



SURFACE CARBON ANALYZER

SurfaceC-800

Determination of surface carbon is a special requirement for quality control in the metal producing and metal working industry. **ELTRA's SurfaceC-800 analyzer is designed for the precise determination of surface carbon in numerous kinds of solid samples from trace level up to 1000 µg/cm².**

The SurfaceC-800 is equipped with a resistance furnace with quartz tube for sample oxidation and can provide temperatures up to 1000 °C. The temperature of the SurfaceC-800 can be set up in steps of 1 °C. As common carrier gas in the SurfaceC-800 oxygen is used.

The detection system of ELTRA's SurfaceC-800 is very sensitive, reliable and guarantees a long lifetime. It can be customized according to the user's requirements. It is possible to combine two infrared cells independently to allow for highly precise measurement of surface carbon from trace level up to large amounts.

## APPLICATION EXAMPLES

aluminum, ceramics, metals, carbon on steel

## PRODUCT ADVANTAGES

- | 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
- | Customized infrared cells provide wide, dynamic measuring range
- | Powerful software (multilingual, customized display, export of results)
- | Single and multipoint calibration
- | Electronic gas flow control
- | Low maintenance
- | Robust design allows usage in production control and laboratory
- | Easy calibration with standard materials or gas dose
- | Surface carbon determination with minimal sample preparation
- | Large sized samples can be measured (up to 32 x 145 mm)
- | Optional gold IR path for analysis of halogen or acid containing samples
- | Special sample sluice for reduction of atmospheric blank

## FUNCTIONAL PRINCIPLE

Operation of the SurfaceC-800 is simple and convenient. The temperature of the SurfaceC-800 is set up to defined temperature up to 1000 °C. After entering the sample surface size in the PC, the sample is placed in a quartz boat. In the following the analysis can be started and the sample boat is pushed from the open end of the combustion tube into the hot zone of the furnace.

The combustion gas is led through a copper oxide catalyst and the formed CO<sub>2</sub> is determined by the infrared cells. All data processing, control of the combustion process and calculating of the result is done by an external PC. The CO<sub>2</sub> determination only takes about 60 up to 90 seconds.

SURFACE CARBON ANALYZER SURFACEC-800

**TECHNICAL DATA**

|                               |                                                               |
|-------------------------------|---------------------------------------------------------------|
| <b>Measured elements</b>      | carbon                                                        |
| <b>Samples</b>                | inorganic                                                     |
| <b>Furnace alignment</b>      | horizontal                                                    |
| <b>Sample carrier</b>         | quartz boats                                                  |
| <b>Field of application</b>   | ceramics, steel / metallurgy                                  |
| <b>Furnace</b>                | resistance furnace with quartz tube, adjustable up to 1000 °C |
| <b>Maximum sample size</b>    | 32 x 145 mm                                                   |
| <b>Detection method</b>       | solid state infrared absorption                               |
| <b>Number of IR cells</b>     | 1 - 2                                                         |
| <b>Material of IR path</b>    | aluminum (optional gold)                                      |
| <b>Typical analysis time</b>  | 60 - 90 s                                                     |
| <b>Chemicals required</b>     | magnesium perchlorate, sodium hydroxide                       |
| <b>Gas required</b>           | oxygen 99.5 % pure (2 - 4 bar / 30 - 60 psi)                  |
| <b>Power requirements</b>     | 230 V, 50/60 Hz, max. 10 A, 2300 W                            |
| <b>Dimensions (W x H x D)</b> | 55 x 80 x 60 cm                                               |
| <b>Weight</b>                 | ~ 65 kg                                                       |
| <b>Required equipment</b>     | PC, monitor, balance (resolution 0.0001g)                     |
| <b>Optional accessories</b>   | voltage stabilizer 5 KVA                                      |

[www.eltra.com/surfaceC800](http://www.eltra.com/surfaceC800)

## ORDER DATA

### ELTRA SURFACEC-800

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

|            |                                                                                   |                  |                                                                |
|------------|-----------------------------------------------------------------------------------|------------------|----------------------------------------------------------------|
| 88100-4031 |  | SurfaceC-800 1xC | 0.1 – 100 µg/cm <sup>2</sup>                                   |
| 88100-4032 |  | SurfaceC-800 2xC | 0.1 – 100 µg/cm <sup>2</sup>  <br>1 – 1,000 µg/cm <sup>2</sup> |
| 88100-4045 |  | SurfaceC-800 1xC | 10 – 1,000 µg/cm <sup>2</sup>                                  |

### 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

|            |                                                                                                                                |
|------------|--------------------------------------------------------------------------------------------------------------------------------|
| 88500-0011 | Starter-kit (3 quartz boats, 50 g glass wool and quartz wool)                                                                  |
| 90200      |  Anhydron (magnesium perchlorate), 454 g 1) |
| 90210      |  Sodium hydroxide, 500 g 1)                 |
| 90289      |  Copper II oxide, 100 g 1)                  |

### FURTHER OPTIONS AND CONSUMABLES

#### ACCESSORIES (HARDWARE)

|            |                  |
|------------|------------------|
| 72070      | Oxygen regulator |
| 88400-0610 | Barcode scanner  |

#### CHEMICALS (FILLINGS FOR GLASS AND QUARTZ TUBES)

90200  Anhydron (magnesium perchlorate), 454 g l)

90210  Sodium hydroxide, 500 g l)

90289  Copper II oxide, 100 g l)

90331  Glass wool, 454 g

90332  Glass wool, 50 g

90330  Quartz wool, 50 g

92610  Tube of high vacuum grease, 35 g

#### BOATS

36120  Quartz boat, 75 x 16 x 7.5 mm, 1 piece

46160  Combustion boat SurfaceC-800

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

36218-2001 Combustion boat removing stick, 600 mm, 1 piece

46245 Boat tray

|            |                                                                                   |                                                                     |
|------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------|
| 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              |

#### TOOLS FOR MAINTENANCE

|            |                                                                                     |                                                                                        |
|------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| 46200-8000 |                                                                                     | Maintenance kit SC-800                                                                 |
| 71010      |   | Brush, 16 mm, 1 piece, for cleaning balance from dust                                  |
| 88400-0473 |  | Powder funnel (plastics), 1 piece, for easy filling of chemical tubes                  |
| 88400-0489 |                                                                                     | Rubber plug 14 x 20 x 24 mm, 1 piece, for sealing small glass tubes like 88400-0006    |
| 88600-0027 |                                                                                     | Sodium hydroxide, Anhydrone filter tube, for sealing small glass tubes like 88400-0006 |

## CALIBRATION MATERIALS

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

**To see the current certification please visit [www.ELTRA.com](http://www.ELTRA.com).**

#### LIMESTONE

|            |                             |
|------------|-----------------------------|
| 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

## SPARE AND WEAR PARTS SURFACEC-800

### FRONT SIDE

|       |                                                                                   |                           |
|-------|-----------------------------------------------------------------------------------|---------------------------|
| 11035 |                                                                                   | Device fan                |
| 11064 |  | Reagent tube (2 pieces)   |
| 11170 |  | Balston filter            |
| 11480 |                                                                                   | Adjustable restrictor     |
| 15083 |                                                                                   | Flow meter 15 l/h         |
| 15084 |                                                                                   | Flow meter 60 l/h         |
| 15085 |                                                                                   | Flow meter 120 l/h        |
| 46157 |                                                                                   | Boat holder (glass cover) |
| 72010 |                                                                                   | Pressure gauge            |
| 78017 |                                                                                   | Main power switch         |

### FURNACE

|            |                                                                                     |                              |
|------------|-------------------------------------------------------------------------------------|------------------------------|
| 20040      |  | Quartz reagent tube          |
| 46156      |                                                                                     | Combustion tube              |
| 46209      |                                                                                     | Furnace                      |
| 46200-2003 |                                                                                     | Angle combustion tube SC 800 |
| 46200-8000 |                                                                                     | Maintenance kit SC 800       |
| 48767      |                                                                                     | Thermocouple                 |
| 70287      |                                                                                     | O-ring 19 x 5 mm             |
| 70340      |                                                                                     | O-ring 27 x 5 mm             |
| 77140      |                                                                                     | HF filter                    |
| 77450      |                                                                                     | Thermoswitch                 |

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