

## Carbon / Hydrogen / Sulfur Analyzer CHS-580A

### General Information

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

ELTRA's 580A analyzers (A = Autoloader) are equipped with an automatic sample loader, allowing for analysis of large numbers of samples without operator intervention. The sample loader is available in two versions to accommodate 36 or 130 crucibles. The CHS-580A is based on the technology of the CHS-580 analyzer and features a vertical resistance furnace with ceramic tube.

The temperature can be set in steps of 1 °C to a maximum of 1,550 °C. Thanks to sample weights of up to 500 mg and more even inhomogeneous materials can be reliably analyzed. 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 containing 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	vertical
Sample carrier	ceramic crucibles
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

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	°C)
Detection method	solid state infrared absorption
Number of IR cells	1 - 3
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) compressed air (4 - 6 bar / 60 - 90 psi)
Power requirements	230 V, 50/60 Hz max. heat up current 2000 W
Dimensions (W x H x D)	55 x 100 x 60 cm 85 x 35 x 45 cm (Autoloader for 130 crucibles)
Weight	~ 90 kg (analyzer) ~ 15 kg (Autoloader for 130 crucibles)
Required equipment	balance (resolution 0.0001g), monitor, PC
Required accessories	Autoloader (for 36 or 130 crucibles)
Optional accessories	TIC module, voltage stabilizer 5 KVA

### Function Principle

#### Operation CHS-580A

In the CHS-580A the samples are weighed into crucibles. Then a gripper places the samples from the Autoloader on the pedestal. The samples are loaded consecutively into the furnace for combustion. The average analysis time is 60 to 180 seconds. 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 analyzers require minimum maintenance. The particle filters and chemicals which need to be maintained are easily accessible.

#### Measuring Principle CHS-580A

In the CHS-580A analyzer the sample is burnt in an oxygen atmosphere at temperatures of up to 1,550 °C. The furnace temperature can be freely selected in steps of 1 °C. The combustion gasses (CO<sub>2</sub>, H<sub>2</sub>O, SO<sub>2</sub>) coming from the furnace first pass through a dust filter and then into the heated H<sub>2</sub>O infrared cell. After the water vapor is chemically absorbed, the dried CO<sub>2</sub> and SO<sub>2</sub> gas is detected in the additional infrared cells. Depending on the configuration, it is possible to combine up to four infrared cells with different sensitivities.

### incl. order data

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### ELTRA CHS-580A "Helios"

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

#### Measuring ranges at 500 mg sample weight

88100-4028	CHS-580A 1xH 0.01 - 15% H
88100-4026	CHS-580A 1xC 0.01 - 100% C + 1xH 0.01 - 15% H
88100-4027	CHS-580A 1xS 0.005 - 2% S + 1xH 0.01 - 15% H
88100-4024	CHS-580A 2xC 0.001 - 5% C   5% - 100% C + 1xH 0.01% - 15% H
88100-4025	CHS-580A 2xS 0.005 - 2% S   2 - 20% S + 1xH 0.01 - 15% H
88100-4023	CHS-580A 1xC 0.01 - 100% C + 1xH 0.01 - 15% H + 1xS 0.005 - 2% S

#### Further measuring range combinations on request

#### Autoloader

14535	Autoloader for 36 crucibles
14533	Autoloader for 130 crucibles

#### 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
71090	Voltage Stabilizer 5 KVA
88600-0015	Crucible holder

#### Consumables

##### Required consumables

88500-0006	Starter-kit for 500 analyses (500 crucibles, 50 g glass wool, 100 g Combsolid))
90200	Anhydrone (magnesium perchlorate), 454 g
90210	Sodium hydroxide, 500 g

##### Optional consumables

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90149	Ceramic crucibles, premium, Ø 1", foil-wrapped, 1,000 pieces
90331	Glass wool, 454 g
88600-0008	Combsolid, 100 g
92511-3020	Calibration standard - Coal, 50 g 0.5 - 1.0% S
90710-3010	EDTA, 50 g
91000-1005	Copper, flakes, 25 g
90800	Graphite, 50 g
90810	Calcium carbonate, 100 g
90824	Sulfanilic acid, 50 g
92610	Tube of high vacuum grease

**Spare and Wear Parts**

82130	Filter element (pressed micro fibre)
77501	Heating elements, 1 set (4 pieces)
35540	Combustion tube 50x40x525 mm
35541	Lance
70428	O-ring 49x7
70427	O-ring 49x5
70150	O-ring 6x2.5
35542	Pedestal