

# Thermo Scientific *FlashSmart* Elemental Analyzer

A single CHNS/O, NC, N/Protein  
Analyzer handling all applications

# Superior elemental analysis that grows with your needs

Lead the way in elemental analysis with  
a single instrument handling all applications.

You and your team can solve more laboratory challenges, improve workflow and minimize downtime. The Thermo Scientific™ FlashSmart™ Elemental Analyzer (EA), based on the modified Dumas Method, is a flexible solution that expands your CHNS/O analysis with over 20 configurations in one system. Powerful software supports automated and precise reports, making everything easier for you and your team.

**24/7  
automated  
operation**



**Kjeldahl  
alternative  
for N/Protein**



**1000  
Analysis Kit  
for every configuration  
in standard outfit**



**Determine  
1 to 5  
Elements**



**MultiValve  
Control  
Module  
for extended  
capabilities**



**TOC  
determinations  
after acid  
pretreatment**



**Analyze from  
few ppm,  
to 100%**



**Furnaces and  
TCD detector with  
15-year warranty\***



**Over 5000 determinations: exclusive OEA and EA-IRMS Cookbook**  
Filled with our decades of experience, the Cookbook is your shortcut  
to getting more from your elemental analysis.

# Why choose the FlashSmart EA?



## The confident choice

- **Precise** and reliable system that delivers accurate results
- Easy maintenance
- Easy to use for reduced need for staff training
- Modern design combines simple user input with dedicated software features
- Better return on investment as the system is modular and grows with your analytical requirements



## Simple

- **Gas chromatographic method** for real-time view of the analytical process and pathway: anytime, anywhere
- Streamlined sample preparation without the need for dangerous chemicals as Kjeldahl Method
- Complete EA software for effortless operation: virtually the most complete EA dedicated software



## Modular

- Over 20 configurations in one instrument: no need for software or hardware upgrade
- Different autosamplers can be accepted on the same analyzer
- Coupling capabilities with Flame Photometric Detector (FPD), for trace sulfur analysis, and with Isotope Ratio Mass Spectrometry (IRMS)
- Higher sample throughput and automation with the Thermo Scientific™ **MultiValve Control (MVC) Module**, without manual intervention
- Operates with helium and argon as carrier gas



## Automated

- Unattended operation of the FlashSmart EA: analyses can run 24/7 for complete results anytime, anywhere
- Dedicated Thermo Scientific™ **EagerSmart™ Data Handling Software** controlling all analytical parameters, Thermo Scientific™ OxyTune™ Function, solid and liquid autosamplers, MVC Module and FPD Detector
- Lower cost per analysis and greater productivity



## Accurate

- Certified and uncompromised **precision and accuracy** for a wide range of applications, from research to routine analysis
- Compliance with most recognized EA Official Methods: AOAC, AOCS, AACC, ASTM, ASBC, ISO, EN, CEN, EPA, IFFO
- OEA CookBook with thousands of determinations and methods for optimal results
- IQ/OQ Qualification available



## Robust

- Robust, specially designed features that you can rely on for decades
- GC separation column operating for years without the need for replacement: it is not a consumable
- 15-year warranty on combustion/reduction furnaces and TCD detector
- **Long term investment** for your laboratory, which guarantees reliability and accuracy of analysis

# Access more applications: become the reference laboratory in your field

No matter which direction you take, your lab and equipment will be able to adapt to support any strategy.

Flexible systems enable you to react to the new, whilst delivering accurate and reproducible results. With the FlashSmart EA your lab can easily handle varying sample types, obtain from 1 to 5 element determinations and achieve maximum sample throughput.

## Organic Chemistry

- Fine chemicals
- Organo-metallic compounds
- Polymers
- Plastic
- Synthetic rubbers
- Fibers
- Explosives
- Catalysts
- Textiles
- Pesticides
- Detergents
- Fluorine-compounds



- FlashSmart CHN
- FlashSmart CHN/O
- FlashSmart CHNS
- FlashSmart CHNS/O

## CHNS/O Analyzer Configuration

Perform 5 elements with TCD, and trace sulfur determination with the Flame Photometric Detector (FPD).

## Petro-chemistry & Energy

- Coals
- Cokes
- Crude oils
- Gasoline/Diesel
- Alternative fuels
- Petroleum derivatives
- Lubricants
- Oil additives
- Graphite



- FlashSmart CHNS
- FlashSmart CHNS/O
- FlashSmart N Lubricants

## Environmental

- Soils, sediments, and rocks
- Composts
- Wastes
- Sewage/Sludge
- Pesticides
- Water solution
- Waste water
- Particulates in air by filters
- Particulates in water by filters
- Woods



- FlashSmart CHNS
- FlashSmart CHNS/O
- FlashSmart NCS
- FlashSmart NC Soils

## NCS Analyzer Configuration

Achieve nitrogen, carbon and sulfur determination by TCD detector and trace sulfur determination with a flame photometric detector.



### NC Soil Configuration

Determination of Total Nitrogen, Total Carbon, and Total Organic Carbon.

## Agronomy & Marine Science

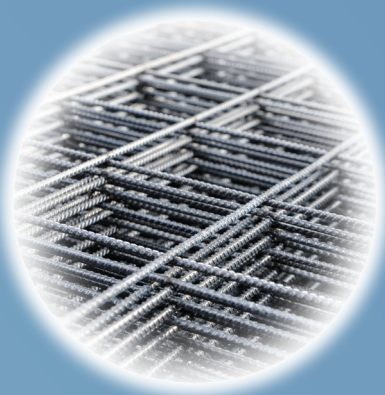
- Soil
- Plants (leaves, roots, fruit)
- Sediments
- Humus
- Algae
- Plankton
- Particulate matter in water by filters
- Water
- Fertilizer



- FlashSmart N Org
- FlashSmart NC Org
- FlashSmart NCS
- FlashSmart NC Soils

## Material Characterization

- Glue/resins
- Papers
- Rubbers
- Cement
- Ceramics
- Carbon/Glass fibers
- Tires
- Pigments and dyes
- Refractory materials
- Building materials
- Inorganic materials
- Metals
- Textile fibers
- Wood powders



- FlashSmart CHNS
- FlashSmart CHNS/O
- FlashSmart N Org
- FlashSmart NC Org
- FlashSmart NCS
- FlashSmart NC Soils

### MultiValve Control Module for improved productivity

CHN/O MVC  
CHNS/O MVC  
CHN/CHN MVC  
CHNS/CHNS MVC

Option to add the MVC Module to your customized FlashSmart EA configuration.

### N/Protein Analyzer Configuration

Determine crude protein in human food and animal feed using quality certified Reference Material, included as standard.

## Food Safety

- Human food and animal feed
- Beverages (beer, juice, milk, wine, soft drinks...)



- FlashSmart N/Protein
- FlashSmart N Brew

# Performance that takes you further

With powerful yet easy operation, your team can process more samples every day. When you need to analyze more elements, you can adapt the FlashSmart EA on-site to your applications or add a second reactor to unlock more capabilities.



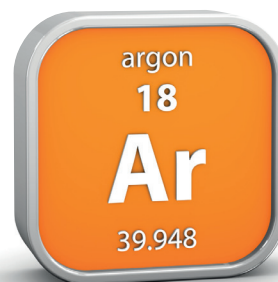
## Instantly connect

- Thermal Conductivity Detector (TCD)
- Flame Photometric Detector (FPD) for trace sulfur analysis
- Isotope Ratio Mass Spectrometer (IRMS)



## Carrier gas options

- Helium
- Argon option for lower cost and regular supply
- Switch to nitrogen or argon when in Stand-By Mode



## Sample introduction modularity

- Two solid autosamplers
- Two liquid autosamplers
- One solid and one liquid autosampler
- One solid autosampler and one manual liquid sampler



## Gas chromatographic method: real-time analysis

- Proper quantification of the five elements
- “Open window” function giving information on what is happening inside the analyzer in real-time
- Straightforward and intuitive workflow without valves
- No absorption or desorption of gases needed



## Upgrade your system for Isotope Ratio Mass Spectrometry

Demand is growing for multi-element isotope analysis for applications in geo- and environmental sciences, ecology, food authenticity and forensics. The versatile Thermo Scientific™ EA IsoLink™ IRMS System, including the Flash IRMS™ Elemental Analyser and Thermo Scientific™ Isotope Ratio Mass Spectrometer allows you to easily obtain isotopic data from all sample types.



# Software automates consistent sampling and reports



## Software

The Thermo Scientific EagerSmart Data Handling Software allows you to leave the FlashSmart EA unattended to get completed analysis, with full, user-friendly reports. The software controls all analytical parameters, flows, autosamplers and detectors, by suggesting the most favourable analytical conditions for your samples.

- Automated transfer of the sample weight from the balance to the software
- Automated evaluation of Heat Values (Gross and Net Heat Values) for fuels and alternative fuels
- CO<sub>2</sub> Emission Trade for environmental control
- Different Protein Factors for food and animal feed
- Inserting of the Humidity value for solid samples and of the Density for liquid samples
- Automated Minimal Formula determination for pharmaceutical or fine chemicals applications
- Automated evaluation of C/N, C/H and C/S ratio
- Automated data transfer to Microsoft Excel, LIMS and others



## Automated functions

- Auto-Start
- Auto-Ready
- Auto-Stand-By
- Auto-Off
- Auto Leak Test



## Unique and dedicated OxyTune function

The Thermo Scientific OxyTune Function automatically evaluates the oxygen needed for combustion, according to the weight and nature of your sample.



## MultiValve Control Module: future-proof lab with more throughput and less costs

By switching the analysis from the left channel to the right one (or viceversa), the MVC Module increases your analysis throughput. When the system is not in use overnight, on weekends, or for a prolonged period of time you can also reduce helium consumption and overall cost of analysis by switching from helium to nitrogen or argon.

- Fully automated and software controlled
- No need to change hardware or software configuration
- Optional feature for extended lab throughput
- Easy to add





# We manage your instruments so you can focus on the science

With over 50 years of experience, Thermo Fisher Scientific is your reliable partner for organic elemental analysis. No matter how remotely you work, you will still get the support you need and 15-year warranty for furnaces and TCD Detector\*.



For any enquiries please contact:  
**OEA@thermofisher.com**



Learn how you can discover new ways to achieve more, every day with the OEA and EA-IRMS Cookbook.

## Thermo Scientific FlashSmart EA: THE Elemental Analyzer

Find out more at [thermofisher.com/OEA](https://thermofisher.com/OEA)

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