



elementar

# Elementar Company Presentation

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A CLEAN ENVIRONMENT NEEDS CLEAN ANALYTICAL METHODS

# ELEMENTAR France

- **ELEMENTAR est le principal fabricant Allemand d'analyseurs élémentaires Organiques C, H, N, S et O depuis plusieurs décennies**
- **Aujourd'hui, la nouvelle génération d'analyseurs élémentaires de la famille Vario cube (Micro, EL, Macro et Max) est présente dans plus de 40 pays**
- **ELEMENTAR France filiale à 100% assure la commercialisation et le service après vente des analyseurs ELEMENTAR EN FRANCE**

# Gamme de produits

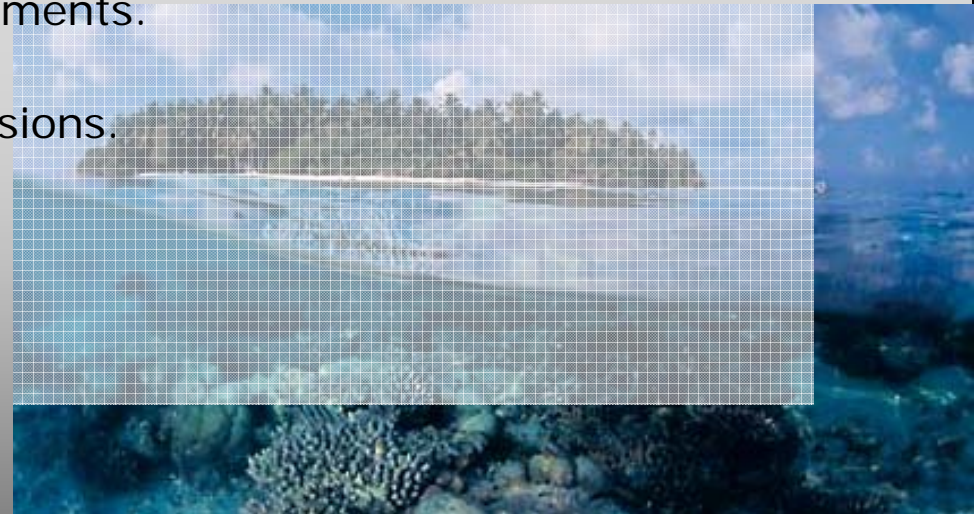
- Analyseurs CHNOS
  - Vario MICRO
  - Vario EL Cube
  - Vario MACRO Cube
  - Vario MAX

# Gamme de produits

- Analyseurs CHNOS
  - Vario MICRO
  - Vario EL Cube
  - Vario MACRO Cube
  - Vario MAX
- Environnement /Eau/COT (liquides et solides)
  - Vario TOC

# Eau: COT/ TNb

- With 30 years of experience in TOC analysis based on high temperature combustion, the TOC analyzers of ELEMENTAR cover all kind of aqueous samples from pharmaceutical water up to waste water and sludges.
- In all TOC analyzers ELEMENTAR is using innovative techniques for catalyst protection to ensure stable operating conditions over a long time with lowest maintenance requirements.
- Optional  $TN_b$  determination for all versions.



# Gamme de produits

- Analyseurs CHNOS
  - Vario MICRO
  - Vario EL Cube
  - Vario MACRO Cube
  - Vario MAX
- COT (liquides et solides)
  - Vario TOC
- Analyseurs dédiés
  - Protéines
  - Charbon, fuel, coke ...

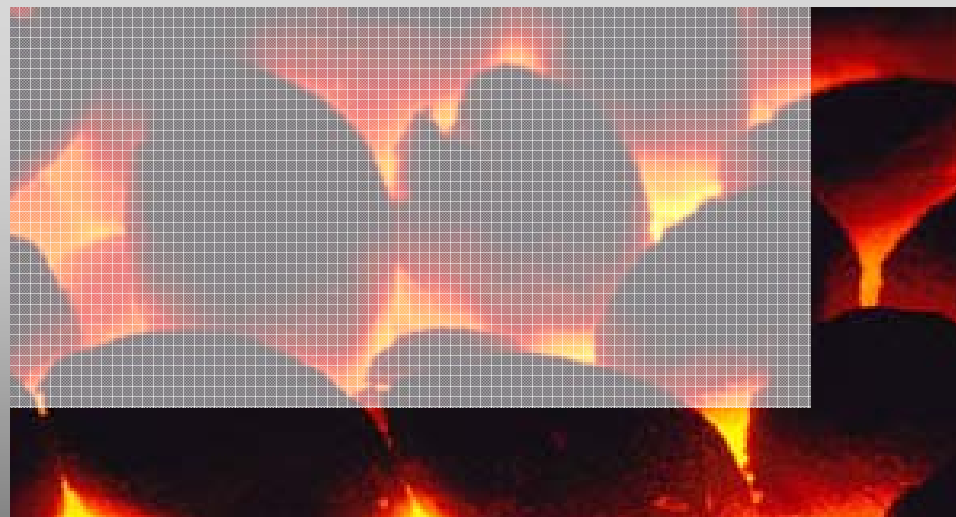
# Analyseurs N/CN/CNS

- Azote/ protéines (combustion – Dumas)
- CN, CNS végétaux, sols...



# Macro - analyseurs CHN

- **Analyseurs de carburants solides**





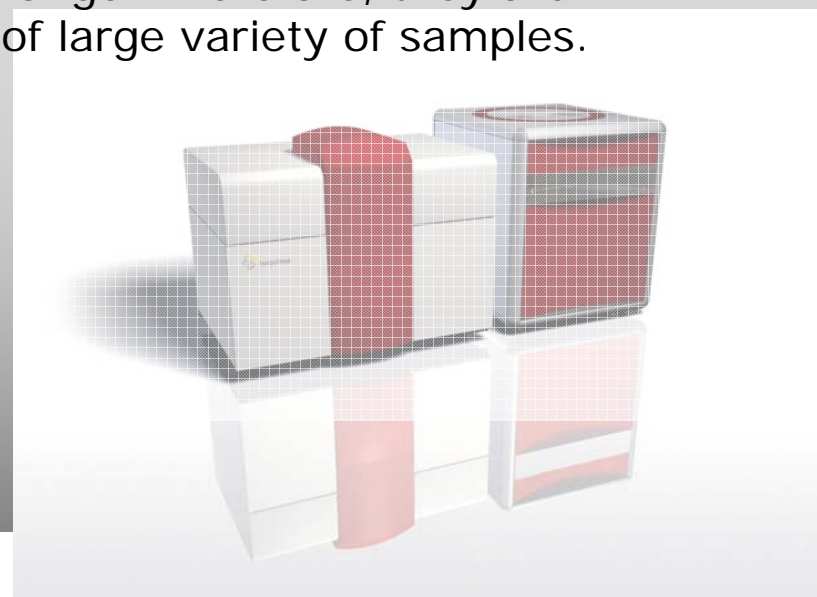
# Gamme de produits

- Analyseurs CHNOS
  - Vario MICRO Cube
  - Vario EL Cube
  - Vario MACRO Cube
  - Vario MAX
- Eau COT (liquides et solides)
  - Vario TOC
- Analyseurs dédiés
  - Protéines
  - Charbons, fuels lourds, cokes, déchets industriels ...
- IRMS
  - Oxygène
  - Pyrolyse haute température

# IRMS elemental analyzers

Beginning 2008 Elementar acquired the product line Gas-IRMS from Thermo/GVI

- The large differences in sample types requires different approaches for the analysis of CHNS and O stable isotope ratios. ELEMENTAR is dedicated to provide the best possible solution for the users needs by improving on existing instruments and developing new concepts.
- Elemental analyzers of ELEMENTAR are characterized by a large sample size and large concentration range. Therefore, they are specially suited for the safe analysis of large variety of samples.



# EA/IRMS

- Spectromètres de masse de rapports d'isotopes stables de marque IsoPrime:
- EA-IRMS, GC-IRMS, LC-IRMS ...
- - Analyseurs de traces de soufre et d'azote: Fluorescence UV et Chimiluminescence



# Single carousel autosampler

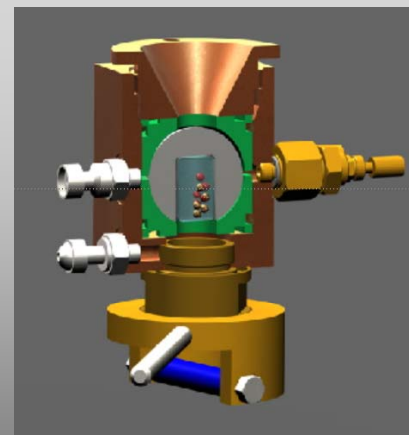
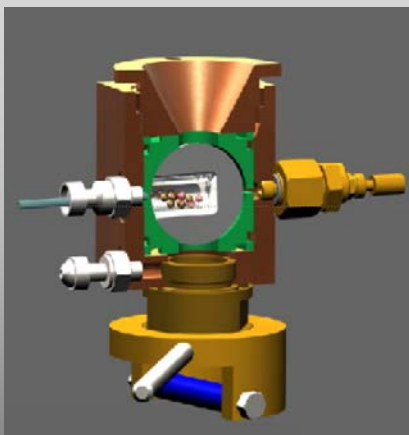
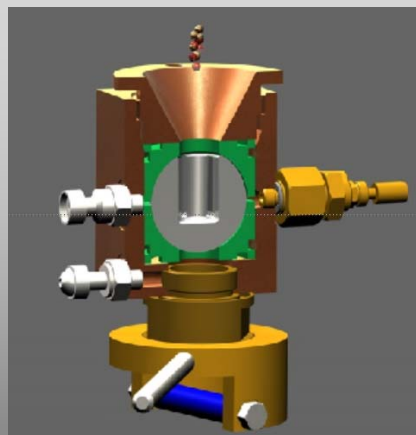


- large – 60, 80 or 120 positions
- blank-free sampling
- reliable – easy cleaning
- easy reload during operation
- single- or continuous operation

## Patented Ball valve



- inherent blank-free system
- reliable function
- keeps air out of the system
- very long lasting operation
- easy maintenance



# Reliable furnace system

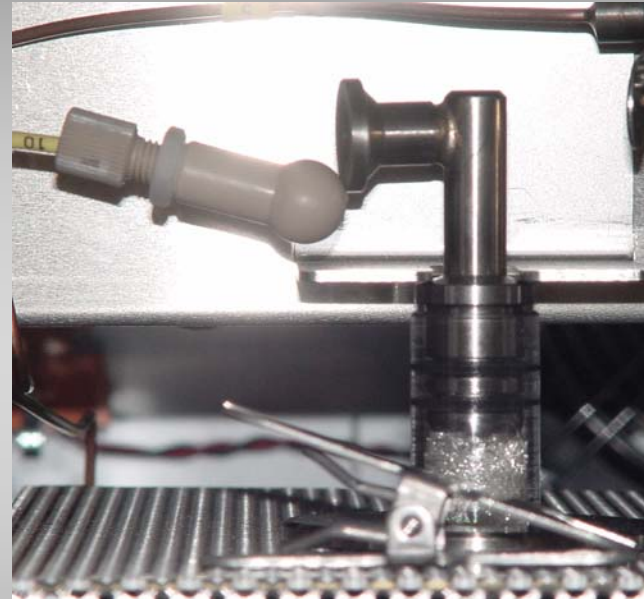


- high-temperature furnace for continuous operation up to 1200°C
- low voltage concept for reliability and safety
- easy access for tube exchange
- 10 year warranty

# Clamp connections for easy maintenance and reliable function



closed



open

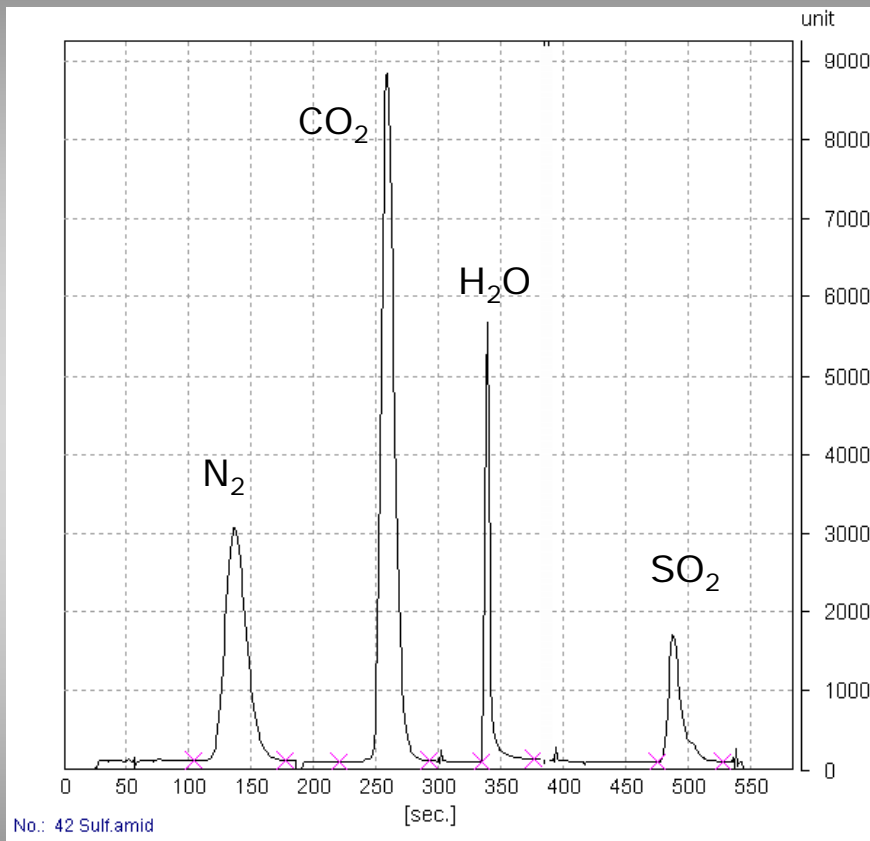
# Purge&trap gas separation



- dynamic **purge&trap** columns
- powerful gas separation,  
guarantees baseline separation for  
all sample types
- very long lifetime



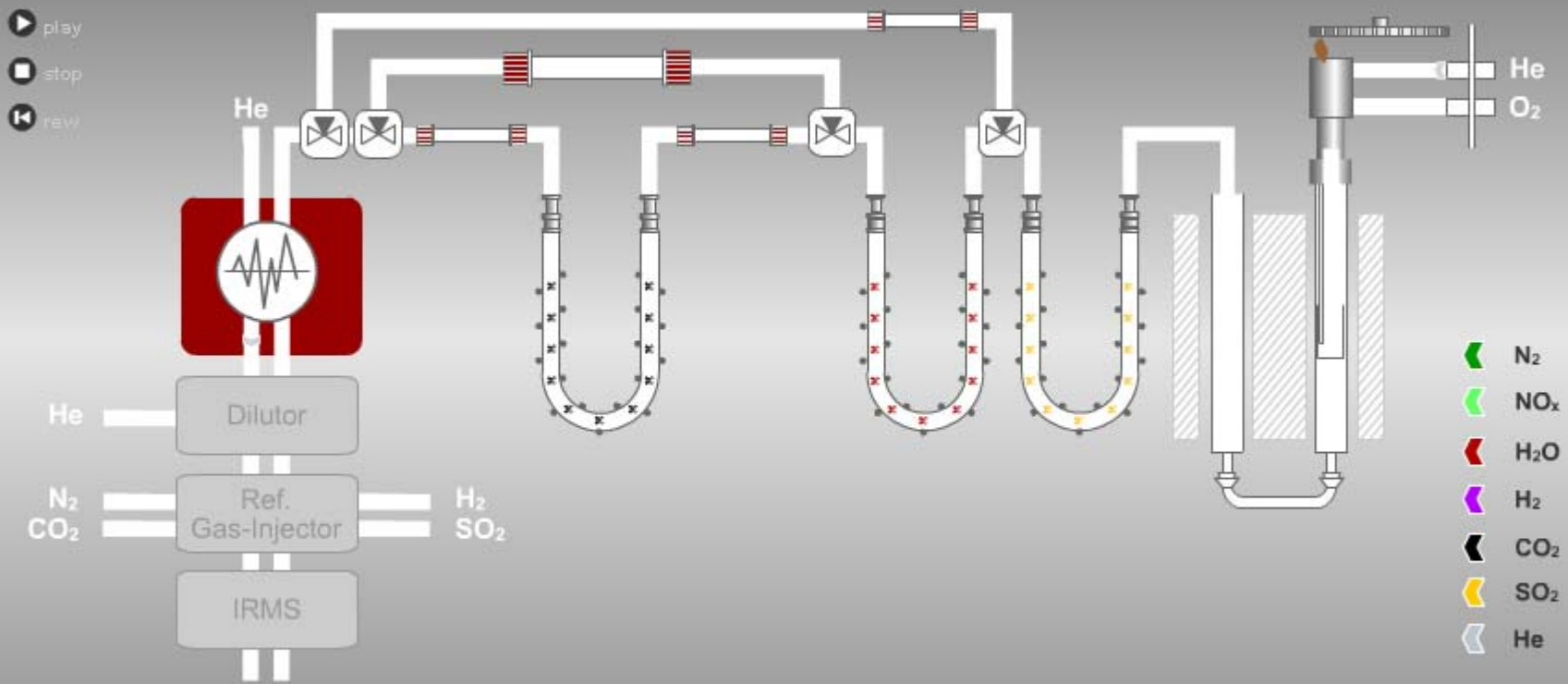
# Purge & trap technology: largest dynamic range with guaranteed baseline separation



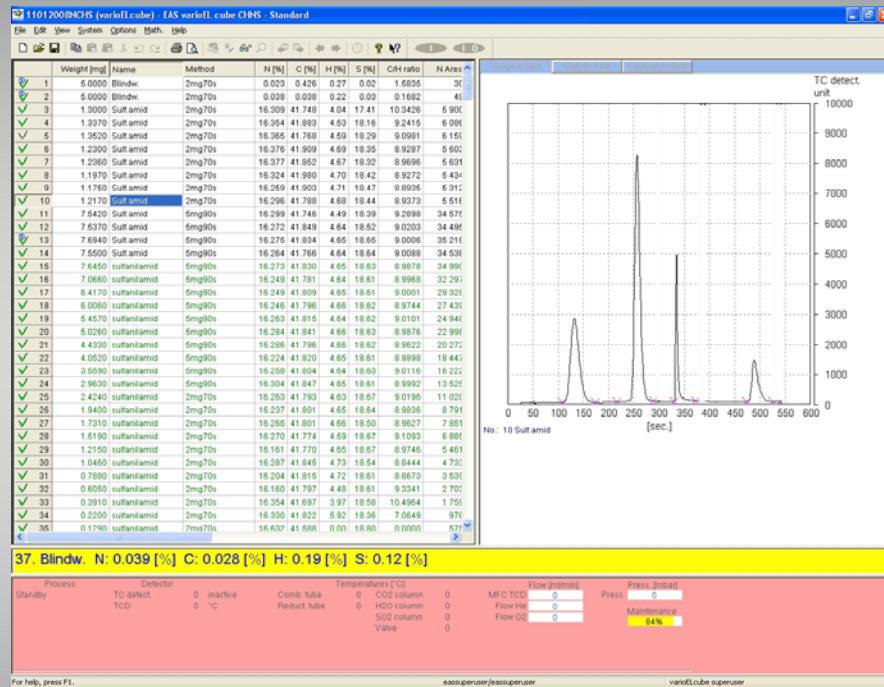
unique method for combustion  
gas separation  
Easy to use  
Powerful separation



# Functional Diagram of Simultaneous CHNS Stable Isotope and Elemental Analysis



# Software



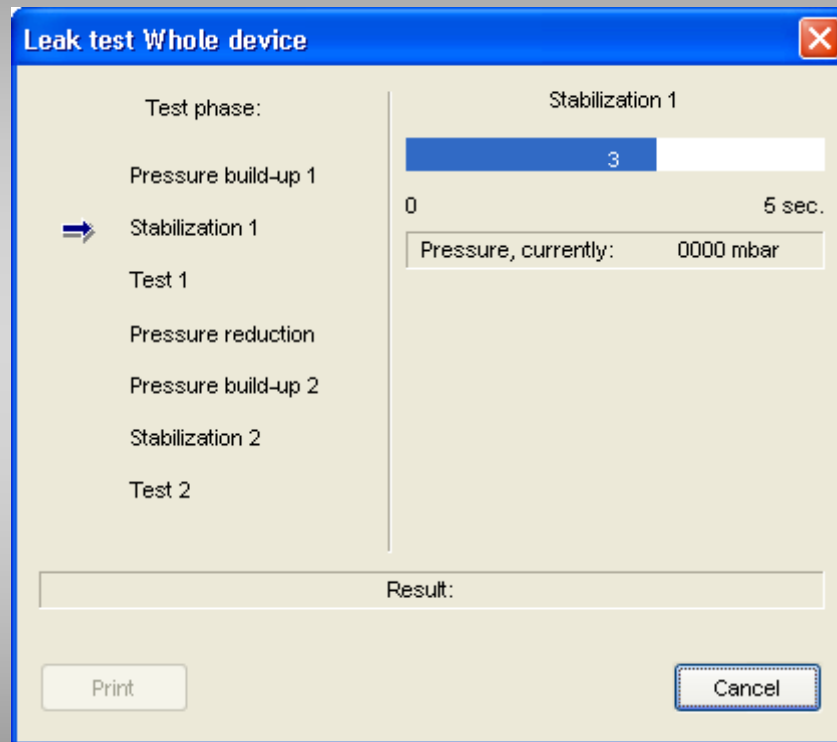
- intuitive interface
- easy editing
- view graph during analysis
- great export functionality
- 21CFR part11/LIMS/GLP conformity
- Windows XP/Vista
- integrated Help-function

# Advanced electronics concept



- easy maintenance
- fully digitalized
- up-to-date electronics
- industry standard micro-processor
- small space requirements
- allows remote service via internet or modem

# Automated leak check



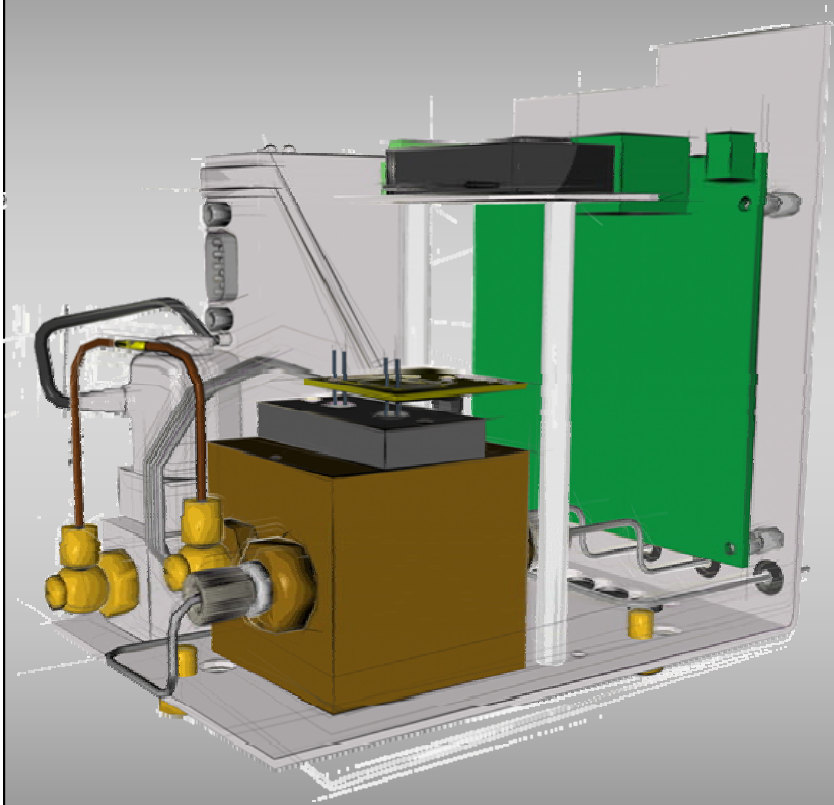
- fully automated
- takes less than 10 minutes, saves valuable time

## Easy maintenance, further optimized



- one focus of the development was the simplification of the maintenance
- only one electronic board
- software update via internet
- Easy 5 side access in spite of smaller size
- just one scrubber tube

# The thermal conductivity detector is setting standards in reliability and stability



- own development
- undestructible thermistor TCD
- insensitive to oxygen intrusion
- low noise baseline
- for < 100 ppm to 100% detection

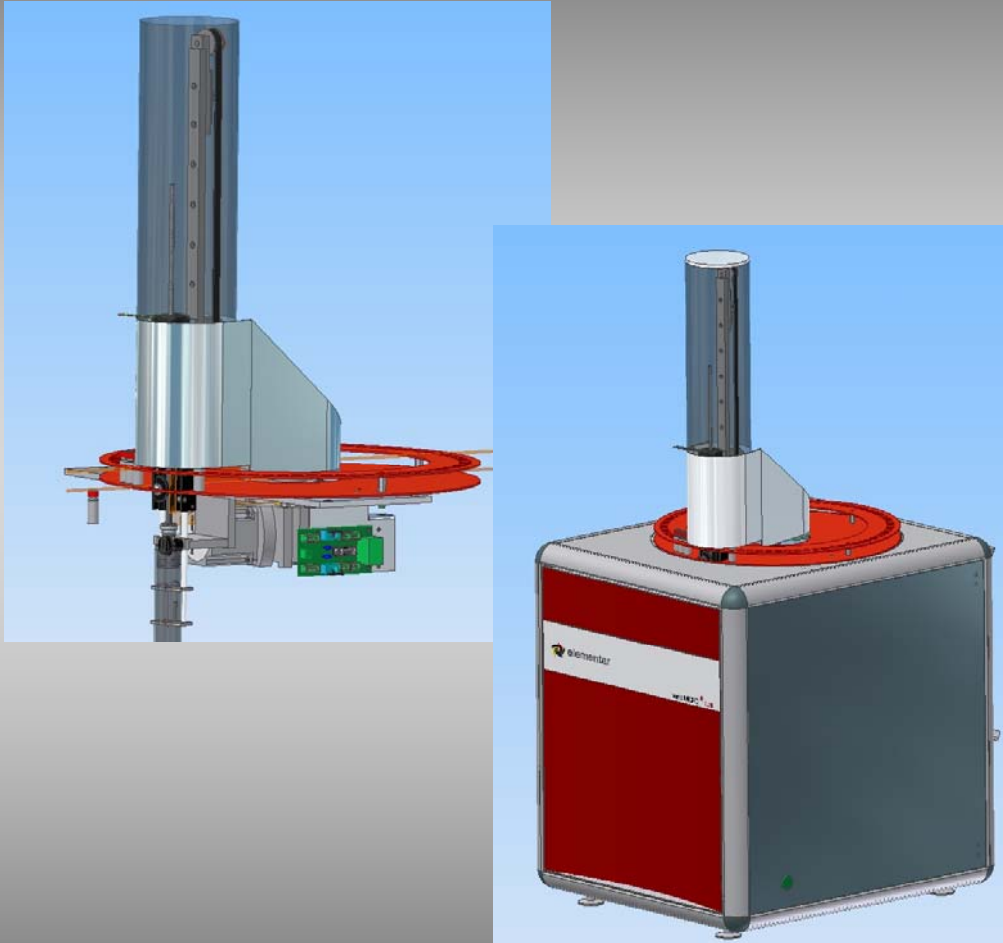
# Options



- IR detectors for high performance analysis of
  - Sulfur
  - Oxygen
  - Chlorine (patent pending)
- IRMS coupling
- manual gas/liquid injection
- liquid autosampler
- more detectors possible on request



## Options: Automatic liquid injector for the „cube“ family



- liquid sample feeder for 60 samples, plus flushing and waste positions
- easy setup, replaces standard ball valve and carousel
- can be used on:
  - vario EL cube
  - vario MICRO cube
  - vario MACRO cube
- Launched in 2008, first installations successful

## The „cube“ family of elemental analyzers – how to decide ?



.....the easiest way: TAKE THEM ALL!

# How to select within the vario family: Micro or Macro Analyzer

Main distinguishing feature is the amount of organically bound carbon to be analyzed in one sample.

➤ Absolute carbon detection range:

0 – 7 mg                      vario MICRO cube

0 – 40 mg                     vario EL cube

0 – 100 mg                    vario MACRO cube

➤ 0 – 200 (400) mg        vario MAX



## How to select within the vario family II

### Sample handling and injection (1)

- Samples are wrapped in a Sn or Ag foil or liquids sealed in capsules. Then loaded in a carousel magazine and moved by gravity into the combustion zone.

Analyzers:      vario MICRO cube  
                      vario EL cube  
                      vario MACRO cube



## How to select within the vario family II

### Sample handling and injection (2)

- Samples (liquids or solids) are filled in an open and reusable crucible (steel or ceramic) and moved by a robot arm into the combustion zone. After combustion the crucible with the remaining ash (minerals) is automatically removed.

Analyzer: vario MAX



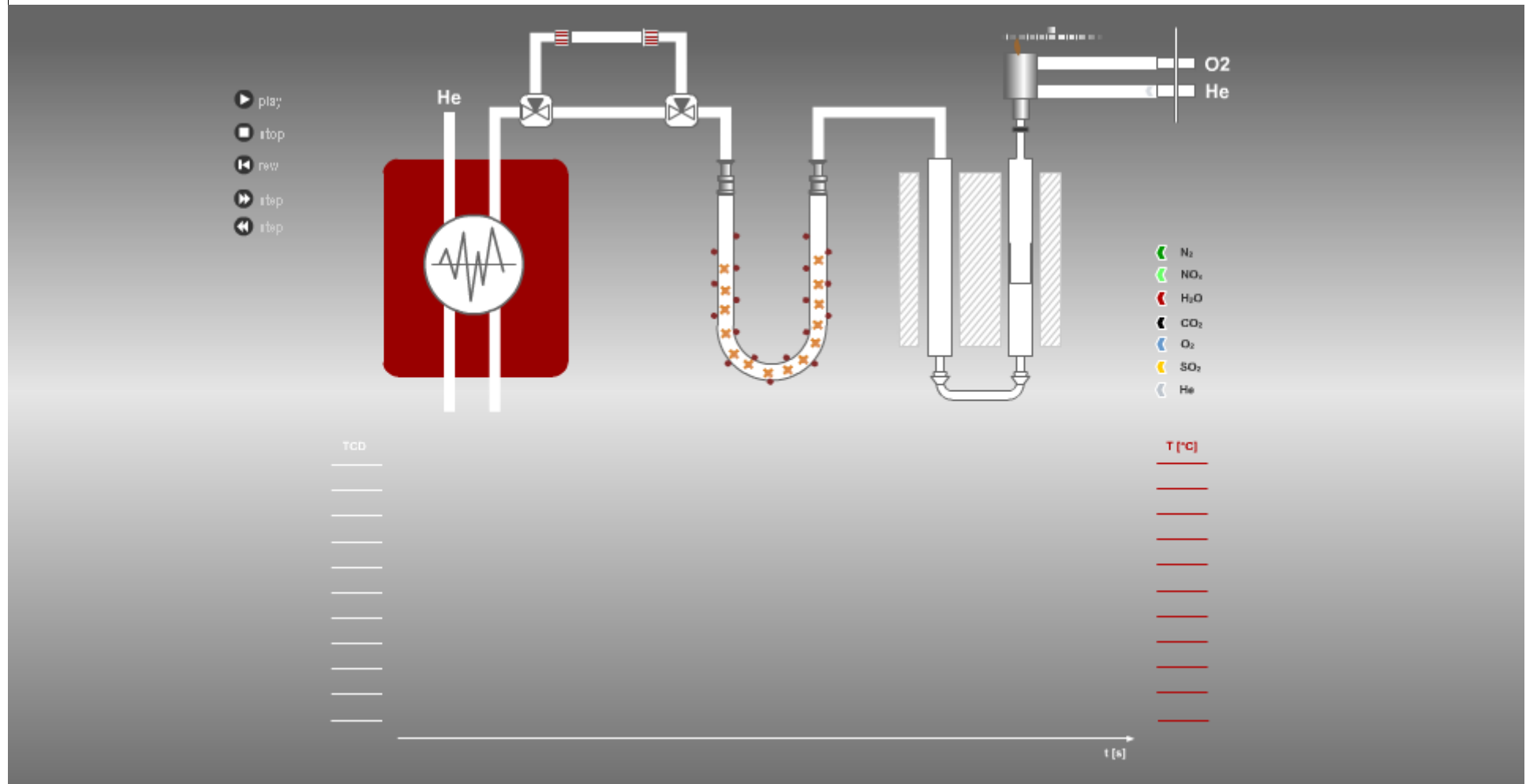
## Vario Micro CHNS/O

### vario MICRO cube

- Completely new instrument for CHNS analysis, market introduction in 2006.
- Unique method for combustion gas separation by Temperature Programmed Desorption. TPD (patent pending), combines high performance of purge-and-trap with simplicity of GC.
- Complementary to the existing line of instruments.



# vario MICRO cube



# Analyseur Vario MACRO Cube

## vario MACRO cube

- CN/N  
Fast and safe alternative to Kjeldahl for N-Protein analysis
- CHN  
Applications for fossil fuels, incineration plants and environmental analysis.
- CNS  
Soil, plant, environmental or industrial samples.
- CHNS  
The first CHNS macro analyzer! Applications for all kinds of samples with inhomogeneities or low element concentrations.





# Analyseur N-protéines

## rapid N cube

- Nitrogen/protein analyzer according to Dumas for routine analysis of samples such as food or animal feed up to 1 g sample weight.
- Market introduction 2006 as replacement for the successful rapid N III.
- The rapid N cube is a fast, safe and environmentally friendly alternative to the classical Kjeldahl method.
- The rapid N cube is a particularly reliable and durable instrument.



# Vario MAX

**La demande** croissante d'analyses élémentaires (C, H, N, S),  
sur des échantillons **de natures diverses et hétérogènes**  
dans le secteur Agricole, Agro-alimentaire, **Sols**,  
Analyse environnementales (boues, sédiments...)  
et Déchets industriels..., **a permis** la conception de l'analyseur

## **vario MAX**

**autorisant** des prises d'essais **au delà du Gramme**

Gamme de concentrations en :

C, H, N, S < 0.01 - 100 %

# L'analyseur vario MAX

## L'analyseur vario MAX

conjugue la haute performance avec la simplicité d'utilisation

1- Le prélèvement et l'analyse s'effectuent dans des creusets en acier réutilisables

2- Les cendres restent dans le creuset

Versions : vario MAX N et/ou CN

vario MAX CNS

vario MAX CHN



# Vario MAX

- **varioMAX N et /ou CN :**
  - *En mode N* →
  - **Analyseur alimentaire d'Azote/ Protéines**
  - **(Méthode DUMAS)**
  - *En mode CN* →
  - **Pour l'analyse des plantes et sols.**
- 
- **→varioMAX CHN→**
  - **Pour l'analyse élémentaire des combustibles solides et liquides tels que charbons, cokes, fuels lourds et déchets industriels**
  - **.→varioMAX CNS→**
- Pour des analyses environnementales et analyses des sols .**



# Passeur intégré de 60 creusets



# Analyseur de COT + TN<sub>b</sub>

## vario TOC

TOC/TN<sub>b</sub> analyzer based on high temperature oxidation.

Through new reactor concepts, we succeeded to incorporate an economical design with high analytical performance.

- The TOC instruments are suitable for applications ranging from high purity water, waste water to solids.



Elementar France vous remercie pour  
votre attention !

Pour plus d'information merci de nous contacter:

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