



Carbon / Sulfur Analyzer CS-800

General Information

The ELTRA CS-800 with induction furnace is ideally suited for the simultaneous determination of carbon and sulfur in inorganic samples. It provides quick and precise analysis results and can be used for a variety of applications.

The carbon / sulfur analyzer CS-800 is equipped with up to four independent infrared (IR) cells which allow for precise simultaneous analysis of high and low carbon and sulfur concentrations in one measurement. The sensitivity of the cells can be customized individually by selecting the length of the IR path to ensure the optimum measuring properties for each application.



Application Examples

alloys, carbides, cast iron, cement, ceramics, copper, glass, iron, minerals, ores, refractory metals, sand, steel, titanium, waste

Product Advantages

- simultaneous carbon and sulfur determination with minimal sample preparation
- wide range of inorganic materials can be analyzed
- up to four independent infrared cells with flexible measuring ranges
- optional gold IR path for analysis of halogen or acid containing samples
- precise and quick measurement
- powerful (2.2 kW) induction furnace for temperatures above 2,000 °C
- automatic induction furnace cleaning
- effective, easily accessible dust trap
- 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, sulfur
Samples	inorganic
Furnace alignment	vertical
Sample carrier	ceramic crucibles
Field of application	construction materials, engineering / electronics, geology / mining, glass / ceramics, steel / metallurgy
Furnace	induction furnace, above 2,000 °C
Detection method	solid state infrared absorption
Number of IR cells	1 - 4
Material of IR path	aluminum (optional gold)
Typical analysis time	40 - 50 s
Chemicals required	copper oxide, magnesium



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Gas required	perchlorate, sodium hydroxide compressed air (4 - 6 bar/ 60 - 90 psi) oxygen 99.5 % pure (2 - 4 bar / 30 - 60 psi)
Power requirements	230 V, 50/60 Hz, max. 15 A, 3450 W
Dimensions (W x H x D)	55 x 80 x 60 cm
Weight	~ 110 kg
Required equipment	balance (resolution 0.0001g), monitor, PC
Optional accessories	Autoloader (for 36 or 130 crucibles), carrier gas purification, halogen trap, HTF-540 pre-heating furnace, voltage stabilizer 5 KVA

Function Principle

Carbon / Sulfur Analyzer CS-800: Operation

Operating the CS-800 is simple and safe. After weighing the sample in a ceramic crucible, the weight is transferred from the interfaced balance to the PC. If required, sample weights can also be entered manually. Then an accelerator (such as iron or tungsten) is added and, after having placed the crucible on the pedestal, the analysis starts. The analysis time is 40 to 50 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-800 requires minimum maintenance. The particle filters and chemicals which need to be maintained are easily accessible.

Carbon / Sulfur Analyzer CS-800: Measuring Principle

In the induction furnace the sample is melted in a pure oxygen atmosphere, causing sulfur to react to sulfur dioxide (SO₂) and carbon to a mixture of carbon monoxide (CO) and carbon dioxide (CO₂). The combustion gases pass through a dust filter and moisture absorber for purification. In the next step the sulfur dioxide is detected in infrared cells. In the CS-800 infrared cells with different sensitivities (high/low) can be adapted according to the user's requirements. Oxidation of both, carbon monoxide to carbon dioxide and sulfur dioxide to sulfur trioxide follow the sulfur measurement. The SO₃ gas is removed with cellulose wool; the carbon content is detected by infrared cells which can be individually customized. The ELTRA CS-800 analyzer can be equipped with up to 4 independent infrared cells.

Order data

ELTRA CS-800

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



Carbon / Sulfur Analyzer CS-800

CS-800 for the use without Autoloader

Measuring ranges at 500 mg sample weight

88100-1001	CS-800 1xC 0.1 - 7% C
88100-1003	CS-800 1xS 0.0015 - 0.9% S
88100-1002	CS-800 2xC 0.0001 - 0.1% C 0.1% - 7% C
88100-1004	CS-800 2xS 0.0001 - 0.3% S 0.3% - 4.5% S
88100-1005	CS-800 1xC 0.1 - 7% C + 1xS 0.0001 - 0.3% S
88100-1007	CS-800 1xC 0.1 - 7% C + 2xS 0.0001 - 0.3% S 0.3% - 4.5% S
88100-1006	CS-800 2xC 0.0001 - 0.1% C 0.1% - 7% C + 1xS 0.0001 - 0.3% S
88100-1008	CS-800 2xC 0.0001 - 0.1% C 0.1 - 7% C + 2xS 0.0001 - 0.3% S 0.3% - 4.5% S

Further measuring range combinations on request

CS-800 for the use with Autoloader

Measuring ranges at 500 mg sample weight

88110-1001	CS-800 1xC 0.1 - 7% C
88110-1003	CS-800 1xS 0.0015 - 0.9% S
88110-1002	CS-800 2xC 0.0001 - 0.1% C 0.1% - 7% C
88110-1004	CS-800 2xS 0.0001 - 0.3% S 0.3% - 4.5% S
88110-1005	CS-800 1xC 0.1 - 7% C + 1xS 0.0001 - 0.3% S
88110-1007	CS-800 1xC 0.1 - 7% C + 2xS 0.0001 - 0.3% S 0.3% - 4.5% S
88110-1006	CS-800 2xC 0.0001 - 0.1% C 0.1% - 7% C + 1xS 0.0001 - 0.3% S
88110-1008	CS-800 2xC 0.0001 - 0.1% C 0.1 - 7% C + 2xS 0.0001 - 0.3% S 0.3% - 4.5% S

Further measuring range combinations on request

Autoloader

14532	Autoloader for 36 crucibles
14530	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)



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71002

Printer

Accessories

36999

HTF-540 crucible pre-heating furnace

11008

Halogen trap, without filling (integrated in analyzer, please order filling separately)

72070

Oxygen regulator

21000

Carrier gas purification furnace, without filling (integrated in analyzer, please order filling and quartz wool separately)

71090

Voltage Stabilizer 5 KVA

Consumables

Required consumables

88500-0001

Starter-kit for 1,000 analyses (1,000 crucibles, 2,500 g tungsten, 908 g pure iron accelerator, 50 g glass wool, 50 g cellulose, 50 g quartz wool)

90200

Anhydron (magnesium perchlorate), 454 g

90210

Sodium hydroxide, 500 g

90290

Copper oxide, 100 g (required for analyzers with 1xC or 2xC)

90235

Filling for halogen trap

88400-0122

Filling for carrier gas purification furnace

Optional consumables

90149

Ceramic crucibles, premium, Ø 1", foil-wrapped, 1,000 pieces

90220

Tungsten, 2,500 g

90331

Glass wool, 454 g

90340

Cellulose, 100 g

90341

Cellulose, 50 g

90330

Quartz wool, 50 g

90260

Pure iron accelerator, 908 g

92400-3010

Steel, chips, 100 g,

92610

Tube of high vacuum grease

Spare and Wear Parts

11105

Metal dust filter

11180

Dust filter cartridge

11185

Paper filters, 10 pieces

13067

Combustion coil

14045

Cleaning brush for combustion tube



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14130	Combustion tube
77210	Oscillator tube
11062	Reagent tubes 160x16 mm, 2 pieces
11064	Reagent tubes 280x16 mm, 2 pieces
14072	Ceramic heat shield for brush
14168	Pedestal
20040	Catalyst tube
70030	O-rings for CS-800, 1 set
77032	Circuit breaker 20A
71036	Cleaning brush for metal dust filter
71031	Metal brush
71010	Brush