UNICUBE®



Sixth generation micro elemental analyzer for simultaneous analysis of CHNS as well as 0 and CI optionally. Suitable for all organic and many inorganic liquids and solids. UNICUBE easily covers both sub-milligram and three-digit milligram weighing range. A robust workhorse for a wide variety of applications – whenever highest accuracy, robustness and versatility are essential. A multitude of optional configurations make UNICUBE fit for any application in modern combustion analysis.

Elemental combustion analyzer



Concentration analysis of Carbon, hydrogen, nitrogen, sulfur, oxygen*, chlorine*

Operating modes CHNS, CNS, CHN, CN, N, S, O, CI

Design Compact benchtop with single power supply

Sample introduction Zero blank patented ball valve system
Furnace design Double furnace system, 10 years warranty

Gas separation Direct Temperature Programmed Desorption (direct TPD)

Detector type High sensitivity thermal conductivity detector, infrared*, electrochemical cell*

Control Fully digital via external PC (no additional control panels required)

Sample Introduction

Construction One block, auto-aligned sample introduction system with integrated carousel

Access Inert gas free easy access, no purging of sample carousel required

Movement control Fully electrical

Carousel type Non-stacked 60*, 80*, 120 or 240* position solid sampler

2 ml vial, 50 position random access liquid sampler with rinse and waste vial*

Solid sampling system Compact integrated patented ball valve

Liquid sampling system* Radial sample turret with central rotating sample injection arm

Liquid injection port* Septum-free micro-seal injection port

Syringe injection* User-exchangeable microsyringe with bubble elimination feature

Injection speed* User selectable
Dosing resolution* Min. 24 nl

Gas sampling system* User controllable manual injection

Furnace

Type Slide-out, double vertical furnace system for usage of 28 mm inner diameter quartz or

steel*,**reaction tubes

Furnace Resistive heater element with 1200 °C maximum temperature Electrical supply 48 Volt safety design for entire instrument including furnaces

Combustion/reduction reactor Quartz tube long life design with separated combustion and reduction tube

Oxygen reactor* Quartz tube with carbon black filling
Chlorine reactor* Quartz tube with tungsten trioxide filling

Ash removal Quartz easy removal ash finger

Reactor stability No need for cooling down during routine maintenance

Carrier gas Helium, argon*, forming gas*, synthetic air*

Connections Quick swap clamp connections for fast maintenance, no tools required

ystem Data Sheet

UNICUBE®

Gas Separation

Туре Dynamically heated chromatographic separation system using direct temperature

programmed desorption technology (direct TPD technology)

No of columns

Retention time control N₃, CI no control, all other gases user defined computer control

Baseline separation 1/12000 N/C and S/C elemental ratio

Full separation of all analytes with patented direct TPD technology, no peak tailing or Column flush system

peak overlap

Recovery rate 100%

Detectors / Electronics

Туре Thermal Conductivity Detector (TCD), 10 years warranty Thermistor, oxygen proof, indestructable, double channel Design

SO₃ specific infrared*, CO specific infrared*, combined CO+SO₃ specific infrared* Type

Built-in, solely software controlled switching to TCD for alternative element detection Design

Chlorine sensitive electrochemical cell* Туре Design Exchangeable 200 ppm and 5000 ppm cell

Detection limit** < 50 ppm (TCD)

Calibration Multipoint, multirange, matrix-independent calibration

~ 7 min for simultaneous CHNS determination, self-optimizing depending on element Analysis time**

content and sample weight

Electronics Fully digital, fully integrated in unit, no external control panels

Security norms EU machinery directive 2006/42/EG

Software

Balance

Operating system Windows® 10, other systems upon request Analyzer software Proprietary software, own development

Features Automatic leak finding software

Intelligent error indicator with sophisticated self-diagnostics

Auto sleep and wake-up Statistical calculations Service cycle indication LIMS integration 21 CFR part 11 compliant*

Automatic read out of weighing data*

* requires optional configuration **depending on sample type, analysis mode and configuration

Measuring Range and Technical Specifications

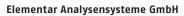
o - 14 mg absolute or o - 100 % (o - 50* mg in CN mode) standard deviation**: <0.1 % absolute (homogeneous substance)

o - 2 mg absolute or o - 100 % dimensions: 48 x 55 x 57 cm (W x D x H)

o - 10 mg absolute or 0 - 100 % weight: approx. 70 kg

o - 3 mg absolute or o - 100 % electrical connections: 100/120/220/230/240 V, 50/60 Hz, 1.5 kW

0*: o - 6 mg absolute or o - 100 % oxygen consumption: approx. 0.05 | / analysis Cl*: o - 1.2 mg absolute or o - 100 % required gases: carrier gas and oxygen only



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