



**PRODUCT OVERVIEW**

**ADVANCED SOLUTIONS IN ELEMENTAL ANALYSIS**



- | 1981
  - | 1984
  - | 1993
  - | 1999
  - | 2007
  - | 2012
  - | 2015
  - | 2016
  - | 2018
  - | 2021
  - | 2025
- 
- Foundation of ELTRA GmbH
  - Launch of the C/S product line
  - Development of the ON analyzer
  - Launch of the ONH-2000 and CS-2000 analyzers
  - Development of the thermogravimetric analyzer THERMOSTEP
  - ELTRA becomes part of the VERDER GROUP
  - Launch of the ELEMENTRAC ONH-p
  - Development of ELEMENTRAC CS-i
  - Launch of the ELEMENTRAC CS-d
  - Launch of the ELEMENTRAC ONH-p with Autocleaner and ELEMENTRAC CS-r & CHS-r
  - Launch of the ELEMENTRAC CN-r – ELTRA's first protein analyzer and ELEMENTRAC ONH-ps

## ELTRA – ELEMENTAL ANALYZERS

# EXCELLENCE IN ELEMENTAL ANALYSIS

ELTRA's history started in 1981 with the development of the first carbon / sulfur analyzer for metal samples. Meeting the customers' requirements was a priority then, just like it is now. The aim has always been to create analyzers which are easy to operate, have a long service life and provide precise and reliable measurement data also under rough conditions, like in a mine or near a blast furnace.

Thousands of satisfied customers all over the world are proof of our success. They appreciate the reliability and flexibility of our analyzers, the good price-performance ratio of instruments and consumables and our excellent after sales service. ELTRA analyzers are used in many different industries like metal production and processing, aerospace, energy, medical engineering, environment, as well as in universities and research facilities.

ELTRA is part of the Verder Group since 2012 and consistently invests in research and development. With the introduction of the ELEMENTRAC series with powerful ELEMENTS software ELTRA offers analyzers for rapid and reliable O/N/H and C/S determination. These are characterized by modern design, convenient operation and integrated solutions for special applications, like our Dual Furnace Technology which allows analysis of both organic and inorganic samples with only one instrument – a unique concept only provided by ELTRA.



Eltra GmbH in Haan, Germany

## ELTRA'S PRODUCT PORTFOLIO

ELTRA provides solutions for the precise and reliable determination of the chemical elements carbon (C), sulfur (S), oxygen (O), nitrogen (N) and hydrogen (H) as well as for the measurement of thermogravimetric parameters like ash or moisture.

The sample materials can be organic (like coal, wood, plastics or soils) or inorganic (like metals, alloys, ceramics, construction materials). The common principle of all ELTRA analyzers is the combustion

of analysis samples at temperatures up to 3000°C with subsequent measurement of the gaseous reaction products (e. g. CO<sub>2</sub>, water) or measurement of the weight loss after heating the sample in a thermogravimetric analyzer.

The instruments are used in production monitoring and quality control as well as in research and development.

## PRECISE ANALYSES

# HOW ELEMENTS INFLUENCE PRODUCT PROPERTIES

The chemical elements C, S, O, N, H are everywhere in our environment and they have a significant impact on the chemical and physical properties of both natural and technical products. The carbon concentration in steel products, for example, has a substantial effect on brittleness, whereas ductility is determined by the nitrogen content.

A high hydrogen concentration, for instance, reduces the calorific value in fuels like coal, coke and wood, or affects the mechanical stability of medical products like stents or hip prostheses.

With ELTRA analyzers it is not only possible to determine the total element concentration but also fractions of it. The element

carbon, for example, can occur in various fractions which influence product properties in a different way.

The concentration of organic carbon (TOC), for example, indicates the fertility of soil whereas inorganic carbon (TIC) influences the pH value. In the construction materials industry, the TIC value is an important indicator for the stability of concrete or tiles.

The variety of applications and products which need to be analyzed calls for specialized analysis instruments which offer a high degree of flexibility based on a wide selection of accessories. ELTRA offers suitable analyzers for every type of C/S and O/N/H analysis.

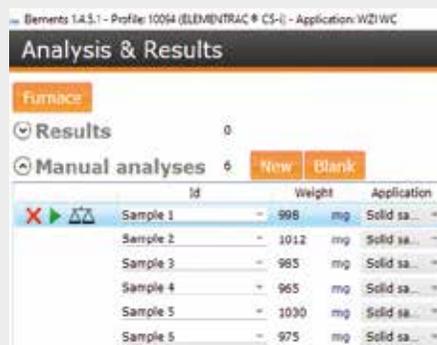


## OPERATION OF A COMBUSTION ANALYZER (EXAMPLE: ELEMENTRAC CS-i)

What all ELTRA analyzers have in common is easy operation and rapid C/S or O/N/H measurement in powders, granulates, wires or foil. After the sample has been weighed and logged into the software, all further steps happen automatically once the analysis is started. The results are available within minutes.



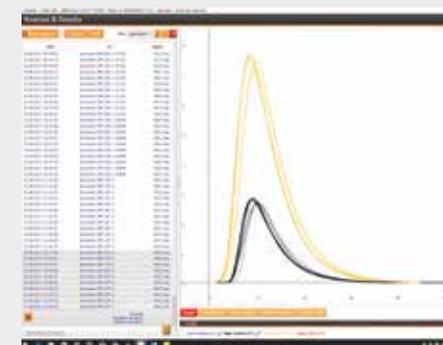
Weighing the sample



Logging the sample into the software



Introducing the sample



Analysis results after 40 - 60 sec

## A WIDE RANGE OF APPLICATIONS

# INDUSTRIES AND APPLICATION EXAMPLES

ELTRA analyzers meet and exceed the requirements of all international standards like ASTM 1019 or DIN EN 15936 and are employed in many different industries.



### ENVIRONMENT/FOOD

#### Application

- | TOC/TIC in soil & waste
- | Dry weight & ash in food
- | Protein Analysis

#### ELTRA Analyzer

- | ELEMENTRAC C(H)S-r and CS 580 A
- | TGA Thermostep
- | ELEMENTRAC CN-r



### METAL PRODUCTION

#### Application

- | C/S in cast iron
- | Diffusible hydrogen in steel
- | Surface carbon on copper

#### ELTRA Analyzer

- | ELEMENTRAC CS-i
- | ELEMENTRAC H-r
- | Surface C 800



### CEMENT/CONSTRUCTION MATERIALS

#### Application

- | C/S in construction materials & fuels
- | TIC in cement
- | Loss on ignition in construction materials

#### ELTRA Analyzer

- | ELEMENTRAC CS-d
- | CW 800
- | TGA Thermostep



### AEROSPACE/MEDICAL ENGINEERING

#### Application

- | O/N/H analysis in titanium
- | C/S analysis in titanium

#### ELTRA Analyzer

- | ELEMENTRAC ONH-p series
- | ELEMENTRAC CS-i

PRODUCT HIGHLIGHT



ELEMENTRAC® CND

PRECISION.  
INNOVATION.  
EFFICIENCY.



## NEW NITROGEN AND CARBON ANALYZER ELEMENTRAC CN-r

# HIGH THROUGHPUT MADE RELIABLE AND COST EFFICIENT

The ELEMENTRAC CN-r is the perfect solution for high-throughput laboratories that require fast and reliable nitrogen, protein and carbon determination. State-of-the-art hardware and a built-in PC with touchscreen, allows the operator to monitor the process and control all parameters. The compact and space-saving design of the ELEMENTRAC CN-r allows saving laboratory space. The use of non-aggressive chemicals ensures better working safety compared to the Kjeldahl method.

Typical samples for the Dumas combustion analyzers are natural products of various compositions.

The ELEMENTRAC CN-r ensures complete combustion analysis of all samples thanks to the use of a pure oxygen atmosphere during the process. Combined with the highly efficient, chromium-free catalyst, all components are fully oxidized. This prevents the formation of soot and liquid tin, contributing to the stability and

accuracy of the results. Furthermore, method optimization is greatly simplified by the excess oxygen during combustion in the ELEMENTRAC CN-r.

With the use of the innovative autosampler of the ELEMENTRAC CN-r, samples are always clearly assigned, ensuring that there is no mix-up of samples even in a hectic laboratory routine and handling a large number of samples is made easy.

### TYPICAL SAMPLE MATERIALS

- Standard-compliant analysis of foodstuffs, animal feed, fuels (such as coal, coke ...), fertilizers and more.



### COMPLIANT TO INTERNATIONAL NORMS AND METHODS

The ELEMENTRAC CN-r is capable of analyzing variety of organic substances such as food, feed stuff, fuels, and fertilizers. From solids to liquids, ELEMENTRAC CN-r delivers pinpoint accuracy across any sample matrix. ELTRA's advanced 2-stage water separation ensures complete removal of water content from aqueous samples and allows analyzing them in a series. Solid and liquid samples can be analyzed safely and uninterrupted. The elemental analyzer ELEMENTRAC CN-r fulfills or exceeds the requirements of all current international standards for nitrogen or carbon analysis. Overall, a nitrogen analyzer using the Dumas method offers a modern, cost-effective, time-saving and space-saving alternative to traditional Kjeldahl systems. The ELEMENTRAC CN-r is available in two configurations: carbon and nitrogen/protein or nitrogen only.

Standard	Number
DIN EN	13654-2, 16168
ISO	18611-2, 22241-2, 14891, 16634, 10694, 13878, 19051, 24698-1,
AOAC	990.03, 992.15, 992.23, 993.13 997.09
AACC	46-30
AOCS	BA4E-93, BA4F-00



## C(H)S & CN ANALYSIS – RESISTANCE AND INDUCTION FURNACES

ELTRA offers a variety of C, CS, CHS; CN and water analyzers for numerous applications and specifications.

C/N analysis is a typical application for food, feed, soil or coal and can be done with the new ELEMENTRAC CN-r.

C(H)S analysis is typical for metals, ores, fuels, buildings materials and more. It is covered by the ELEMENTRAC CS-i, CS-d, C(H)S-r and C(H)S-580A analyzers.

(Fractional) Carbon and water analysis for a wide range of samples is easy with the CW 800 (M) and SC 800.

NEW

New Product

Suitable for  
Organic AnalysisSuitable for  
Inorganic Analysis

## CARBON / NITROGEN / PROTEIN & CARBON / HYDROGEN / SULFUR ANALYZERS

# FOR INORGANIC & ORGANIC ELEMENTAL ANALYSIS



### ELEMENTRAC CN-r

- | Nitrogen (protein) and carbon analysis for food & feed
- | Resistance furnace with quartz tube
- | Ballast Tank assures low cost/analysis
- | Autoloader (32 samples) included



### ELEMENTRAC CS-i

- | Carbon, sulfur analyzer for iron, copper, ceramics
- | Induction furnace (T > 2200 °C)
- | Autoloader (option)



### ELEMENTRAC CS-d

- | Carbon, sulfur analyzer for iron, copper, ceramics and coal, coke, soil
- | Induction furnace (T > 2200 °C) and resistance furnace (ceramic up to 1550 °C)



### ELEMENTRAC C(H)S-r

- | Carbon, sulfur (option: hydrogen) and TOC/TIC, analyzer for soil, waste, ores
- | Ceramic furnace up to 1550 °C & optional monitor holder



### C(H)S-580A

- | Carbon, sulfur (option: hydrogen) and TOC/TIC analyzer for soil, waste, ore
- | Ceramic furnace up to 1550 °C
- | Autoloader (option)



### CW-800

- | Water, CO<sub>2</sub> in gypsum, cement
- | Resistance furnace (quartz tube) up to 1000 °C



### CW-800M

- | Carbon, water, TOC<sub>400</sub> / ROC<sub>600</sub> / TIC<sub>900</sub> analyzer for construction materials, welding powder, soil, waste
- | Resistance furnace (quartz tube) up to 1000 °C



### SURFACE C-800

- | Surface carbon on steel, iron, copper, aluminum
- | Resistance furnace up to 1000 °C

## OXYGEN / NITROGEN / HYDROGEN & THERMOGRAVIMETRIC ANALYZERS

# FOR INORGANIC & ORGANIC ELEMENTAL ANALYSIS



### ELEMENTRAC ONH-p

- | Oxygen, nitrogen, hydrogen analyzer for steel, copper, titanium, ceramics
- | Impulse furnace up to 3000°C



### ELEMENTRAC ONH-ps

- | Simultaneous measurement of oxygen, nitrogen & hydrogen
- | Suitable for all common metals and ceramics
- | Hydrogen measurement via IR



### ELEMENTRAC OH-p

- | Powerful oxygen & hydrogen analysis
- | Ideal suited for steel and copper
- | Hydrogen measurement via TCD



### ELEMENTRAC ON-p

- | Reliable oxygen & nitrogen measurement
- | Ideal suited for steel, titanium



### ELEMENTRAC H-r

- | Hydrogen analysis via carrier gas heat extraction
- | Small & XXL Furnace configuration for small parts or welding seems
- | Resistance furnace and TCD



### TGA THERMOSTEP

- | Automated determination of moisture, ash, volatiles, LOI in coal, construction materials and food



### TIC MODUL

- | TIC analysis via acidification
- | Can be connected to any carbon analyzer



### ONH GLOVEBOX

- | ONH analysis via inert gas fusion
- | Fusion can be placed in glove box
- | Safe analysis of hygroscopic and radioactive samples

## H/ONH & TGA ANALYSIS – RESISTANCE AND IMPULSE FURNACES

ELTRA offers a variety of ONH analyzers for numerous applications and specifications.

The ELEMENTRAC ONH-p, for example, can be equipped as single-element analyzer (e. g. only N), as combined analyzer (ON; OH; NH) or as full configuration for ONH analysis.

H analysis in inorganic samples like steel or welding seems can be performed in resistance furnace analyzer like the ELEMENTRAC H-r.

Thermogravimetric analyzers are a perfect combination of resistance furnace and integrated balance, allowing the simultaneous measurement of moisture, ash and volatile in one run.



#### LEARN MORE!

Would you like to find out more about our **products**? Scan the QR code and discover our solutions.

ELEMENTRAC® ONH 

# SOLUTIONS FOR INORGANIC O/N/H ANALYSIS

ELTRA



## CONFIGURATION OPTIONS

# FLEXIBLE SOLUTIONS FOR YOUR APPLICATIONS

Depending on the application in research & development or quality assurance, an elemental analyzer needs to fulfill different configuration requirements.

Customers may choose between a full configuration or an individual number of measurement channels and IR cells for each ELTRA analyzer. The ELEMENTRAC ONH-p, for example, can be equipped as single-element analyzer (e. g. only N), as combined

analyzer (ON; OH; NH) or as full configuration for ONH analysis. For hydrogen analysis the ELEMENTRAC series analyzer can offer the measurement via IR (ONH-ps) or TCD (ONH-p).

For C/S analyzers ELTRA provides free-of-charge integration of IR cells with configurations for special applications. These are available, for instance, to reliably determine high sulfur concentrations in high sample weights.

## TYPICAL SAMPLE MATERIALS

I Steel, iron, copper, titanium, ceramics and more.



## OPTIONS

The various analyzers offer different options for optimized usage:

- I Sample loader with 32 (ONH & CN) or 36 / 130 (CS) positions
- I Autocleaner
- I Gas purification ensures reliable measurement in the low ppm range
- I Halogen trap absorbs acid residues resp. F; Cl; Br; I
- I Gold cuvettes increase robustness against halogens
- I REST API interface allows integration of ELEMENTRAC analyzers into automated processes
- I Glove box configurations for C/S & O/N/H analysis of sensitive samples



### FIND OUT MORE!

Would you like to find out more about our **applications?**  
Scan the QR code and discover our solutions.

**Eltra GmbH**

Retsch-Allee 1-5  
42781 Haan  
Germany

Phone: +49 2104 2333-400  
Fax: +49 2104 2333-499

info@eltra.com www.eltra.com



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