Carbon / Water Analyzer CW-800M

General Information

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

cement, gypsum, limestone, minerals, ores, slag, soil, 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
- wide range of materials can be analyzed
- resistance furnace temperature can be set up to 1000 °C in steps of 1 °C
- up to 5 programmable steps with different temperatures ("ramps") can be defined
- customized infrared cells provide wide, dynamic measuring range
- due to gold IR path, increased cell live time for analysis of halogen or acid containig 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

Features

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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	balance (resolution 0.0001g), monitor, PC
Optional accessories	TIC module, voltage stabilizer 5 KVA

Function 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.

Order data

ELTRA CW-800M “Multiphase”

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

Measuring ranges at 200 mg sample weight

88100-4042	CW-800M H2O 0 - 20 % H2O
88100-4041	CW-800M 1x CO2 - 0 - 70 % CO2 + H2O 0 - 20 % H2O

PC, Monitor, Balance

71015	Computer with dual core processor, 300 GB HDD, 4 GB RAM, Windows operating system, DVD-ROM, keyboard, mouse
71016	Monitor, TFT
88600-0002	Balance (resolution 0.0001 g)
71002	Printer

Accessories

38001	TIC-Module
72070	Oxygen regulator
72080	Nitrogen regulator
71090	Voltage Stabilizer 5 KVA

Consumables

Required consumables

88500-0014	Starter-kit for 1,000 analyses (1,000 disposable porcelain boats, 3 quartz boats, 50 g glass wool, 50 g quartz wool)
90200	Anhydrone (magnesium perchlorate), 454 g
90210	Sodium hydroxide, 500 g
90290	Copper oxide, 100 g

Optional consumables

36120	Quartz boat 75x7.4x1.5 mm
90160	Disposable porcelain boats 86x13x10 mm, 1,000 pieces
90332	Glass wool, 50 g
90330	Quartz wool, 50 g
90810	Calcium carbonate, 100 g
92610	Tube of high vacuum grease

Spare and Wear Parts

77503	Heating element
48750	Combustion tube