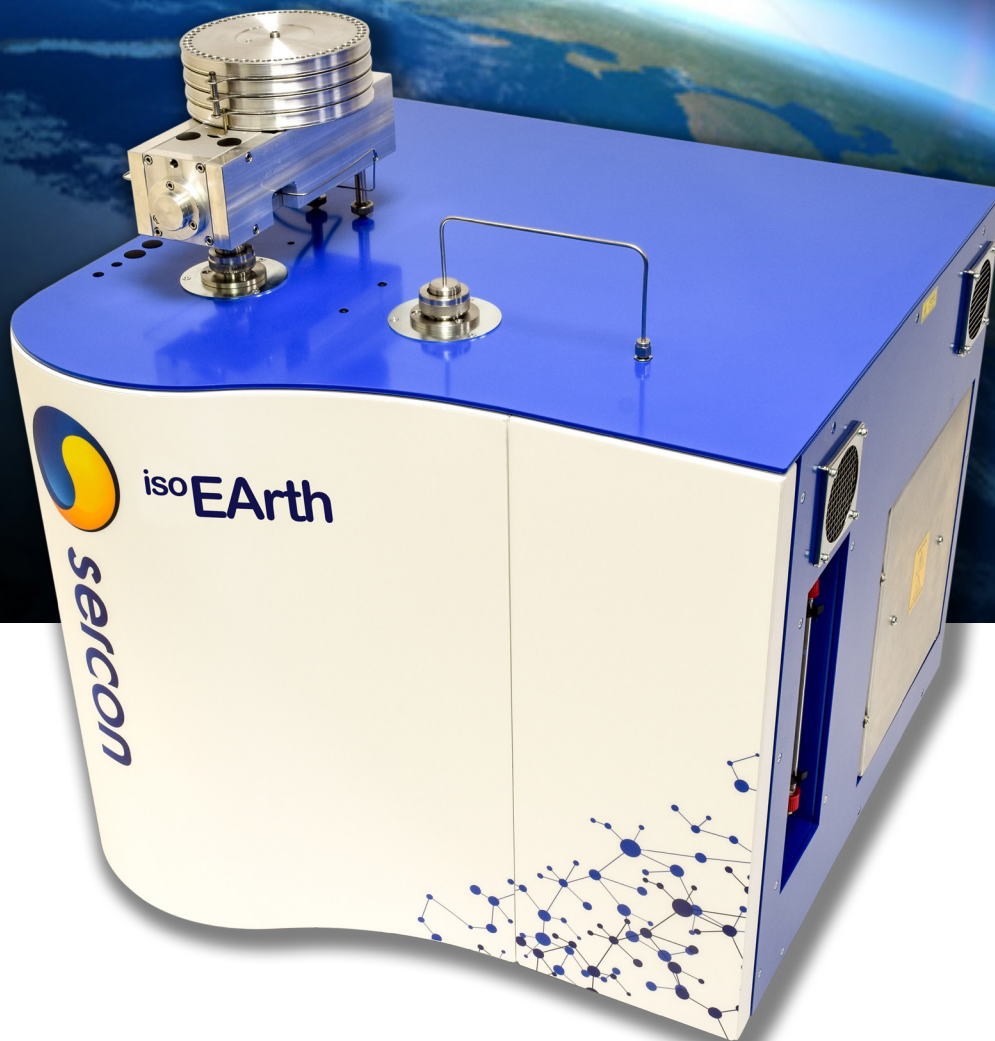




sercon

innovators in isotopes

The Sercon ^{iso}EArth and ^{iso}EArth⁺



COLLABORATE • CREATE • INNOVATE



The Sercon ^{iso}EArth and ^{iso}EArth⁺

High performance elemental analyser range for interface to IRMS instruments

^{iso}EArth for CN or S

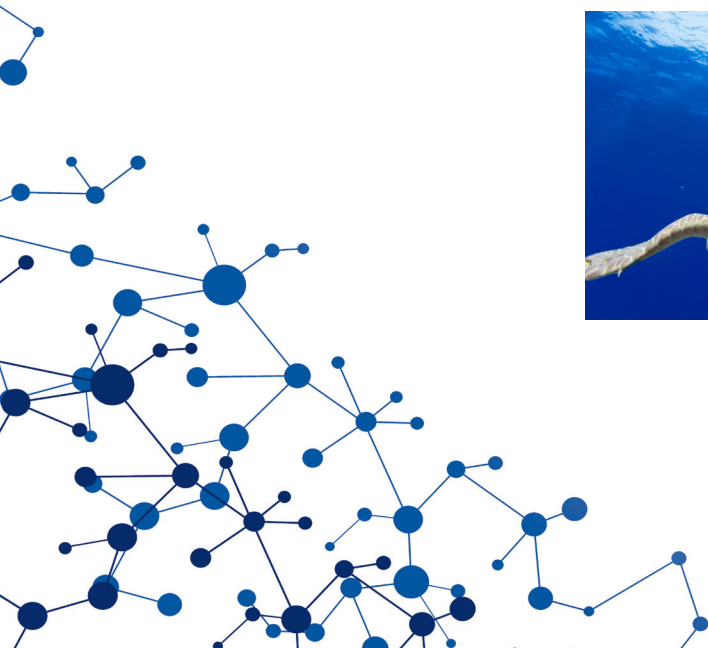
^{iso}EArth⁺ for simultaneous NCS

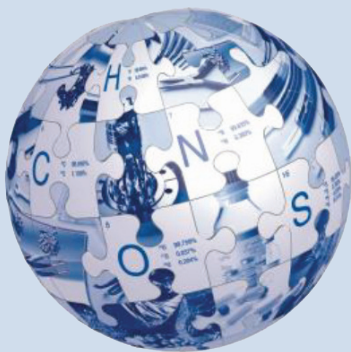
HT-EA for O and H pyrolysis

Both ^{iso}EArth models may have gas autosampler added to enable gas analysis

- Robust long-life temperature programmable furnaces with 15 year warranty*
- High precision elemental data from the integrated thermal conductivity detector, with detection limit of < 50 ppm
- Adjustable helium flow for improved economy and flow efficiency
- Low level mode allowing 2.5 µg C, 1.5 µg N and 3 µg S to be measured with no loss of precision
- Robust autosampler with many carousel options available. Zero blank and liquid autosampler options available
- Easily accessible furnace tubes and traps for ease of maintenance and operation
- Wide range of sample types including organic and inorganic, pharmaceutical compounds, biological, environmental, petrochemical, agricultural and foodstuffs

*combustion furnaces only





CN analysis via combustion

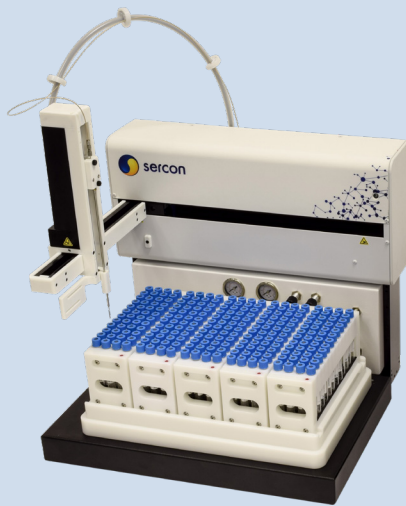
A tin capsule containing the sample falls into the combustion tube in the presence of oxygen to CO_2 , N_2 , NO_x and H_2O . An elemental copper stage reduces NO_x species, a MgClO_4 trap removes water vapour, and a switchable EMAsorb trap can be used to remove CO_2 (for ^{15}N only analyses). A GC column then separates CO_2 from N_2 before transfer to the IRMS, allowing dual isotope analysis.

NCS analysis via combustion

Modified packings and an additional GC column allow $\delta^{34}\text{S}$ analysis of SO_2 alongside $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$.

O and H analysis via pyrolysis

Solid or liquid autosamplers may be used with the HT-EA furnace. (needs ^{18}O Earth to operate or separate gas box) The sample is dropped into the pyrolysis tube, a MgClO_4 trap removes water vapour, a Carbosorb trap removes any CO_2 and a GC column separates CO from N_2 .



Gas analysis

- By connecting an XYZ autosampler to the ^{18}O Earth, gas analysis from septum sealed containers is possible
- N_2 , CO_2 and O_2 can be analysed at atmospheric concentrations and above
- H_2 , SO_2 , N_2O , CO and NO can be measured
- Purge facility on needle prevents sample carryover
- Full automation via a software controlled autosampler which can accommodate up to 240 12 ml vials (optional bar code reader)
- Additional autosampler racks are available for vials from 6 ml to 250 ml
- Heated sample block is available for temperature controlled reactions



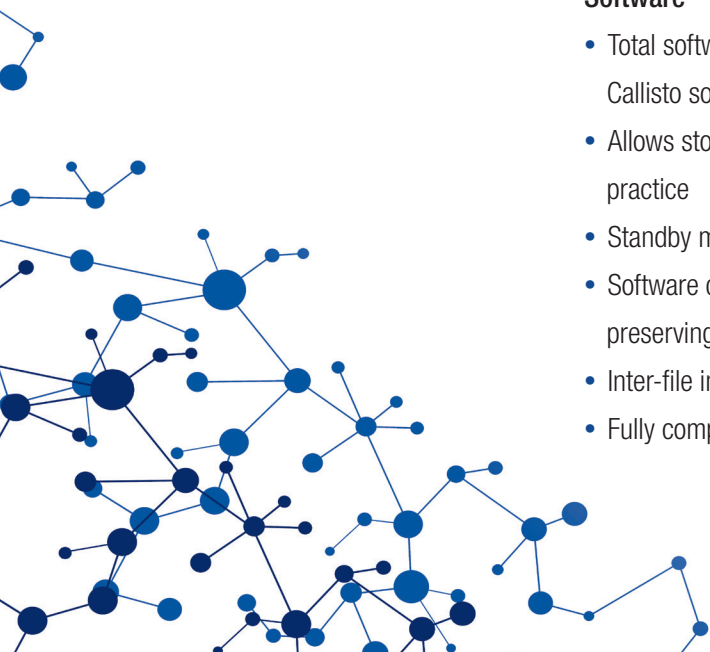
The Sercon ^{iso}Earth delivers a step change in analytical performance for your business

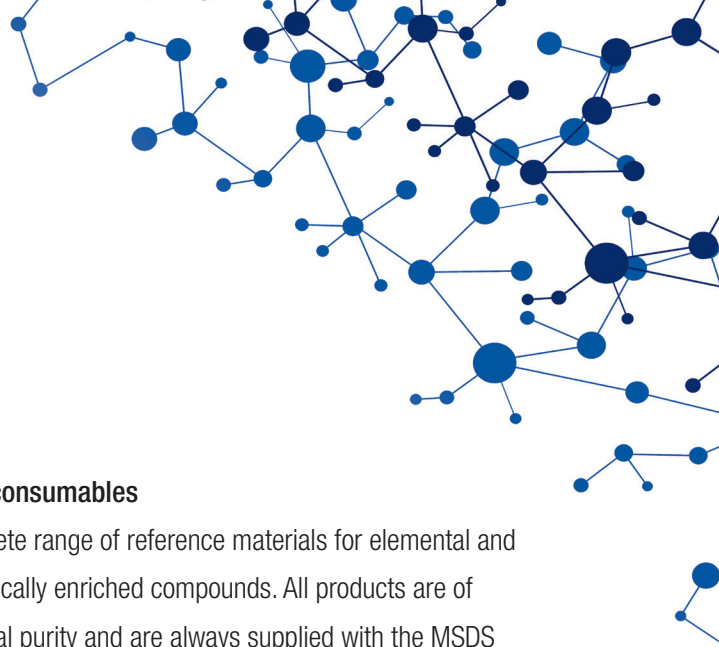
Specifications	
Design	Bench top Dumas combustion / pyrolysis unit with vertical mounted furnaces
Helium flow rate	60 ml / min (20 ml / min low volume mode)
Combustion furnace	Ambient to 1100°C
Reduction furnace	Ambient to 1100°C
Pyrolysis Furnace	Ambient to 1500°C
GC column oven	Ambient to 250°C, isothermal
Gas control	Software controlled oxygen pulse for efficient and economical combustions. 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)
Analysis time	4 min per sample (¹⁵ N only) 6 min per sample (¹⁵ N and ¹³ C) 10 min per sample (¹⁵ N, ¹³ C and ³⁴ S) 4 min per CO ₂ gas sample
Autosampler	Zero blank performance Closed carousel and liquid autosampler options available

Isotope	Sample Gas	Combustion	Pyrolysis (solids)	Pyrolysis (liquids)	Gas
¹³ C	CO ₂	0.1 ‰			0.1 ‰
¹⁵ N	N ₂	0.15 ‰			0.1 ‰
D	H ₂		1.5 ‰	0.6 ‰	
³⁴ S	SO ₂	0.2 ‰			
¹⁸ O	CO		0.3 ‰	0.3 ‰	
¹⁸ O	CO ₂				0.15 ‰

Software

- Total software control of the instrument system and data processing with Sercon Callisto software
- Allows storage of sample analysis protocols to comply with good laboratory practice
- Standby mode to preserve consumable life during periods of low use
- Software controlled oxygen injection to match sample requirements thereby preserving the life of the consumables
- Inter-file import/export facility from instrument PC to laboratory server or internet
- Fully compatible with all versions of Windows





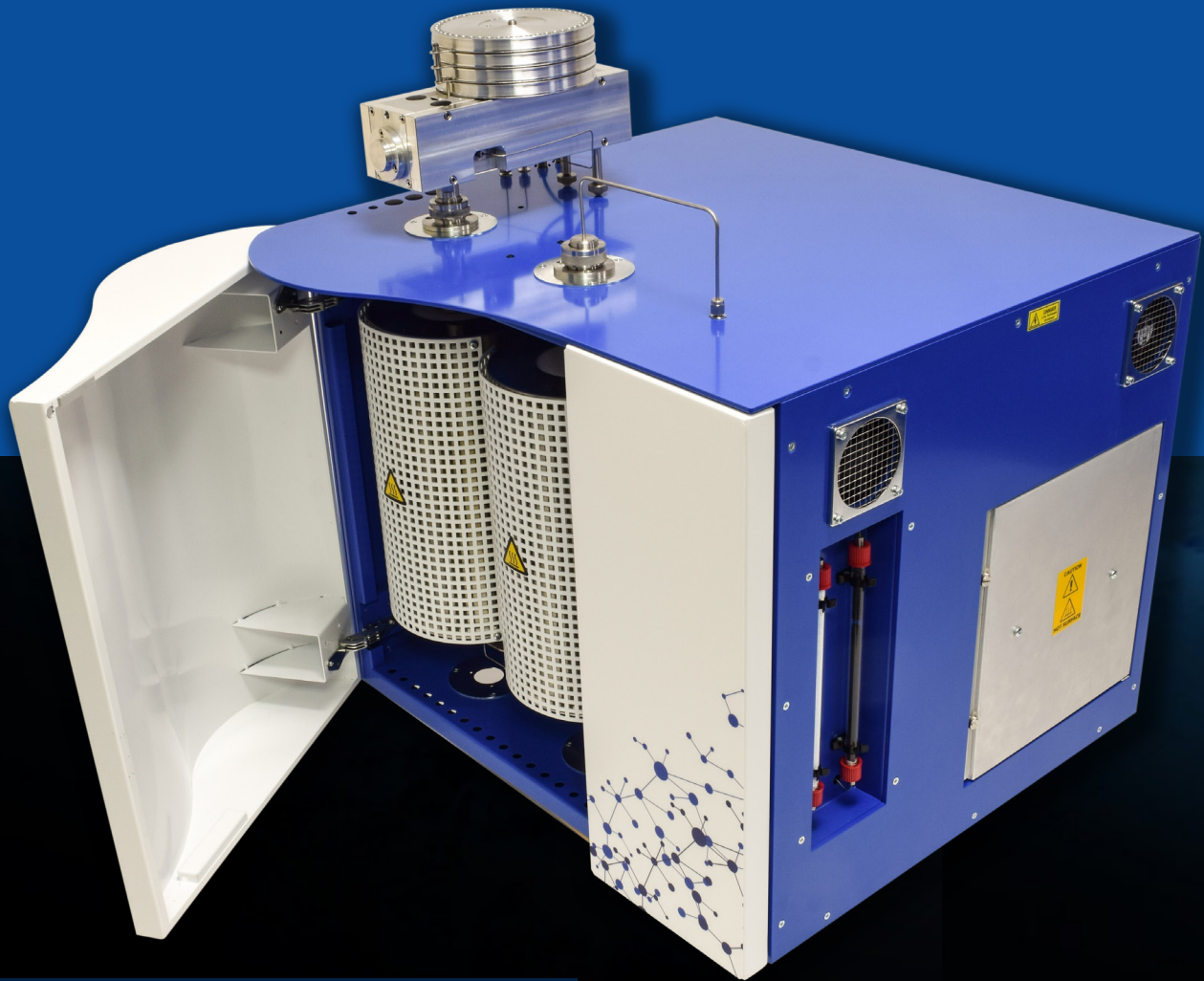
Reference materials and consumables

Sercon can provide a complete range of reference materials for elemental and isotopic analysis, and isotopically enriched compounds. All products are of the highest possible chemical purity and are always supplied with the MSDS and Certificate of Analysis. The full range of reference materials available from Sercon can be found on our website, and our interactive table allows reference materials to be filtered by element and delta value.



Sercon supply consumables and spares of the highest quality for our elemental analysers, at the most competitive prices. Sercon branding means that the products have passed our rigorous quality assurance tests and are of the highest quality available for isotopic and elemental analysis. We constantly monitor the analytical performance of our consumables on our range of IRMS instruments for on-going quality assessment and to ensure all consumables are isotope grade material. More information on our consumables can be found at sercon-consumables.com





Power and Gas Requirements

Power	100-240 VAC
Helium	99.998%
Oxygen	99.998%
Compressed Air	50 psi

ISO 9001:2015 Certified

ISO 13485:2016 Certified

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June 2019



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