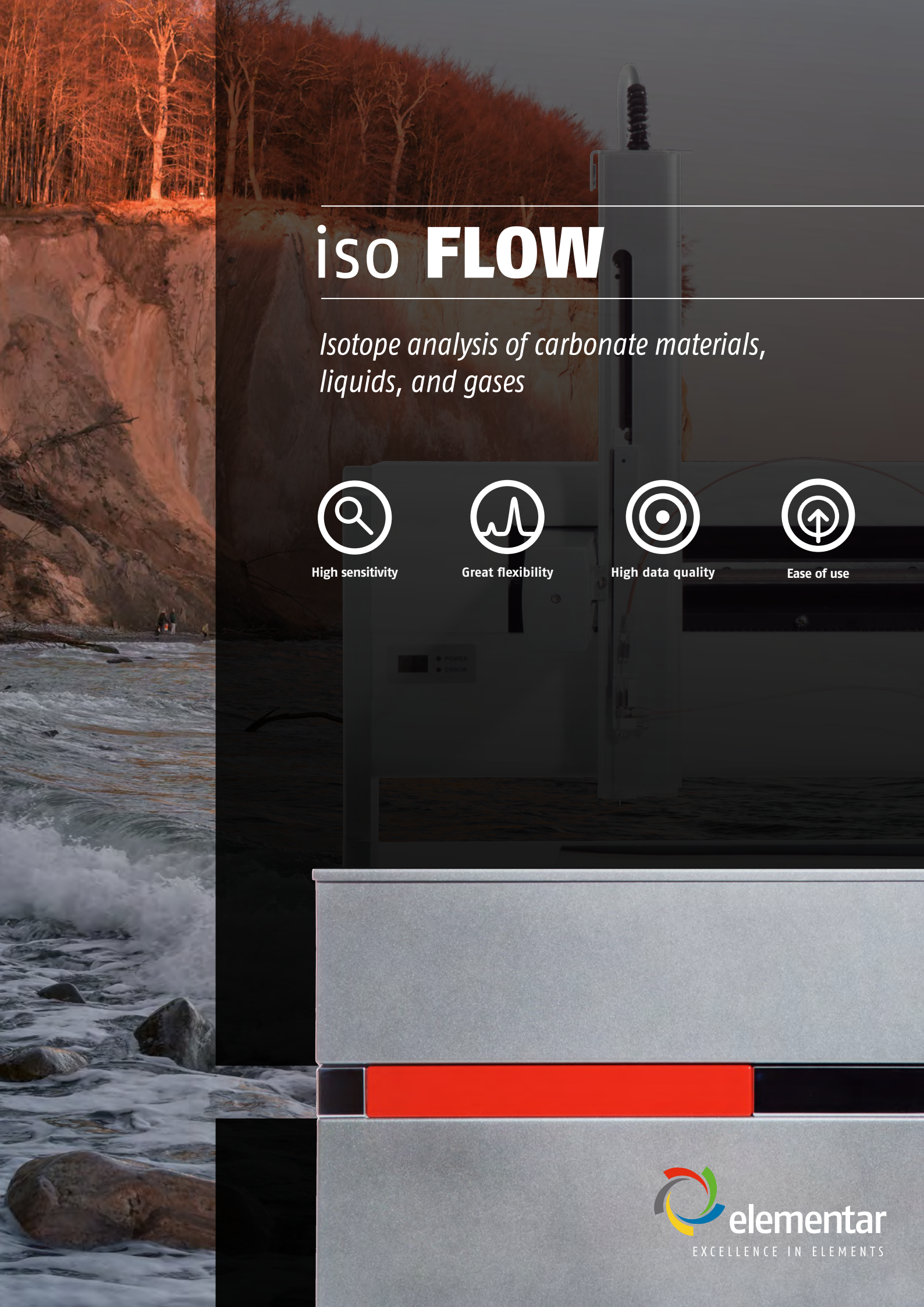


iso FLOW

Isotope analysis of carbonate materials, liquids, and gases

High sensitivity

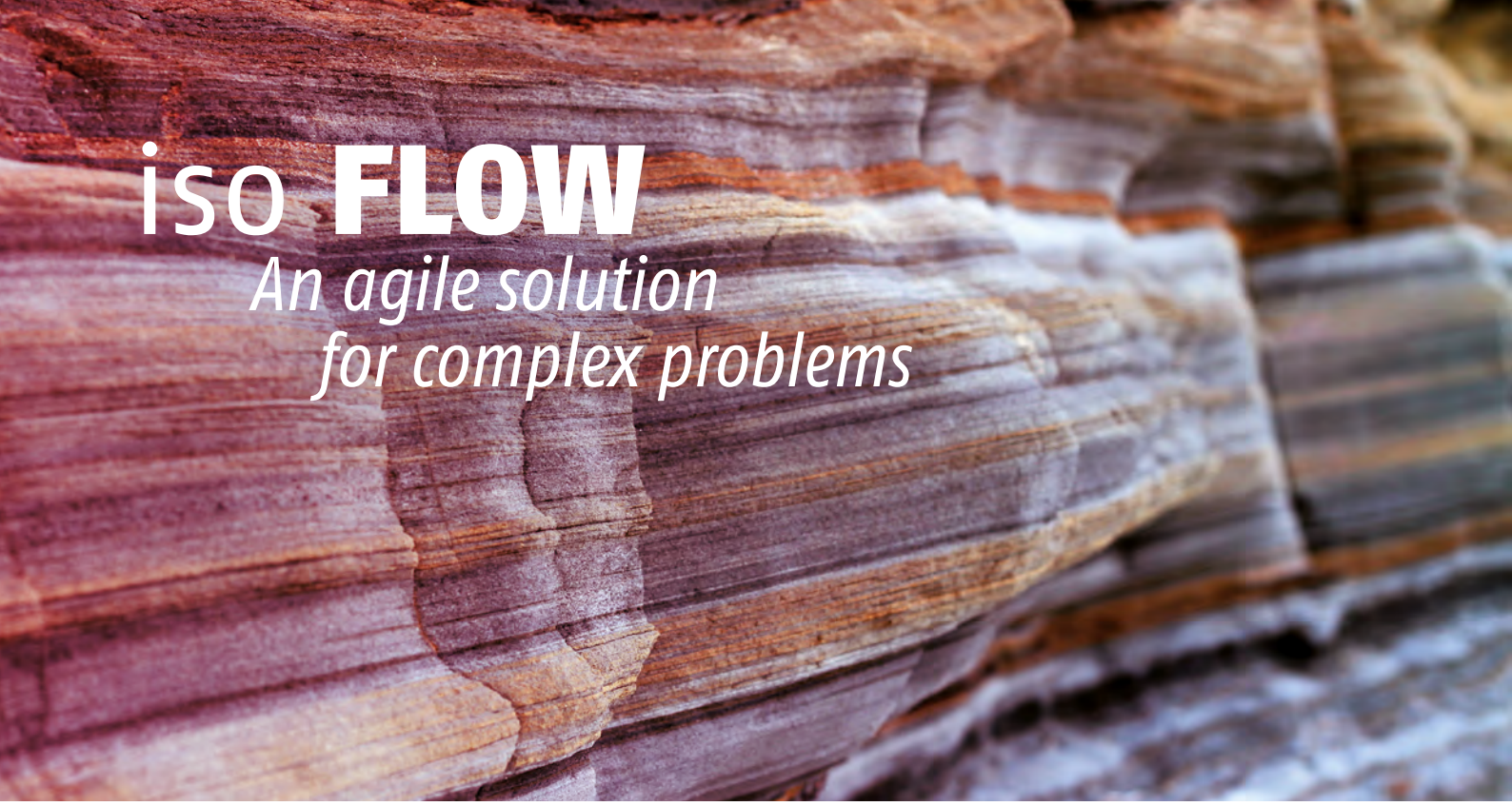
Great flexibility

High data quality

Ease of use

elementar

EXCELLENCE IN ELEMENTS



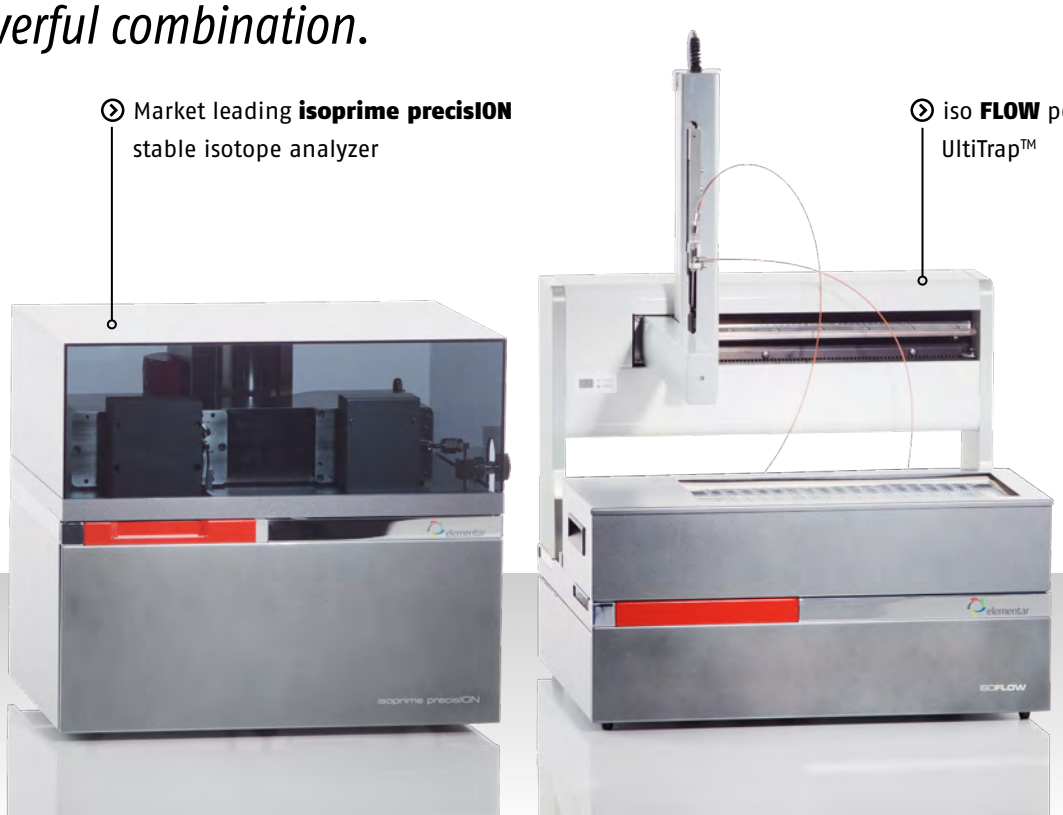
iso **FLOW**

An agile solution for complex problems

iso FLOW is a fully automated, continuous flow preparation system for the isotopic analysis of samples which have been prepared into septum sealed vials. These samples can be derived from a diverse range of application areas such as geoscience, climate change, food adulteration, hydrology, and clinical studies.

At the heart of the iso **FLOW** is the UltiTrap; a dynamically heated GC separation device. UltiTrap™ allows greater analytical possibilities including sub-ambient GC temperatures without need for cryogenics. Coupled with unparalleled capacity for up to 180 samples and complete software control through lytic**OS**® software suite, iso **FLOW** one of the most flexible sample preparation systems for isotope ratio mass spectrometry.

A powerful combination.



High sample throughput

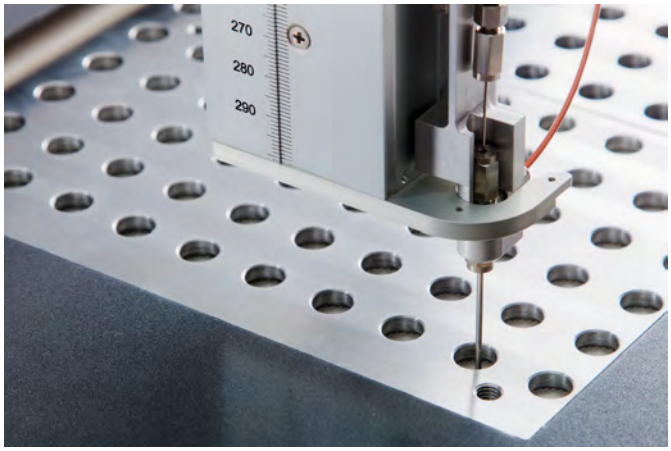
The iso **FLOW** system offers the highest sample throughput on the market with capacity for up to 180 heated samples and 220 non-heated samples to be analyzed in a single sequence. For the greatest analytical flexibility, the temperature of the heated sample tray is controlled directly from lytic**OS** software up to a maximum temperature of 90 °C ± 0.1 °C.

SOLID STATE COOLING WITH ULTITRAP

At the heart of iso **FLOW** is our proprietary GC separation device, UltiTrap.
UltiTrap can be used in different ways for different purposes. In isothermal mode, it can operate at temperatures up to 200 °C for fast analysis of simple samples. In dynamic mode, it can operate at sub-ambient temperatures using thermoelectric cooling and rapid, dynamic heating for the improved focusing and separation of sample gases, delivering better limits of quantification for small samples.

Efficient sample preparation

iso **FLOW** is able to automatically prepare samples using the iso **FLOW**'s unique multi-core, micro-volume needle design. The instrument uses a single needle to flush sample vials, deliver reagents to the sample vial and finally extract the prepared sample and deliver it to the IRMS for isotopic analysis. The use of a single needle makes instrument set-up easier, reduces maintenance and makes the instrument more flexible for a range of different analyses.



iso **FLOW** KEY FEATURES

- Highest isotopic precision for the measurement of liquid and carbonate materials
- Solid-state cooling of UltiTrap™ for sub-ambient separation temperatures
- Complete automation of every parameter through lytic**OS** stable isotope software
- Simple modular design results in a complete platform solution
- Operate with isothermal or dynamically heated GC chromatography
- Capacity for up to 180 heated sample vials or 220 non-heated sample vials
- Unique multi-core, micro-volume needle for sample preparation and extraction

Explore a broad range of applications

	CARBONATES	LIQUIDS	GASES
MEDICAL		●	●
GEOLOGY	●	●	●
SOIL	●	●	●
FOOD	●	●	
OIL & GAS	●		●
ARCHAEOLOGY	●		
ECOLOGY		●	●
OCEAN	●	●	●
POLLUTION		●	●
CLIMATE	●	●	●

CARBONATE SAMPLE ANALYSIS

The analysis of carbonate materials and dissolved inorganic carbonates (DICs) requires the delivery of phosphoric acid to digest the carbonate sample which is performed by our direct-drive acid pump making acid delivery more precise. Automatic dosing of up to 180 sample vials in a single analysis sequence saves operators considerable sample preparation and instrument contact time.

LIQUID SAMPLE ANALYSIS

iso **FLOW** delivers market-leading analytical precisions for the measurement of $\delta^{18}O$ and $\delta^{2}H$ isotopes of water in a range of sample matrices such as ground water, marine water, ice cores, fruit juices & purées, wines & vinegars and biological fluids. iso **FLOW** uses a single equilibration gas rather than two reducing the number of gas cylinders required in the laboratory.

Automated sample preparation and handling

Control of all flow rates and valves from lytic**OS** software reduces instrument contact time and consumption of resources

GAS SAMPLE ANALYSIS

The analysis of gas samples requires no pre-analysis treatment so an individual sample can be analyzed in less than four minutes giving exceptional throughput for large numbers of samples. Sample types include breath, pure and atmospheric gases. Samples are prepared into 12 ml sample vials as standard, but other sample vials can be accommodated upon request.

High sensitivity

Analyze the most challenging samples with the highest degree of confidence.

Great flexibility

Cover a broad range of application areas with a single instrument.

High data quality

Achieve the highest analytical performance with the most precise instrument available.

Ease of use

Easy, labor-saving instrument operation and sample preparation. Simplified maintenance.

Elementar – your partner for excellent elemental analysis

Elementar is one of the leading manufacturers in high performance analysis of organic and inorganic elements. Continuous innovation, creative solutions and comprehensive support form the foundation of the Elementar brand, ensuring our products continue to advance science across agriculture, chemical, environmental, energy, materials and forensics markets in more than 80 countries.

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