Carbon / Hydrogen / Sulfur Analyzer CHS-580

General Information

ELTRA‘s CHS-580 is the ideal analyzer for the simultaneous determination of carbon, hydrogen and sulfur in organic samples.

Thanks to sample weights of 500 mg and more, even inhomogeneous materials can be reliably analyzed. The temperature of the powerful horizontal resistance furnace with ceramic tube can be set in steps from 1 °C to a maximum of 1,550 °C.

The analyzer can be equipped with up to three independent infrared cells according to the user‘s requirements, allowing for a great variety of applications.

Application Examples

coal, coke, oil, plant materials, rubber, soot, tobacco, waste, ...

Product Advantages

- simultaneous carbon, sulfur and hydrogen determination with minimal sample preparation
- wide range of organic materials can be analyzed
- rapid, precise, accurate and reliable element determination
- resistance furnace can be set up to 1550 °C in steps of 1 °C
- 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
- low maintenance
- robust design allows usage in production control and laboratory

Features

Measured elements	carbon, hydrogen, sulfur
Samples	organic
Furnace alignment	horizontal
Sample carrier	ceramic boats
Field of application	agriculture, biology, chemistry / plastics, coal / power plant, construction materials, environment / recycling, medicine / pharmaceuticals
Furnace	resistance furnace (ceramic tube), adjustable up to 1550 °C (steps of 1 °C)
Detection method	solid state infrared absorption
Number of IR cells	1 - 3

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Material of IR path	gold
Typical analysis time	60 - 180 s
Chemicals required	magnesium perchlorate, sodium hydroxide
Gas required	oxygen 99.5 % pure (2 - 4 bar / 30 - 60 psi)
Power requirements	230 V, 50/60 Hz max. heat up current 2000 W
Dimensions (W x H x D)	55 x 80 x 60 cm
Weight	~ 70 kg
Required equipment	balance (resolution 0.0001g), monitor, PC
Optional accessories	TIC module, voltage stabilizer 5 KVA

Function Principle

Operation CHS-580

After weighing the sample in a ceramic boat, the weight is transferred from the interfaced balance to the PC. If required, sample weights can also be entered manually. Then the ceramic boat is introduced into the furnace for combustion. The average analysis time is 60 to 180 seconds. The detector signals and instrument parameters are displayed during analysis. Evaluation of the signals and display of the results are done automatically; the data can be transferred to a laboratory information management system (LIMS). The CS-580 requires minimum maintenance. The particle filters and chemicals which need to be maintained are easily accessible.

Measuring Principle CHS-580

In the CHS-580 the sample is burnt in an oxygen atmosphere at temperatures up to 1,550 °C. The furnace temperature can be freely selected in steps of 1 °C. The combustion gasses (CO2, H2O, SO2) coming from the furnace and first pass through a dust filter and then into the heated H2O infrared cell. After the water vapor is chemically absorbed, the dried CO2 and SO2 gas is detected in the additional infrared cells. Depending on the configuration, it is possible to combine up to three infrared cells with different sensitivities.

Order data

ELTRA CHS-580

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

Measuring ranges at 500 mg sample weight

88100-4014	CHS-580 1xH 0.01 - 15% H
88100-4012	CHS-580 1xC 0.01 - 100% C + 1xH 0.01 - 15% H
88100-4013	CHS-580 1xS 0.005 - 2% S + 1xH 0.01 - 15% H

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88100-4010	CHS-580 2xC 0.001 - 5% C | 5% - 100% C + 1xH 0.01% - 15% H
88100-4011	CHS-580 2xS 0.005 - 2% S | 2 - 20% S + 1xH 0.01 - 15% H
88100-4009	CHS-580 1xC 0.01 - 100% C + 1xH 0.01 - 15% H + 1xS 0.005 - 2% S

Further measuring range combinations on request

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
10375	Ceramic filter for afterburning, 4 pieces
71090	Voltage Stabilizer 5 KVA

Consumables

Required consumables

88500-0004	Starter-kit for 500 analyses (500 disposable porcelain boats, 50 g glass wool, 50 re-usable boats, 50 g iron phosphate)
90200	Anhydrone (magnesium perchlorate), 454 g
90210	Sodium hydroxide, 500 g

Optional consumables

90153	Re-usable ceramic boats, premium, 58x22x14 mm, 500 pieces
90160	Disposable porcelain boats 86x13x10 mm, 1,000 pieces
90331	Glass wool, 454 g
90332	Glass wool, 50 g
88600-0008	Combsolid, 100 g
92511-3020	Calibration standard - Coal, 50 g 0.5 - 1.0% S
90800	Graphite, 50 g
90810	Calcium carbonate, 100 g
92610	Tube of high vacuum grease
90824	Sulfanilic acid, 50 g

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82130	Filter element (pressed micro fibre)

Spare and Wear Parts

36101	Boat stop
75140	Safety ring A36x1.75 DIN 471
77501	Heating elements, 1 set (4 pieces)
90162	Combustion tube
09090	Reagent tubes 32x280 mm, 1 piece
70150	O-ring 6x2.5
70270	O-ring 16x5
70280	O-ring 18x2
70320	O-ring 20x5
70330	O-ring 21x2
70380	O-ring 35x5
70410	O-ring 48x3
77425	Thermocouple
77032	Circuit breaker 20A