



NC TECHNOLOGIES

Innovative Elemental μ -Analysis

ECS80 Series | ORGANIC ELEMENTAL ANALYZER

CHNS-O Analyzer



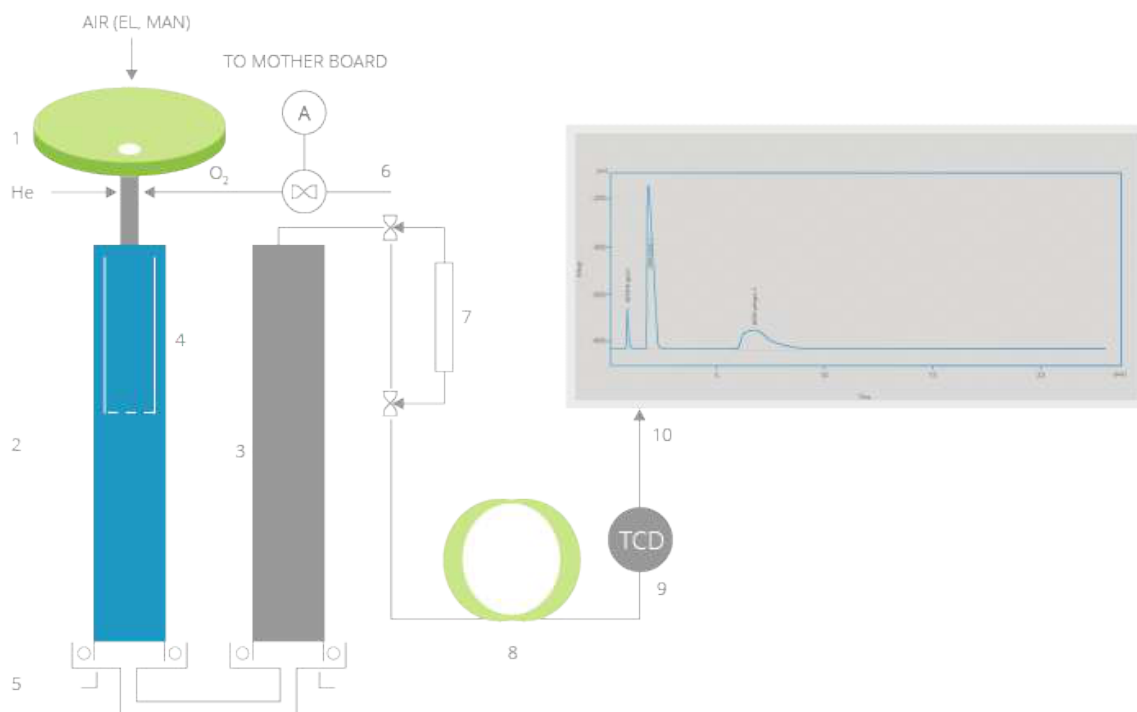
ECS 80 SERIES

ECS 8020 – CHNS-O Analyzer Organic Elemental Analysis

ECS 8020 is a C-H-N-S-O Elemental Analyzer Model based on the Dumas combustion method.

ECS 8020 is a state-of-the-art system for the elemental analysis based on sample combustion and separation of gases with a chromatographic column.

The combustion products, i.e. CO₂, H₂O, N₂ and SO₂, are separated and quantified by a high resolution TCD detector.



ECS 8020 is fully automatic, from the available samplers to the oxygen dosage, from the monitoring of consumables status to the automatic leak test.

ECS 8020 CHNS-O

ECS 80 SERIES

ECS 8020 is composed by:

Dual furnace combustion system (for a better combustion and optimization of catalysts)

Safety quick fit system for reactors connection (easy and safe way to set the instrument)

Customized GC column

Detection system

Data acquisition and handling

Several configurations may be set for the determination of the target element.

Typical configurations are for:

CHNS; CHN; CN; CNS; O

Choose the best configuration by choosing the right chemicals, consumables and prepacked reactors.



The versatility of ECS 8020 can be expressed as:

Sample weight

Sample type

Liquid or solid sample



ECS 8020 CHNS-O

ECS 80 SERIES

Analytical and Technical Features

ECS 8020 Features

Type	CHNS-O	
Analysis time	CN	5 min
	CHN	8 min
	CHNS	10/25 min
	O	4 min
Analytical range	C	0.002-20 mg
	H	0.002-5 mg
	N	0.002-20 mg
	S	0.002-6 mg
	O	0.002-2 mg
Accuracy*	<0.2% (certified standard; purity >99.9%)	
Precision*	<0.1% (certified standard; purity >99.9%)	
Sampler	Pneumatic autosampler	147 positions max
	Electronic autosampler	32, 50, 100 positions
	Manual sampler	
Dual furnace system		
Safety quick fit system		
Touch screen display		
Standby mode		

* Accuracy and precision are related to samples nature and homogeneity .

Physical Specifications

Dimensions	81x50x37 cm
Weight	68 kg
Power supply	230V, 50/60Hz
Adsorbed power	5A, 1100W
Gas requirements	Helium (99.999% purity), 3-5 bar
	Oxygen (99.999% purity), 3-5 bar
	Air (oil free compressed air)

ECS 8020 CHNS-O

ECS 80 SERIES

Analytical and Technical Features

Analytical Conditions

Gas carrier	Helium
Leak test	Automatic
Furnace temperature	Left Furnace : max 1100 Deg C Right Furnace: max 1100 Deg C
Oven temperature	Max 110 Deg C
Oxygen volume need	Automatically calculated by the oxygen doser
Flow rate	Electronic Flow Rate
Gas separation	0.8-4 m GC Column
Detector	High Sensitivity TCD
Software data analysis	EAS Clarity
Calibration	Linear, Quadratic, Cubic
Active calibration	As needed
Flash Temperature	1700 to 1800 Deg C

Sample

Sample size	0.1-500mg (depending on sample nature) Up to 1 g for soil samples
Sample type	Liquid Solid
Capsule	High purity tin and/or silver capsule

Accessories

Installation kit	Small samples; big samples; deluxe kit
Sampling kits	
Microbalance	Proprietary NC Technologies S.r.l. By phone or email within 24 hours <i>customerservice@nctechnologies.it</i>
Consumables	
Technical assistance	

ECS 8020 CHNS-O

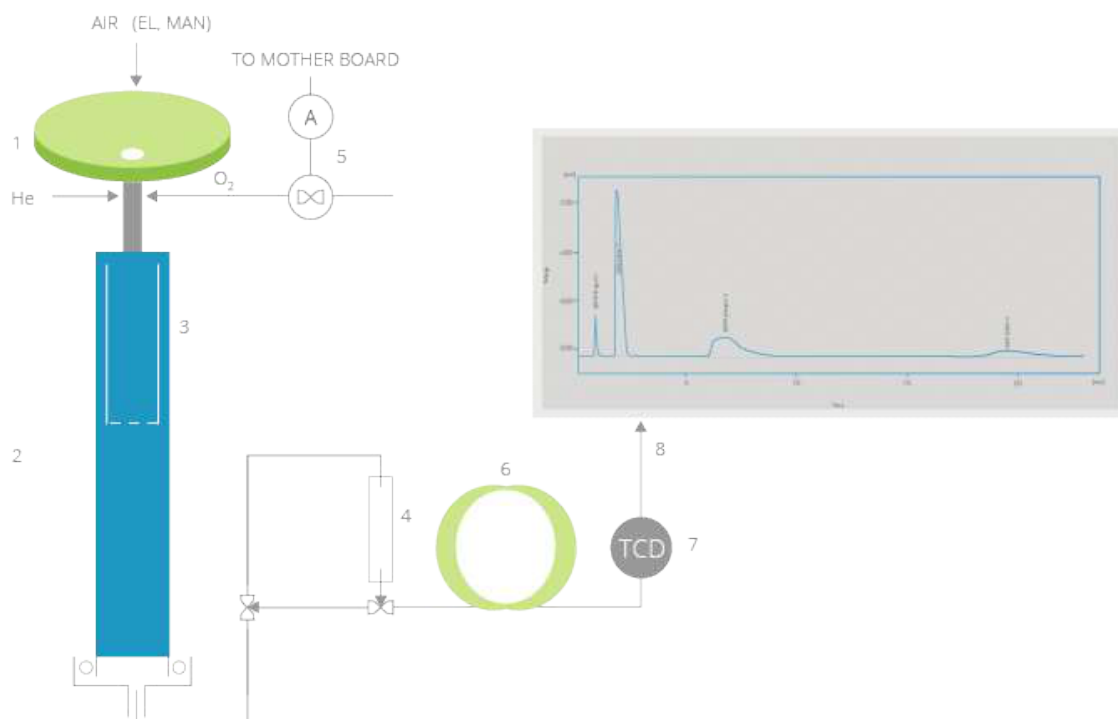
ECS 80 SERIES

ECS 8040 – CHNS-O Analyzer Organic Elemental Analysis

ECS 8040 is a C-H-N-S-O Elemental Analyzer Model based on the Dumas combustion method.

ECS 8040 is a state-of-the-art system for the elemental analysis based on sample combustion and separation of gases with a chromatographic column.

The combustion products, i.e. CO₂, H₂O, N₂ and SO₂, are separated and quantified by a high resolution TCD detector.



ECS 8040 is fully automatic, from the available samplers to the oxygen dosage, from the monitoring of consumables status to the automatic leak test.

ECS 8040 CHNS-O

ECS 80 SERIES

ECS 8040 is composed by:

Single furnace combustion system (for a better combustion and optimization of catalysts)

Safety quick fit system for reactors connection (easy and safe way to set the instrument)

Customized GC column

Detection system

Data acquisition and handling

Several configurations may be set for the determination of the target element.

Typical configurations are for:

CHNS; CHN; CN; CNS; O

Choose the best configuration by choosing the right chemicals, consumables and prepacked reactors.



The versatility of ECS 8040 can be expressed as:

Sample weight

Sample type

Liquid or solid sample



ECS 8040 CHNS-O

ECS 80 SERIES

Analytical and Technical Features

ECS 8040 Features

Type	CHNS-O	
Analysis time	CN	5 min
	CHN	8 min
	CHNS	10/25 min
	O	4 min
Analytical range	C	0.002-20 mg
	H	0.002-5 mg
	N	0.002-20 mg
	S	0.002-6 mg
	O	0.002-2 mg
Accuracy*	<0.2% (certified standard; purity >99.9%)	
Precision*	<0.1% (certified standard; purity >99.9%)	
Sampler	Pneumatic autosampler	147 positions max
	Electronic autosampler	32, 50, 100 positions
	Manual sampler	
Single furnace system		
Safety quick fit system		
Touch screen display		
Standby mode		

* Accuracy and precision are related to samples nature and homogeneity .

Physical Specifications

Dimensions	51x50x37 cm
Weight	53 kg
Power supply	230V, 50/60Hz
Adsorbed power	4A, 900W
Gas requirements	Helium (99.999% purity), 3-5 bar
	Oxygen (99.999% purity), 3-5 bar
	Air (oil free compressed air)

ECS 8040 CHNS-O

ECS 80 SERIES

Analytical and Technical Features

Analytical Conditions

Gas carrier	Helium
Leak test	Automatic
Furnace temperature	max 1100 Deg C
Oven temperature	max 110 Deg C
Oxygen volume need	Automatically calculated by the oxygen doser
Flow rate	Electronic Flow Rate
Gas separation	0.8-4 m GC Column
Detector	High Sensitivity TCD
Software data analysis	EAS Clarity
Calibration	Linear, Quadratic, Cubic
Active calibration	As needed
Flash Temperature	1700 to 1800 Deg C

Sample

Sample size	0.1-500mg (depending on sample nature) Up to 1 g for soil samples
Sample type	Liquid Solid
Capsule	High purity tin and/or silver capsule

Accessories

Installation kit	Small samples; big samples; deluxe kit
Sampling kits	
Microbalance	Proprietary NC Technologies S.r.l. By phone or email within 24 hours <i>customerservice@nctechnologies.it</i>
Consumables	
Technical assistance	

ECS 8040 CHNS-O

ECS 80 SERIES

Three different samplers are available:

- Pneumatic autosampler up to 147 positions
- Electronic autosampler with 32, 50, 100 positions
- Manual sampler

Automatisms make it particularly user-friendly:

Automatic oxygen dosage system

(for a better consumption of oxygen and consumables)

Automatic consumables status monitoring

Automatic leak test

Standby mode

(gas, energy and time savings)



Automatic oxygen dosage: main highlights.

Details of sample are registered:

- Position
- Type
- Weight

ECS 8040 will dose the oxygen for the right combustion. No oxygen or consumables wastes.

ECS 8040 is particularly indicated for linking to other units for determination of the *isotopic ratios* of stable isotopes in elements.

ECS 8040 CHNS-O

ECS 80 SERIES

What the user can do

Summary result tables

Displays and prints selected results from all simultaneously displayed chromatograms.

User settings

User selects parameters for peak display and the specification for axes, including color from an extensive array of color settings. Text labels and lines, either as part of the area or anchored to a chromatogram, may also be inserted.

Export

Optional exportation of all results, with or without the chromatogram, in various formats, into a file or clipboard.

Import

Imports chromatograms or mathematical curves, which have been saved in text or AIA formats, from other programs.

Special features

LIMS

Clarity offers connectivity with LIMS both for sample submission and result output. This can be done via convenient ASCII transfers.

Method and calibration history

Each chromatogram can easily be displayed under the same conditions as when it was printed, exported or saved.

Column performance

Calculations of peaks in terms of symmetry, efficiency, resolution; all by several methods.

Batch

Automatically batch processes, displays, exports or prints any number of chromatograms.

Language localization available

Basic version in English language.

At the moment, there are French, German, Russian, Spanish and Chinese localizations available in single installation package.



ECS 8040 CHNS-O

ECS 80 SERIES

Key points

- ✓ Fully automated analysis system
- ✓ High sensitivity, accuracy and precision
- ✓ Flexibility and versatility of applications
- ✓ Detector does not require reference gas
- ✓ Powerful software for viewing results from a computer
- ✓ Touch-screen display for an easy settings management
- ✓ Consumables status monitoring for an optimization of catalysts usage
- ✓ Three types of samplers available: electronic / pneumatic / manual.
- ✓ Easy connection to Mass Spectrometers and other detectors for stable isotopes analysis
- ✓ Low operation and management costs
- ✓ Standby mode for gas, energy and time savings



ECS 8040 CHNS-O

ECS 80 SERIES

Application fields

- ✓ Organic chemistry and pharmaceutical
- ✓ Soil science and geology- marine science
(distinction between organic and inorganic carbon is available trough the previous acidification of the sample)
- ✓ Environmental analysis
- ✓ Petrol chemistry and energy
- ✓ Materials characterization
- ✓ Food
(special configuration for big size samples is easily available)



ECS 8040 CHNS-O

ECS 80 & 40 SERIES

Manual Sampler

✓ The manual sampler is the right solution when a low number of samples have to be analyzed, combining efficiency and good stability to low costs.



Pneumatic Autosampler PN150 and PN120

✓ The pneumatic autosampler PN150 enables you to overlay up to three carousels for a total of 147 samples simultaneously loaded.



Electronic Autosampler "Zero Blank"

✓ The autosampler movements are electronically controlled by a micro stepper motor. There are three carousels available with respectively 32, 50 and 100 positions.





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