UNICUBE®

Combustion analysis has never been easier

High data quality

Flexibility

Silent operation

Ease of use

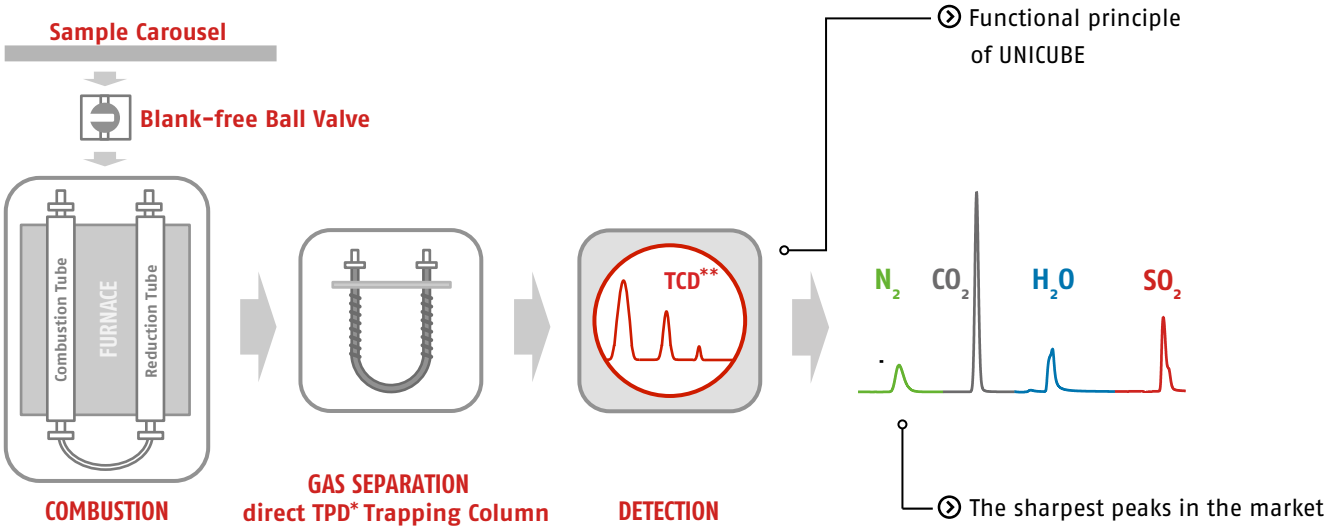
UNICUBE

Elemental analysis is working for you

KEY FEATURES

- Large dynamic measurement range from 0.1 milligram chemical substance to 1 gram inhomogeneous soil
- Best analysis results for any sample matrix
- Wide variety of optional configurations, individually extendible
- Low and tool-free maintenance
- Low noise level
- Low total cost of ownership
- Integrated 120 position autosampler as standard
- Patented ball valve for blank-free sample transfer

UNICUBE combines the low costs and the sensitivity of a micro elemental analyzer with the flexibility and outstanding robustness of a macro analyzer. UNICUBE utilizes Elementar's proprietary and improved direct Temperature Programmed Desorption (direct TPD) technology for highest reliability and performance in gas separation. In combination with the most powerful detector in the market, the instrument is capable of determining samples with C:N and C:S elemental ratios of up to 12,000:1.



* Temperature Programmed Desorption
** Thermoconductivity Detector

Reliable results

UNICUBE guarantees outstanding precision and accuracy through quantitative combustion via oxygen jet-injection directly into the combustion zone. This leads to matrix-independent results even for samples which are difficult to combust. In combination with the state-of-the-art thermoconductivity detector, the instrument can provide an elemental detection limit down to < 50 ppm.

Ease of use

UNICUBE is optimized to simplify daily routine operation. Clearly arranged, easily accessible system components as well as a furnace that slides out minimize maintenance and maximize uptime. The tool-free clamp connection system ensures a reliably leak-tight instrument at any time. Thus, users can enjoy smooth analyses and confidence in their results.

HIGH-TEMPERATURE COMBUSTION

All elemental analyzers from Elementar are designed for minimal sample preparation and secure, unattended 24 / 7 operation. They use the safe, simple and environmental friendly high-temperature combustion principle. The proven Elementar double furnace technology with separated combustion and reduction zone ensures longest maintenance intervals. In combination with an efficient, active oxygen dosing, it guarantees quantitative conversion of the sample to measuring gas – a prerequisite for highly precise and matrix-independent elemental analysis.

Quiet operation

Thanks to a novel self-regulating cooling air circulation, UNICUBE becomes the quietest elemental analyzer in its class. A low noise level – not louder than falling rain – makes working with UNICUBE pleasant to your ear.

DIRECT TEMPERATURE PROGRAMMED DESORPTION (DIRECT TPD)

UNICUBE uses the proprietary direct TPD technology to chromatographically separate the combustion gases prior to detection in a highly sensitive thermoconductivity detector. The temperature program for the gas separation is controlled by a sensor positioned on the inside of the direct TPD column – directly in the gas stream. This setup has unique benefits such as very sharp peaks through direct control of the gas desorption temperature and guaranteed baseline separation of all gases – even for extreme elemental ratios. This makes the direct TPD technology capable of resolving C:N and C:S ratios of up to 12,000:1. The distinct peak separation assures absolutely reliable and trouble-free data acquisition. Elementar's unique direct TPD columns are optimized to provide unmatched robustness and longevity compared to classic GC columns.

UNICUBE – high perfomance becomes easy-going

SAMPLE	CARBON [%]	HYDROGEN [%]	NITROGEN [%]	SULFUR [%]
BIOTINE	49.21 ± 0.09	6.64 ± 0.01	11.49 ± 0.03	13.11 ± 0.05
MELAMINE	28.62 ± 0.02	4.75 ± 0.02	66.66 ± 0.04	–
SULFANILIC ACID	41.59 ± 0.02	4.04 ± 0.01	8.12 ± 0.01	18.55 ± 0.03
BISMUTHIOL	15.93 ± 0.04	1.34 ± 0.02	18.68 ± 0.04	63.94 ± 0.09
NIST 141E ACETANILIDE	71.15 ± 0.02	6.78 ± 0.01	10.41 ± 0.02	–
NIST 143D CYSTEINE	29.85 ± 0.02	5.04 ± 0.01	11.79 ± 0.01	26.72 ± 0.06
GRAPHENE	98.89 ± 0.09	0.185 ± 0.01	0.167 ± 0.01	0.214 ±0.01
3-FLUORO-ACETANILIDE	62.91 ± 0.10	4.64 ± 0.07	9.10 ± 0.03	–
N-FLUORO-BENZENE-SULFONIMIDE	29.76 ± 0.06	5.85 ± 0.01	1.65 ± 0.01	26.51 ± 0.02

Sample weight between 0.5–6 mg

ONE INSTRUMENT FOR MULTIPLE TASKS

For the determination of very low S concentrations down to 2 ppm, UNICUBE can be equipped with an optional IR detector even in CHNS mode. Even oxygen and chlorine can be detected. All optionally available conversion kits allow upgrading UNICUBE at any time for special applications.
The UNICUBE® trace version obtains detection limits down to 10 ppm N.

QUALITY YOU CAN TRUST

Thanks to the outstanding robustness and longevity, all analyzers include a 10 year warranty on high temperature combustion furnace and thermoconductivity detector (TCD) cell. With the confidence that you will receive the highest level of technical support from our experienced team, Elementar provides spare parts for a minimum of 10 years after the end of production. This results in outstandingly low total cost of ownership.

IDEAL SOLUTION FOR

- Pharmaceutical laboratories
- Chemical contract laboratories
- Quality control laboratories
- Academic research groups

FOCUS SAMPLE TYPES

- Chemicals
- Pharmaceuticals
- Polymers

High data quality

Outstanding precision and accuracy through high temperature combustion. Matrix-independent results. Longterm stability of calibration.

Flexibility

Measure any sample matrix in any concentration. Wide range of optional conversion kits available for special applications.

Silent operation

Greater silence in routine operation thanks to reduced noise emission via self-regulating cooling air circulation.

Ease of use

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

Elementar – your partner for elemental analysis

Elementar is the world leader in high performance analysis of organic 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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EXCELLENCE IN ELEMENTS

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