CHIMICA CENTRO
Soluzioni per laboratori scientifici
Aria, Acqua, Ambiente, Alimenti, Sicurezza, Ricerca e Sviluppo, Controllo Qualità

VELP SCIENTIFICA

EMA 502

CHNS-O Elemental Analyzer

Versatile Micro Elemental Analyzer ensuring accuracy and reliability for a wide range of applications

Via Vinciguerra, 45 | 62019 RECANATI MC | Tel 071 7572490 | Fax 071 7574340
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EMA 502 CHNS-O Analyzer

The EMA 502 Elemental Analyzer is the accurate and reliable solution for the determination of carbon, hydrogen, nitrogen, sulfur, and oxygen in various industrial sectors such as pharma and life science, organic chemistry, petrochemistry and energy, environmental, agronomy, food & feed. The EMA 502 offers consistent performance, versatility, ease-of-use and premium features for combustion analysis in accordance with international standards: AOAC, AACC, ASBC, ISO, DIN, IFFO, OIV, ASTM, EPA.

ONE SOLUTION FOR MULTIPLE ANALYTICAL CHALLENGES

- All-in-one solution for the determination of Carbon, Hydrogen, Nitrogen, Sulfur, and Oxygen in organic matrices
- Combustion and pyrolysis in a single analyzer avoiding the need for external modules

VERSATILITY AND PRODUCTIVITY

- 30-position electronic autosampler expandable with extra 3 discs to ensure maximum productivity
- Seamless switch from CHNS to O mode with the exclusive connection panel, without the need for external modules
- Helium and Argon as carrier gas

SUPERIOR RELIABILITY AND ACCURACY

- The exclusive TCD of the EMA 502 ensures maximum accuracy and reliability
- Precise determination from few ppm to 100% for solid, paste and liquid samples
- The Gas Chromatographic technology ensures the complete separation of all elements and real-time peak data

UNMATCHED EASE-OF-USE

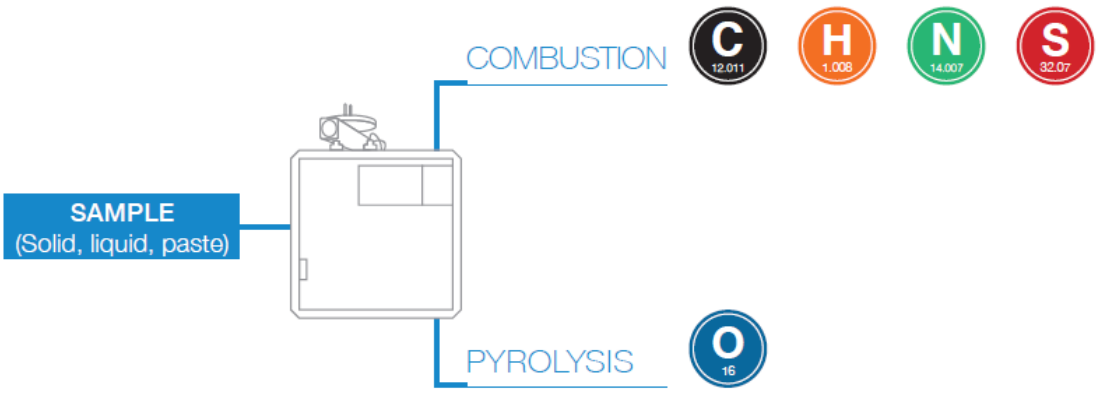
- Intuitive operation with the powerful EMASoft™ software
- Monitor the analytical process with the real-time graph
- Benefit from a comprehensive reporting system

IMPROVED WORKFLOW

The exclusive connectivity to VELP Ermes Cloud Platform projects your lab to a data-rich environment with premium remote service support resulting in the highest system uptime.

TEMS™ Technology
Save Time, Energy, Money and Space.

EMA 502 TECHNOLOGY



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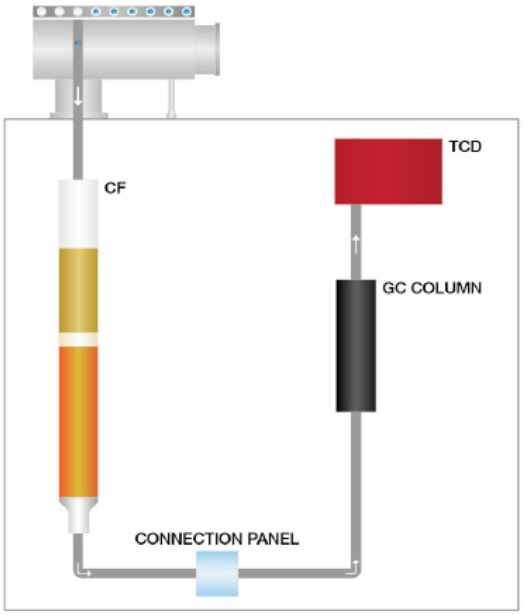
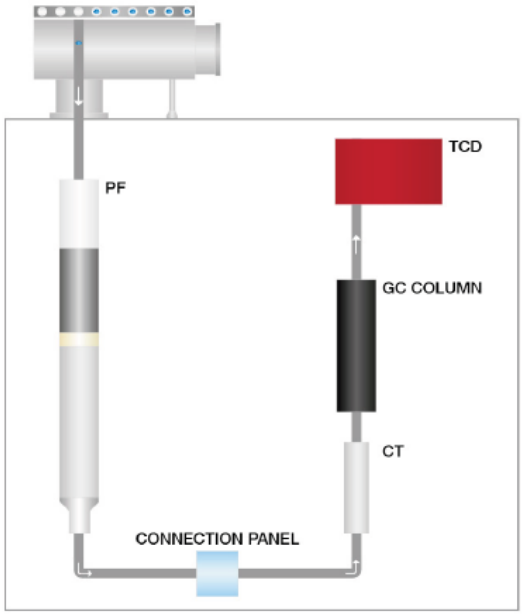
EMA 502 Analysis Process

CHNS DETERMINATION



- **CF**
  (Combustion Reactor) Allows complete combustion at 1030 °C in order to convert all of the sample into its elemental substances. Vcopper in the lower part of the reactor helps the reduction of NOx into N2.
- **GC COLUMN**
  (Gas Chromatographic Column) Analyzes the gases and let them flow out of the column with different retention times.
- **TCD**
  (Innovative TCD) Determines the content for all the elements without the need for a reference gas. Maintenance-free.

O DETERMINATION



- **PF**
  (Pyrolysis Reactor) Allows complete pyrolysis at 1060 °C in order to convert all of the sample into its elemental substances.
- **CT**
  (Chemical Trap with Anhydrone) Absorbes all the impurities from pyrolysis and conveys the flow to the GC Column for O analysis.
- **GC COLUMN**
  (Gas Chromatographic Column) Analyzes the gas flow before O quantification.
- **TCD**
  (Innovative TCD) determines the content for oxygen without the need for a reference gas. Maintenance-free.

VELP ERMES CONNECTION

Connect the EMA 502 to the exclusive VELP Ermes Cloud Platform to improve your laboratory experience. The VELP Ermes Cloud platform connection will unburden you from tedious tasks, improving your lab productivity.

- Enhanced analytical and service support resulting in the highest system uptime
- Real time monitor and control of the instrument from PC, smartphone and tablet whenever you want, wherever you are
- Immediate alert and notification with the possibility to stop the instrument for maximum safety
- Regular software updates will guarantee the best performance and new features with just one-click

ermes enabled

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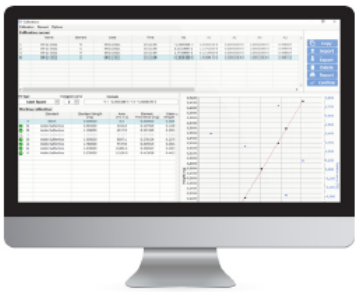
EMASoft™ Software

The EMASoft™ software is the powerful VELP solution that controls and operates the EMA 502 analyzer. The EMASoft™ comes with a user-friendly interface that displays all the relevant information at a glance: results, database and instrument conditions. It is possible to choose from a library of pre-installed methods and create customized ones.



1 BEFORE THE ANALYSIS

- Create or choose a calibration curve for C, H, N, S and O
- Fill in the required data (sample name, analysis type, weight…)
- Select a method and calibration curve

2 DURING THE ANALYSIS

- Monitor of the working parameters
- Real-time graph with all the element peaks for a comprehensive understanding of the analysis as it progresses
- Immediate readout of the results in mg and %

3 AFTER THE ANALYSIS

- Multiple data comparison in graph
- Data export in .xls, .txt and .csv to PC or LIMS
- Crate, print and download reports of single or multiple analysis
- When necessary, set the instrument in Stand-by mode or Sleeping mode
- Short statistical analysis in one click: result table displaying average, SD, and RSD of the analysis with direct selection on the graph

21 CFR Part 11 Compliance

EMA 502 Elemental Analyzer is fully compliant with FDA's Code of Federal Regulations Title 21 Part 11 that defines the requirements for using electronic records and electronic signatures on computerized systems.

- Track and record of settings and any changes to settings with the system log function running permanently, serving as an audit trail
- Track who performs any operation as analysis results are automatically signed with the user information. Each user has a unique identification and electronic signature
- Ensure the quality and incorruptibility of recorded data with backup procedures. Exported files are protected from unwanted or improper alteration
- Ensure the right delegation of responsibilities at the right level with the user management system with three access levels

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OPTIONAL ACCESSORIES

Tin Foil Cups, 5x9 mm 250 pcs	A00000436
Silver foil 35x35 mm, 100 pcs	A00000371
Pre-packed CHNS reactor	A00000443
Pre-packed O reactor	A00000444
Quartz reactor tube diam. 18 mm	A00000435
Quartz ash collector diam. 13 mm	A00000445
Kit approx. 1000 analysis for CHNS	A00000432
Kit approx. 1000 analysis for Oxygen	A00000433
Quartz wool, 50 g	A00000154
Nickel wool, 5 g	A00000447
Nickel Carbon wool, 5 g	A00000440
Anhydrone, 454 g	A00000225
EDTA Certified, 100 gr	A00000149
Sulphanilic acid certified, 5 gr	A00000434
Vcopper High Reduction Efficiency, 470 g	A00000240
Tungsten oxide, 25 g	A00000439
Quartz Chips, 50 g	A00000441
High temperature sealing grease	A00000236
Super-Absorbent Powder, 10 g	A00000317
GC column for CHNS 2 m PTFE	A00000438
GC column for oxygen SS 1 m	A00000437
Disc 2 for autosampler	A00000199
Disc 3 for autosampler	A00000200
Disc 4 for autosampler	A00000201
21 CFR part 11 package for EMA 502	A00000455
IQ/OQ/PQ EMA 502 Manual	A00000442
PM kit EMA502	40003081
VELP Ermes 1 Year Connection	E00010012
VELP Ermes 3 Year Connection	E00010036

GLP Good Laboratory Practice

AOAC	AACC	ASBC
ISO	DIM	IFFO
OIV	ASIM	EPA

INSTRUMENT - CODE

EMA 502	230 V / 50-60 Hz	F30800100

SUPPLIED WITH

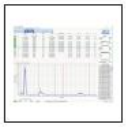
The EMA 502 Elemental Analyzer is supplied with all necessary parts to perform up to 1000* analyses CHNS (inclusive of catalysts, copper, quartz wool, reagents and seals). In addition, it contains chemicals and small consumables spare for maintenance.

A00000432
Kit approx. 1000* analysis for CHNS

A00000438
GC column for CHNS

40003062
Autosampler with disc 1

40001693
USB cable for PC, 5m



40003064
EMASoft™ Software

10003926
RS232 Cable for balance

E00010012
VELP Ermes 1 Year Connection

OXYGEN DETERMINATION

For Oxygen analysis, the following codes must be ordered in addition to the instrument code F30800100

A00000433
Kit approx. 1000* analysis for Oxygen

A00000437
GC column for oxygen

FIELDS OF APPLICATION

The EMA 502 is extremely versatile, being suitable for carbon, hydrogen, nitrogen, sulfur and oxygen determination in several types of sample, in accordance with official AOAC, AACC, ASBC, ISO, ASTM, EPA, DIN and OIV methods.

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TECHNICAL DATA

	EMA 502
METHOD OF ANALYSIS	CHNS: Combustion O: Pyrolysis
ANALYSIS TIME	CHNS: from 12 minutes O: from 6 minutes
DETECTOR	TCD (Thermal Conductivity Detector)
SAMPLE WEIGHT	Up to 100mg (depending on C content)
AUTOSAMPLER CAPACITY	Up to 4 discs, 30 positions each (up to 117 samples)
PRECISION	≤ 0.2 %
ANALYTICAL RANGE C	0.001 – 20mg with Helium; 0.01 – 20mg with Argon
ANALYTICAL RANGE H	0.001 – 5mg with Helium; 0.01 – 5mg with Argon
ANALYTICAL RANGE N	0.001 – 20mg with Helium; 0.01 – 20mg with Argon
ANALYTICAL RANGE S	0.01 – 6mg with Helium
ANALYTICAL RANGE O	0.005 – 6 mg with Helium
CARRIER GAS	Helium or Argon (Argon for CHN determination)
COMBUSTION / PYROLYSIS TEMPERATURE	CHNS: 1030°C O: 1060°C
CONNECTIVITY	USB; RS232
ERMES CONNECTION	Yes, via Wi-Fi or LAN connected to a PC
21 CFR PART 11 COMPLIANCE	Yes, accessory
POWER INPUT	570 W
DIMENSIONS (W X H X D)	500 x 510 x 410 mm (H 680 mm with autosampler) 19.7 x 20.1 x 16.1 in (H 26.8 with autosampler)
WEIGHT	45 kg 99 lb

SERVICE & SUPPORT

VELP Scientifica products are designed by our engineers to resist years of laboratory use.

Our products are manufactured with premium materials to guarantee the best performance with maximum safety.

According to our experience, a proper and regular maintenance is necessary to ensure the highest performance of analytical instrument. VELP Service Department and VELP Official Partners are always ready to offer you maintenance and service support tailored to your needs.

GET THE SUPPORT YOU NEED CHOOSING THE OPTIONS:

- Installation
- Preventive Maintenance
- Help-desk and Remote support
- Technical Assistance
- Analytical Support
- Calibration Certification

CE

We reserve the right to make technical alterations
We do not assume liability for errors in printing, typing or transmission

DESIGNED AND MANUFACTURED IN ITALY

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