumables.com

Specifications

Design	Benchtop integrated Dumas combustion & pyrolysis unit.
Helium flow rate	60 ml / min (20 ml / min low volume mode)
Combustion / Pyrolysis furnace	Ambient to 1500°C
Reduction furnace	Ambient to 1100°C
GC column oven	Ambient to 140°C
Gas control	Software controlled oxygen pulse for efficient and economical combustion. Software controlled carrier flow. Normally closed solenoid valves to prevent helium wastage
Sample Range	1.5 µg to 1000 µg N, 2.5 to 2000 µg C, 3 to 2000 µg S, 5 to 1000 µg O, 50 to 1000 µg H (samples down to 0.5 µg can be measured with reduced precision)
Autosampler	50 – 197 position solid sampler. Liquid and Zero blank options available.

Performance

Isotope	Species	Combustion	Pyrolysis (solids)	Pyrolysis (liquid)	Gas
¹³ C	CO ₂	0.1‰			0.1‰
¹⁵ N	N ₂	0.15‰			0.1‰
³⁴ S	SO ₂	0.3‰			
D	H ₂		1.0‰	1.0‰	
¹⁸ O	CO		0.3‰	0.3‰	
¹⁸ O	CO ₂				0.2‰

COLLABORATE

CREATE

INNOVATE

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