



CARBON / WATER ANALYZER

CW-800M

ELTRA's CW-800M analyzer is designed for fractional analysis of carbon and water in one single operation. It is based on the proven technology of the CW-800 but has a modified furnace which allows fast adjustment of the temperature in the furnace. Different fractions of carbon and water of the sample are analyzed by applying different furnace temperatures. **ELTRA's CW-800M analyzer is designed for the precise, simultaneous determination of carbon (released as CO₂) and water in lime, gypsum and cement from trace level up to 100 % (depending on sample weight).** Other sample materials include ores, soil, minerals, slags and waste.

Up to five temperature steps ("ramps") can be programmed for each application. The temperature levels and their durations are selectable. The maximum temperature is 1000°C.

Depending on the application step, either O₂ can be used as furnace atmosphere (oxidation of the sample) or inert gas like N₂ or argon.

The detection system of ELTRA's CW-800M is very sensitive, reliable and guarantees a long lifetime. It can be customized according to the user's requirements. Two infrared cells can be combined independently and allow highly precise measurement of the released CO₂ and H₂O.

APPLICATION EXAMPLES

gypsum, cement, limestone, minerals, ores, soil, slag, waste

PRODUCT ADVANTAGES

- | Simultaneous carbon dioxide and water determination with minimal sample preparation
- | Analysis of TOC (Total Organic Carbon) and TIC (Total Inorganic Carbon) without adding acids
- | Rapid, precise, accurate and reliable element determination
- | Up to 5 programmable steps with different temperatures ("ramps") can be defined
- | Wide range of materials can be analyzed
- | Resistance furnace temperature can be set up to 1000 °C in steps of 1 °C
- | Customized infrared cells provide wide, dynamic measuring range
- | Due to gold IR path, increased cell life time for analysis of halogen or acid containing samples
- | Powerful software (multilingual, customized display, export of results)
- | Single and multipoint calibration
- | No halogen trap required
- | Electronic gas flow control
- | Low maintenance
- | Robust design allows usage in production control and laboratory

FUNCTIONAL PRINCIPLE

Operation of the CW-800M is simple and convenient. After weighing the sample in a quartz boat, it is placed on the loading mechanism of the furnace. In the following, the analysis can be started and the boat is introduced into the furnace by the user. Depending on a user defined program, different temperatures and carrier gases are applied to the sample. While processing this program, the released CO₂ and water is determined by the infrared cells. The received "chromatogram" of the sample subsequently shows different fractions of carbon and water of the sample. All data processing, control of the combustion process and calculating of the result is done by an external PC. The duration of the measurement depends on the length of the user defined steps. A common analysis takes about up to 20 minutes.

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TECHNICAL DATA

Measured elements	carbon dioxide, water
Furnace alignment	horizontal
Sample carrier	quartz boats
Field of application	agriculture, biology, chemistry / plastics, construction materials, environment / recycling, geology / mining, others
Furnace	resistance furnace with quartz tube, adjustable up to 1000 °C
Catalyst furnace	+
Process of measurement	temperature and carrier gas can be changed during measurement according to a user-defined program
Detection method	solid state infrared absorption
Number of IR cells	1 - 2
Material of IR path	gold
Typical analysis time	5 - 20 min (depending on program)
Chemicals required	copper oxide, magnesium perchlorate, sodium hydroxide
Gas required	nitrogen 99.995 % pure (2 - 4 bar / 30 - 60 psi) oxygen 99.995 % pure (2 - 4 bar / 30 - 60 psi)
Power requirements	230 V, 50/60 Hz, max. 10 A, 2300 W
Dimensions (W x H x D)	55 x 80 x 60 cm
Weight	~ 65 kg
Required equipment	PC, monitor, balance (resolution 0.0001g)
Optional accessories	TIC module, voltage stabilizer 5 KVA

www.eltra.com/cw800M

ORDER DATA

ELTRA CW-800M

(Please order PC, monitor, balance and consumables (starter-kit, anhydrone, sodium hydroxide, copper oxide) separately)

				Measuring ranges at 200 mg sample weight	2)
88100-4042		CW-800M	H ₂ O	0 – 20 % H ₂ O	
88100-4041		CW-800M	1x CO ₂ + H ₂ O	0 – 70 % CO ₂ 0 – 20 % H ₂ O	
88100-4055		CW-800M	1x CO ₂ + 1x CO ₂	0 – 1 % CO ₂ 1 – 70 % CO ₂	

Further measuring range combinations on request

REQUIRED ACCESSORIES

PC, MONITOR, BALANCE

71015-1000	Computer with Intel Core i5-8400 Processor, 256 GB SSD; 8 GB RAM; Windows 10 operating system; keyboard; mouse
88400-0584	Monitor, TFT (23.8")
88400-0645	Balance (resolution 0.0001 g)

REQUIRED CONSUMABLES / CHEMICALS FOR FIRST OPERATIONS

88500-0014	Starter-kit for 1000 analyses (1000 disposable porcelain boats, 3 quartz boats, 50 g glass wool, 50 g quartz wool)
90200	 Anhydrone (magnesium perchlorate), 454 g 1)
90210	 Sodium hydroxide, 500 g 1)
90289	 Copper II oxide, 100 g 1)

FURTHER OPTIONS AND CONSUMABLES

ACCESSORIES (HARDWARE)

88200-3800



TIC-Module

72070

Oxygen regulator

72080

Nitrogen regulator

88400-0610

Barcode scanner

CHEMICALS (FILLINGS FOR GLASS AND QUARTZ TUBES)

90200



Anhydron (magnesium perchlorate), 454 g 1)

90210



Sodium hydroxide, 500 g 1)

90289



Copper II oxide, 100 g 1)

90330



Quartz wool, 50 g

90332



Glass wool, 50 g

90331



Glass wool, 454 g

92610



Tube of high vacuum grease, 35 g

90840



Quartz sand, 100 g

BOATS

36120



Quartz boat, 75 x 16 x 7.5 mm, 1 piece

90160



Disposable porcelain boats 86 x 13 x 10 mm, 1000 pieces

88400-0502



Re-usable inconel boat, 54 x 18 x 13.5 mm, 1 piece

88400-0503



Re-usable inconel boat, 54 x 18 x 9 mm, 1 piece

TOOLS FOR OPERATION: SPATULAS, TWEEZERS, TONGS AND OTHER

36216		Combustion boat insertion stick, 1 piece
36217		Combustion boat removing stick, 380 mm, 1 piece
88400-0229		Tweezers (160 mm), curved, 1 piece
88400-0472		Tweezers (145 mm), straight, 1 piece
88400-0475		Set with 6 spatula and 1 tweezers, for multiple weighing procedures
88400-0477		Weighing boat, 1 piece, for weighing and usage of granulates
90145		Tongs for ceramic crucibles and boats, 220 mm, 1 piece
90146		Steel pot for preheated crucibles

TOOLS FOR MAINTENANCE

46300-8000		Maintenance kit CW-800M
71010		Brush, 16 mm, 1 piece, for cleaning balance from dust
88400-0473		Powder funnel (plastics), 1 piece, for easy filling of chemical tubes
88400-0490		Rubber plug 29 x 35 x 30 mm, 1 piece, for sealing big glass tubes like 09090
88600-0026		Rubber plug 29 x 35 x 30 mm, 1 piece, for sealing big glass tubes like 09090

CALIBRATION MATERIALS

Calibration materials may show slight variations depending on the current lot.

To see the current certification please visit www.ELTRA.com.

LIMESTONE

90812-3001



Limestone, 25 g, 0.04 % S; 12 % C

90812-3002



Limestone, 25 g, 0.4 % S; 12 % C

90812-3003

Limestone, 25 g, < 5 % C

90812-3004

Limestone, 25 g, 5 – 10 % C

SOIL

90817-3001

Soil, 25 g, > 2 % C, S

90817-3002

Soil, 25 g, < 1 % C, S

90817-3003

Soil, 25 g, > 2 % C, S

90817-3004

Soil, 25 g, < 2 % C, < 1 % S

PRIMARY SUBSTANCES FOR CALIBRATION

90810



Calcium carbonate, 100 g

90700-1040



Calcium oxalate, 50 g

Please note: Every analyzer requires PC, monitor, balance and some consumables (crucibles, chemicals) which have to be ordered separately