

ECS 4024 “CLASSIC ANALYZER”

CHNS-O ELEMENTAL COMBUSTION SYSTEM

The elemental analyzer CHNS-O Classic 4024 Model is an instrument for organic elemental analysis based on the Dumas method for the simultaneous determination of CHNS-O elements.

DESCRIPTION

It represents an evolution of the elemental analysis techniques based on "flash combustion" / chromatographic separation. CO₂, H₂O, SO₂ and N₂ are separated in a GC column kept at a constant temperature, user selectable within 30° up to 110 °C.range.

The ECS Classic 4024 is a fully automated, microprocessor controlled analytical unit interfaced to a PC. The results can be viewed directly via PC using a dedicated software.

The ECS Classic 4024 Model is suggested in case of:

- low sample amount (it can be used combined with MS or other instrument, where a little amount of sample is burnt)
- low use of instrument
- low budget available



ECS 4024 – Classic Analyzer



The ECS 4024 has **one furnace** configuration and it is optimized for C,S; C, N, S; C,N,H,S and S analysis.

The ECS Classic 4024 has three main modules: a sampling/combustion system (three different autosamplers are available and various types of reactors to ensure a constantly optimized application), the detection system and the data handling system.

This is a high sensitivity analysis instrument, very flexible and suitable for applications ranging from the pharmaceutical industry to marine biology, from the food analysis to petrolchemical analysis.

The Detector (TCD, Thermal Conductivity Detector) is self calibrating and does not require reference gas.

The ECS Classic 4024 combines robustness, reliability and flexibility in order to meet the most different analytical requirements.

The ECS Classic 4024 Model is particularly suitable for linking to other units for determination of the isotopic ratios of stable isotopes in elements.

FEATURES AND BENEFITS

- **Fully automatic** analysis system
- High **sensitivity, accuracy** and **precision**
- Application **flexibility** and **versatility**
- **Ease** of use detector. No **reference gas needed**
- **Powerful software** for viewing results from PC
- **No background nitrogen**
- **Three types of autosamplers** available (Electronic/Pneumatic/Manual)
- **Easy connection** to Mass Spectrometers and other detectors for stable isotope analysis
- **Low** operation and management **costs**

NC Technologies S.r.l.

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TECHNICAL SPECIFICATIONS – ECS 4024

ANALYZER DETECTOR RANGE FOR C, H, N, S & O	200 ppm - 100 %
SAMPLE SIZE	0.01 mg - 100 mg (according to the sample nature)
ACCURACY (%)	< 0.2 (reference material)
PRECISION (%)	< 0.1 (reference material)
COMBUSTION VIEWING FACILITY	Standard top viewing
DETECTOR	TCD LOQ: 1-5 μ g
FURNACE	800-1100 °C
AUTOSAMPLER	PNEUMATIC: up to 3 stackable carousels for a total of 147 sample; ELECTRONIC: carousels 32, 50, 100 positions; MANUAL
ANALYSIS TIME	15 minutes for CHNS, 3 minutes for CN with 2 m GC column (reference material)
CALIBRATIONS	Linear, quadratic, cubic
ACTIVE CALIBRATIONS	As necessary
SOFTWARE	Dedicated, EAS CLARITY
PC OS	Windows
GAS UTILITIES	Compressed air (dry and oil free), Helium (He), Oxygen (O ₂)
O ₂	99.999% (5.0) purity, 3-5 bar
HE	99.999% (5.0) purity, 3-5 bar
SIZE	760 x 350 x 700 mm (W x D x H)
POWER	230 VAC \pm 10%, 1-10 A
ANALYSIS COST	From 0.60 - 0.80 euro - depending on sample size



APPLICATION FIELDS

The line of N.C. Technologies Elemental Analyzers is flexible and powerful thus serving a wide range of applications for research and quality control.

APPLICATION FIELDS MATERIALS

ORGANIC/INORGANIC CHEMISTRY AND PHARMACEUTICALS

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

MATERIAL CHARACTERIZATION

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

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NC TECHNOLOGIES
Innovative Elemental μ -Analysis

ENVIROMENTAL ANALYSIS

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

AGRONOMY AND MARINE SCIENCE

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

PETROCHEMISTRY AND ENERGY

- Coals
- Cokes
- Crude oils
- Gasoline/diesel
- Alternative fuels
- Petroleum derivates
- Lubricants
- Oil additives
- Graphite

HUMAN AND ANIMAL SAMPLES

- Blood
- Hairs
- Nails
- Serum
- Urine
- Faeces

ISOTYPE ANALYSIS

- Soil and plant research
- Forensic
- Bio oceanography
- Food and goods control

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