

# inductar CS cube

*Advanced carbon and sulfur determination*



High sensitivity



High data quality



Extreme durability



Great flexibility

inductar CS  cube

# inductar CS cube

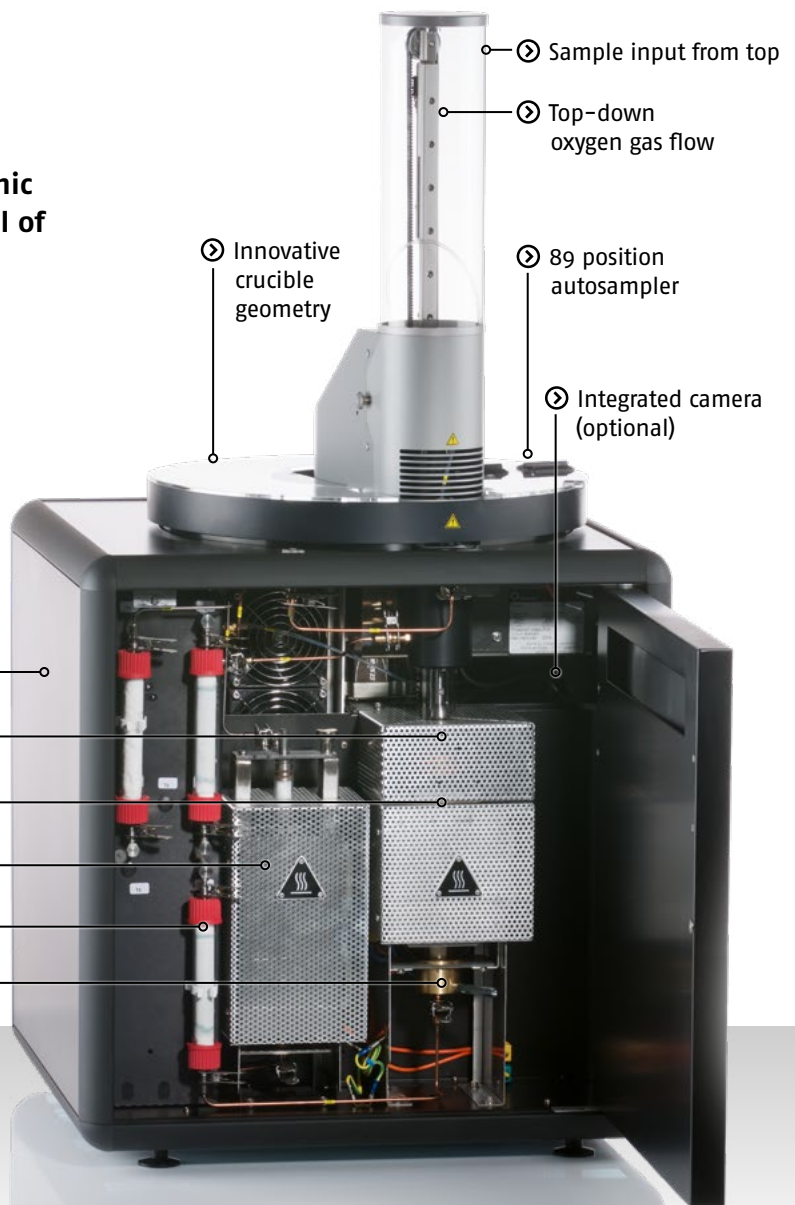
*Experience the new level  
of accurate and  
easy to use CS analysis*

## KEY FEATURES

- Minimized dust and debris make tedious cleaning operations needless
- Semi-automated or fully-automated with up to 89 sample positions for secure and unattended 24/7 operation
- Solid-state technology for long-living induction furnace
- Gas-tight clamp connection system ensures easy and tool-free maintenance
- Intuitive and feature-rich software makes operator's life incredibly simple

Elementar developed a CS analyzer which combines highly accurate data with easy to use, clean, and automated processes. Experience the new level of carbon and sulfur determination in metals and inorganic materials. The new inductar® CS cube is full of innovative and advanced ideas to make CS analysis easy to use and more reliable.

- 2 wide-range IR detectors
- Solid-state induction furnace
- Heated dust filter
- Efficient oxidation
- Drying agents with indicator
- Tool-free maintenance



## Innovative ideas

Innovative ideas combined with state-of-the-art technologies let the inductar CS cube clearly stand out from the crowd. The new construction design captures dust and debris within the ceramic crucibles. Moreover, the energy-efficient solid-state induction furnace enables high temperatures up to 2,000 °C. Combined with high-performance detectors, the inductar CS cube shows excellent accuracy and lowest possible limit of detection.

## Reliable results

The highly optimized combustion process – a well-known highlight of all Elementar instruments – always guarantees reliable and accurate results. High quality materials, well structured construction design, and long-living components make the system unrivaled, robust, and durable.

## CS ANALYSIS

In a pure oxygen atmosphere the sample is introduced to the induction furnace. Unlike conventional systems, the inductar series feeds the sample from the top. The high temperature in the furnace converts traces of sulfur and carbon from the sample into sulfur dioxide, carbon monoxide, and carbon dioxide. After detection of sulfur dioxide by use of an IR detector, carbon monoxide and sulfur dioxide are oxidized to carbon dioxide and sulfur trioxide. In the next step sulfur trioxide is removed from the gas flow. Finally a second IR detector determines the carbon dioxide concentration.

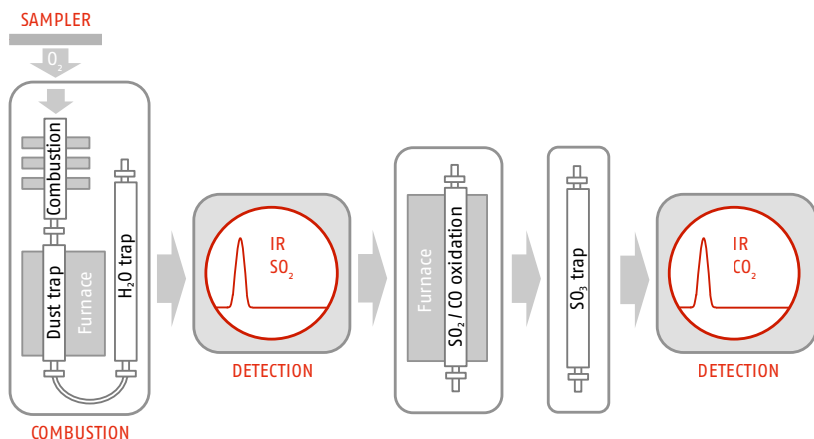


## Automated analysis

The fast and precise autosampler with its innovative robotic arm (patent pending) allows unattended 24 / 7 operation. The sequence of all 89 sample positions is user configurable and can be changed at any time. Automation is further accomplished by automatic weight transfer from balance, barcode reader support and easy LIMS integration. The inductar CS cube is controlled via an intuitive, feature-rich, multi-language software. It is easy to use and configurable to fulfill all requirements in R & D, quality control, and high-throughput laboratories.

## Unsurpassed system uptime

The inductar CS cube is developed for unsurpassed user convenience and maximum robustness for 24 / 7 operation. The proprietary solid-state technology for the induction furnace ensures a virtually unlimited lifetime of components. This finally makes a frequent exchange of oscillator tubes obsolete. By design, no tedious cleaning operation is required to handle dust and debris. Maintenance work, which is a tool-free task, is performed within seconds.



## CLEAN COMBUSTION

A cleaner combustion than any system built in the past is achieved with this new technology. Our innovative construction principle in combination with the high ceramic crucibles reduces contamination of the system by dust and debris to an absolute minimum. This is achieved by a top-down oxygen gas stream. With this approach a unique sheath gas flow is established, which minimizes adhesion of dust and debris at the combustion tube. Dust and debris, which are formed during combustion process, are captured inside the ceramic crucibles. This set-up allow for parts like combustion tube or dust filter to be cleaned less often and of course measure more accurately.



# Advanced carbon and sulfur analysis for inorganic materials

SAMPLE	CARBON [%]	SULFUR [%]
MARAGING STEEL	0.0014 ± 0.0001	0.0025 ± 0.0001
CARBON STEEL	0.1738 ± 0.0010	0.1309 0.0022
FERRO MANGANESE	0.3469 ± 0.0011	0.0045 ± 0.0008
CAST IRON	2.8301 ± 0.0073	0.2420 ± 0.0006
WHITEHEART MALLEABLE IRON	3.2023 ± 0.0067	0.2430 ± 0.0035
TiO <sub>2</sub> BASED PIGMENT	0.0037 ± 0.0001	0.0003 ± 0.0001
PORTLAND CEMENT	0.1007 ± 0.0008	1.9092 ± 0.0270
SiC BASED AUTOMOTIVE CATALYST	0.2340 ± 0.0009	-
ANTI-PIPING COMPOUND	6.3955 ± 0.0681	-

## EASY TO USE EQUIPMENT

The inductor CS cube is the latest in fast carbon/sulfur analysis for metal species. With an accessible yet high-tech driven design, this system is built to reduce maintenance efforts and maximize combustion tube lifetime. Other reagent lifetimes are monitored by automated indicators within our advanced software. The tool-free clamp connection system ensures reliable leak-tight seals while operating the instrument. Thus customers can enjoy smooth sample analysis with high sample throughput.

## QUALITY YOU CAN TRUST

Our consumables and spare parts are designed to meet the highest quality standards and reliability. They are certified and validated in accordance with international norms and standards. We do not compromise on quality of our parts and chemicals – allowing us to guarantee the remarkable lifetime of our instruments.

## IDEAL SOLUTION FOR

- Steelworks
- Foundries
- Automotive industry
- Cement industry
- Ceramic industry

## SAMPLE TYPES ANALYZED

- Steel
- Cast iron
- Non-ferrous metals
- Cements
- Other inorganic materials



### High sensitivity

Outstanding sensitivity thanks to high performance, state-of-the-art technology.



### High data quality

Outstanding precision and accuracy through high performance combustion. Longterm stability of calibration.



### Extreme durability

Outstanding robustness and longevity thanks to state-of-the-art technology.



### Great flexibility

Wide range of materials analyzable. Upgradeable at any time.

## Elementar – your partner for excellent elemental analysis

Elementar is the world leader 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.

Supported by:



on the basis of a decision by the German Bundestag

## Elementar Analysensysteme GmbH

Elementar-Straße 1 · 63505 Langenselbold (Germany)

Phone: +49 (0) 6184 9393-0 | info@elementar.com | www.elementar.com