
CARBON / SULFUR ANALYZER

# ELEMENTRAC CS-d

**ELTRA's ELEMENTRAC CS-d is the only analyzer in the market for determination of carbon and sulfur in organic as well as inorganic samples. For this purpose, the ELEMENTRAC CS-d is equipped with both an**

**induction and a resistance furnace (ELTRA Dual Furnace Technology), covering the full range of carbon and sulfur analysis.**

Up to four highly sensitive infrared (IR) cells allow for precise measurement of both high and low carbon and sulfur concentrations in only one analysis. The measuring range of each cell may be adapted to the user's specific requirements to ensure optimum measurement conditions for each application.

The ELEMENTRAC CS-d is supplied with the comprehensive and user-friendly ELEMENTS software.


Click to view video

**Product Video**

## FULL FLEXIBILITY WITH TWO FURNACES

- Full flexibility due to combined induction and resistance furnace: ELTRA Dual Furnace (EDF) Technology
- Rapid and accurate carbon & sulfur analysis in inorganic and organic samples
- Up to four independent infrared cells with flexible measuring ranges
- Gold IR path allows for increased cell lifetime for analysis of halogen- or acid-containing samples
- Simultaneous carbon and sulfur determination with minimum sample preparation
- Robust design allows usage in production control and laboratory


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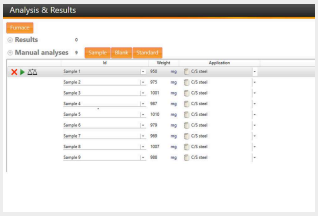
# OPERATION AND ANALYSIS PROCESS

Operation of the ELEMENTRAC CS-d is easy and convenient and only requires a few steps. The typical sample weight for carbon / sulfur analysis is about 50 to 1000 mg. This is sufficient to reliably detect concentrations from 1 ppm to 100%. Before the combustion process it is necessary to extract a sample from the initial amount which strongly varies, depending on the matrix. International standards like DIN EN ISO 14284 (Sampling of steel and iron) give some orientation.




### Step 1: Logging the sample into the ELEMENTS software

The sample ID is logged into the software and the weight is automatically transferred (see step 2).

### Step 2: Weighing and adding of accelerators

Sample volumes of 50 mg to 1000 mg are typical for C/S analysis. The sample is weighed in a ceramic crucible and accelerators like tungsten are added. The geometry of the sample (e. g. wire, powder, pin etc.) is not essential for a reliable analysis.

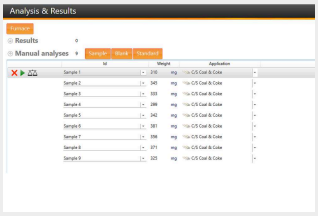
### Step 3: Analysis

The ceramic crucible is then placed on the pedestal of the CS-d and the analysis is started via the ELEMENTS software. The software controls all subsequent steps like combustion and evaluation.

### Step 4: Data output and export

45-60 seconds after the analysis has started, the measured carbon and sulfur concentrations are available for export as a report or via LIMS.

## RESISTANCE FURNACE




### Step 1: Logging the sample into the ELEMENTS software

The sample ID is logged into the software and the weight is automatically transferred (see step 2).

### Step 2: Weighing of the sample

Volumes of 50 mg to 500 mg are typical for C/S analysis in a resistance furnace. The sample is directly applied to a boat. Accelerators are usually not required.

### Step 3: Analysis

The sample is placed in front of the furnace and the measurement is started in the software. A green LED signals when the sample can be introduced. During combustion the ELEMENTS software continuously records measurement values.

### Step 4: Data output and export

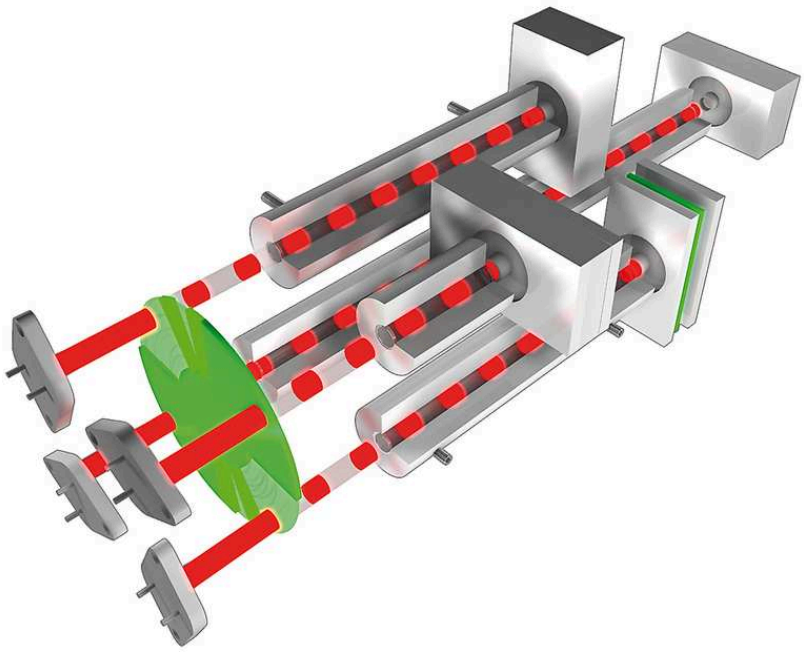
60 to 240 seconds after the analysis has started, the measured carbon and sulfur concentrations are available for export as a report or via LIMS.

# CONFIGURATIONS

The ELEMENTRAC CS-d is available as a single-element analyzer for carbon or sulfur only, or in a configuration for simultaneous measurement of both carbon and sulfur. It uses up to four IR cells for this purpose which can be adapted to individual requirements. As the length of the cuvette increases, so does the sensitivity for low concentrations (e. g. 10 ppm). Shorter cells can still measure samples with low levels in the ppm range, but the standard deviation of the measured values increases significantly. For optimum measurement of low and high concentrations, it is therefore recommended to use two IR cells per element. The latest detector technology enables a wide measuring range for carbon and sulfur from the ppm range up to 100 % in both induction and resistance furnace.  In addition, gold cuvettes installed as standard offer greater reliability for elemental analysis of samples containing halogens.

A special option for the ELEMENTRAC CS-d is a halogen trap to reliably bind even very high halogen concentrations. The carbon / sulfur analyzer can also be delivered in a special configuration for the analysis of cement.

**Infrared cells with flexible measuring range**



# INTEGRATED STANDARD SOLUTIONS

The ELEMENTRAC CS-d offers intelligent solutions as standard features to provide accurate and reliable measurement of the carbon and sulfur concentrations also in complex sample:

**Intelligent Lance Management**

Due to the high temperatures in the induction furnace of >2000 °C and the high oxygen flow of 180 L/hour, solid samples of all types are completely decomposed, allowing for determination of the C/S content with the aid of infrared measuring cells. Here, thorough combustion ensures reliable measurement results.

Since powder samples might splash out of the crucible, which could lead to results below the actual value, the CS-d features an intelligent lance and combustion management system to ensure complete combustion without sample loss.

For this purpose, the oxygen flow to be dosed can be applied via a lance or the chamber to prevent blowing of the sample and allowing for controlled combustion. The ramping function of the induction furnace enables a gentle combustion process by gradual power increase.

**Sample port in the resistance furnace (blank value reduction)**

The ELEMENTRAC CS-d provides accurate and reliable analysis of samples with a low carbon content in the resistance furnace. Thanks to the optimized sample port geometry with reduced diameter and oxygen flushing at the sample entrance, the $CO_2$ blank value of the atmosphere is drastically reduced when the sample is introduced which allows for reliable results in the low measuring range.

# OPTIONS

In addition to the integrated features of the ELEMENTRAC CS-d, further options are available to increase the efficiency of the carbon / sulfur measurement.

## AUTOLOADER

The induction furnace of the ELEMENTRAC CS-d can be equipped with an optional automatic sample loader. The standard module offers 36 crucible positions, the XL model even features 130 positions. It is the largest Autoloader available in the market for this type of application.

Click to view video


## TIC MODULE

Carbon can be determined as total carbon (TC) or in fractions, i. e. total organic carbon (TOC) or total inorganic carbon (TIC). When combined with the CS-d, ELTRA's TIC module measures the TIC content (e. g. lime) by acidification in products like soil or construction materials.

IOT - INTERNET OF THINGS

# THE PLATFORM FOR REMOTE ACCESS TO YOUR DEVICES

All ELTRA analyzers seamlessly integrate with the Verder Scientific IoT platform, providing enhanced functionality, seamless connectivity, and additional benefits:

- **Real-time Monitoring**: Gain insight into the status of your machines at any time thanks to immediate access to important data.
- **Live Notifications**: Stay up to date on the status of your devices with instant notifications.
- **Effortless Backup**: Whether you need to back up a single device or an entire fleet, back up your data effortlessly and minimize downtime.
- **Automatic Software Updates**: Verder Scientific IoT keeps your device software up to date, optimizing performance and reliability.
- **Access to Analyses Data**: ELTRA analyzers offer remote access to analysis data. This allows you to conveniently access important data while on the move.
- **Autoloader Efficiency**: Get the most out of remote analysis preparation with our autoloader feature, which ensures uninterrupted operation and increased productivity for all instruments equipped with it.

Experience the power of the Verder Scientific IoT platform today and unlock the full potential of your ELTRA analyzers!

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## ELEMENTS SOFTWARE

**The comprehensive Windows-based ELEMENTS software is an essential part of all ELEMENTRAC generation elemental analyzers.**

A central window (analysis and results) is the starting point from which all functionalities required for the daily routine are easily accessible. From here it is possible to group and export analyzed samples, or register and analyze new ones. The user may call up various subordinate functionalities like application settings, calibration, diagnosis, or status.

CARBON / SULFUR ANALYZER ELEMENTRAC CS-D

## TYPICAL SAMPLE MATERIALS

alloys, ashes, carbides, cast iron, cement, ceramics, coal, coke, copper, glass, gypsum, iron, limestone, metals, minerals, oil, ores, plant materials, refractory metals, rubber, sand, soil, steel, titanium, tobacco, ...

*coal*

*ores*

*steel*

# FUNCTIONAL PRINCIPLE

Regardless of which furnace is used in the ELEMENTRAC CS-d, the carbon and sulfur in the sample forms gaseous molecules like $SO_2$ and $CO_2$ during combustion. The released amounts of $CO_2$ and $SO_2$ are measured in up to 4 element-selective infrared cells. Usually, two IR cells are used for measuring one gas ($CO_2$ or $SO_2$) to ensure that both very low and very high concentrations are analyzed precise and correctly.

When the induction furnace of the CS-d is used, the carrier gas (oxygen) and the combustion products ($CO_2$, traces of CO, and $SO_2$) are first led through a metallic filter to remove all solid particles. Afterwards, a tube filled with magnesium perchlorate removes traces of water. The dried combustion gas then passes up to two infrared cells for sulfur ($SO_2$) measurement. Afterwards, a heated catalyst (usually platinized silica) oxidizes the traces of carbon monoxide (CO) to $CO_2$ and the $SO_2$ molecules to $SO_3$. The $SO_3$ gas is absorbed by cellulose and the $CO_2$ is measured in up to two element selective IR cells. Finally, the combustion gas is led to the exhaust and the ELEMENTS software calculates the resulting carbon and sulfur concentrations.

Whereas the induction furnace of the ELEMENTRAC CS-d is suitable for analyzing inorganic samples like steel, cast iron and ceramics, the resistance furnace is used for combustion of organic samples like coal, coke or soil. When a coal sample is combusted at temperatures of approx. 1350° C, $CO_2$ and $SO_2$ are released but usually no carbon monoxide (CO) is formed. The combustion gases of the


resistance furnace first pass a ceramic filter for absorption of particles, followed by a glass tube with magnesium perchlorate.

After that the dried combustion gases pass the same path as those from the induction furnace. Usually, the catalyst furnace is switched off during usage of the resistance furnace because oxidation of CO is not required.

However, the risk of incomplete combustion and formation of carbon monoxide increases at lower temperatures (~600 °C); in such cases the catalyst furnace may be switched on.

# FEATURES

| | |
|---|---|
| **Measured elements** | carbon, sulfur |
| **Samples** | inorganic, organic |
| **Furnace alignment** | horizontal (resistance furnace) and vertical (induction furnace) |
| **Sample carrier** | ceramic boats / crucibles |
| **Field of application** | agriculture, chemistry / plastics, coal / power plant, construction materials, engineering / electronics, environment / recycling, geology / mining, glass / ceramics, medicine / pharmaceuticals, steel / metallurgy |
| **Furnaces** | induction furnace, above 2,000 °C<br>resistance furnace (ceramic tube), adjustable up to 1,550 °C (steps of 1 °C) |
| **Detection method** | solid state infrared absorption |
| **Number of IR cells** | 1 - 4 |
| **Material of IR path** | gold |
| **Typical analysis time** | induction furnace 40 - 50 s<br>resistance furnace 60 - 120 s |
| **Chemicals required** | magnesium perchlorate, platinized silica (alternatively copper oxide), sodium hydroxide |
| **Gas required** | compressed air (4 - 6 bar / 60 - 90 psi)<br>oxygen 99.5 % pure (2 - 4 bar / 30 - 60 psi) |
| **Power requirements induction furnace** | 230 V, 50/60 Hz, 16 A fuse |
| **Power requirements resistance furnace** | 230 V, 50/60 Hz, 20 A fuse |
| **Dimensions (W x H x D)** | 89 x 84 x 79 cm |
| **Weight** | ~ 200 kg |
| **Required equipment** | PC, monitor, balance (resolution 0.0001g) |
| **Optional accessories** | Autoloader for 36 crucibles, HTF-540 pre-heating furnace, autoloader for 130 crucibles, carrier gas purification, halogen trap |

**www.eltra.com/cs-d**

# ORDER DATA

## ELTRA CS-D

**(Please order PC, monitor, balance and consumables (starter-kit, anhydrone, sodium hydroxide, Pt/Si catalyst) separately)**

**Measuring ranges at 1000 mg sample weight (induction furnace) || 350 mg sample weight (resistance furnace)** **2)**
**(further measuring range combinations on request)**

| | | | | induction furnace | | resistance furnace |
|---|---|---|---|---|---|---|
| 88200-1211 |  | CS-d | 2xC | 0.0001 – 7 % C | \|\| | 0.004 – 62.8 % C |
| 88200-1212 |  | CS-d | 2xS | 0.00006 – 2.3 % S | \|\| | 0.001 – 31.4 % S |
| 88200-1233 |  | CS-d | 2xC<br>2xS | 0.0001 – 7 % C<br>0.00006 – 2.3 % S | \|\|<br>\|\| | 0.004 – 62.8 % C<br>0.001 – 31.4 % S |

**Every configuration can be equipped with an autoloader for the induction furnace.**
**No special “autoloader ready” configuration has to be purchased.**

## 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 | | |
| 88500-0002 | | Starter-kit for 1,000 analyses (500 crucibles, 2,500 g tungsten, 908 g pure iron accelerator, 50 g glass wool, 50 g cellulose, 50 g quartz wool, 50 re-usable boats, 500 disposable porcelain boats, 100 g Combsolid) |
| 90200 |  | Anhydrone (magnesium perchlorate), 454 g 1) |

| | | |
|---|---|---|
| 90210 |  | Sodium hydroxide, 500 g 1) |
| 88400-0535 | | Pt/Si catalyst,15 g |
| 88600-0021 | | Copper oxide wire (0.5*2 mm), 100 g (could be used alternatively to Pt/Si catalyst) 1) |

## FURTHER OPTIONS AND CONSUMABLES

### ACCESSORIES (HARDWARE)

| | | |
|---|---|---|
| 72070 | | Oxygen regulator |
| 88200-9000 | | Carrier gas purification furnace, without filling (please order filling and quartz wool separately) |
| 88400-0122 |  | Filling for carrier gas purification furnace (CS) |
| 88400-0610 | | Barcode scanner |
| 88200-3800 | | TIC-Module |
| 88200-1400 | | Autoloader (36 positions) for induction furnace |
| 88200-1500 |  | Autoloader (130 positions) for induction furnace |
| 88600-0018 |  | CS-i vacuum cleaner (with HEPA filter) |
| 88600-0020 | | Halogen trap CS-i / CS-d |

### CRUCIBLES AND LIDS FOR THE COMBUSTION FURNACE

| | | |
|---|---|---|
| 90149 |  | Ceramic crucibles, premium, Ø 1”, foil-wrapped, 1,000 pieces |
| 90148 |  | Ceramic crucibles, premium, Ø 1”, bagged, 1,000 pieces |
| 88400-0176 | | Ceramic filtering crucibles, 100 pieces |
| 88600-0014 |  | Ceramic lids, 10 mm hole, 250 pieces |
| 88600-0017 | | Ceramic lids, 4 mm hole, 1000 pieces |

## BOATS FOR THE RESISTANCE FURNACE

| | | |
|---|---|---|
| 90153 |  | Re-usable ceramic boats, premium, 58x22x14 mm, 500 pieces |
| 90160 |  | Disposable porcelain boats, 86 x 13 x 10 mm, 1000 pieces |
| 88600-0011 |  | Re-usable ceramic boats, 95 x 13 x 10 mm, 500 pieces |
| 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 |

## ACCELERATORS FOR THE INDUCTION FURNACE

| | | |
|---|---|---|
| 90220 |  | Tungsten, premium, 2,500 g |
| 90260 |  | Iron accelerator, premium, 908 g |
| 88600-0013 |  | Iron accelerator, high purity, 454 g |
| 88600-0010 |  | Eltracell tungsten-tin accelerator, 750 g |
| 90280 |  | Tin accelerator, 908 g |
| 90240 |  | Copper accelerator, 1392 g |

## COMBUSTION SUPPORT FOR THE RESISTANCE FURNACE

| | | |
|---|---|---|
| 90840 |  | Quartz sand, 100 g |
| 88600-0008 |  | Combsolid, 100 g |

## CHEMICALS

| | | |
|---|---|---|
| 90200 |  | Anhydrone (magnesium perchlorate), 454 g 1) |
| 90210 |  | Sodium hydroxide, 500 g 1) |
| 88400-0535 | | Pt/Si catalyst, 15 g |
| 90331 |  | Glass wool, 454 g |
| 90340 |  | Cellulose, 100 g |
| 90341 |  | Cellulose, 50 g |
| 90330 |  | Quartz wool, 50 g |
| 92610 |  | Tube of high vacuum grease, 35 g |
| 88400-0122 |  | Filling for carrier gas purification furnace |
| 91000-1005 |  | Copper, flakes, 25 g |
| 88400-0508 |  | Steel wool, 454 g |
| 88600-0021 | | Copper oxide wire (0.5*2 mm), 100 g (could be used alternatively to Pt/Si catalyst) |

## GENERAL TOOLS AND ACCESSORIES

| | | |
|---|---|---|
| 23110 |  | Spatula, 1 piece, M size |
| 23111 |  | Spatula, 1 piece, L size |
| 23113 |  | Spoon, 1 piece, for dosing sample and accelerator in CS series |
| 90145 |  | Tongs for ceramic crucibles and boats, 220 mm 1 piece |

| | | |
|---|---|---|
| 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 |
| 88400-0476 |  | Micro spatula, 1 piece, XS size, for filling small capsules |

## TOOLS FOR STORAGE, TRANSPORTING AND WEIGHING

| | | |
|---|---|---|
| 36121 |  | Quartz boat, 74 x 22 x 10 mm, 1 piece, for weighing pins |
| 71010 |  | Brush, 16 mm, 1 piece, for cleaning balance from dust |
| 88400-0477 |  | Weighing boat, 1 piece, for weighing and usage of granulates |
| 88600-0015 |  | Crucible holder, for storage of crucibles |

## TOOLS FOR MAINTENANCE

| | | |
|---|---|---|
| 51200-8000 | | Maintenance kit CS-d |
| 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 |
| 88400-0490 |  | Rubber plug 29 x 35 x 30 mm, 1 piece, for sealing big glass tubes like 09090 |
| 88600-0026 | | Anhydrone filter tube |
| 88600-0027 | | Sodium hydroxide, Anhydrone filter tube |

## TOOLS FOR CS ANALYZERS

| | |
|---|---|
| 36216-2001 | Combustion boat insertion stick, 1 piece (only for CS-d) |
| 36218-2001 | Combustion boat removing stick, 1 piece (only for CS-d) |

| | | |
|---|---|---|
| 88400-0332 |  | Threaded rod M4x150, 1 piece, for removing paper filter holder |
| 88400-0499 |  | Safety glasses, 1 piece, protection when working with hot furnace |
| 88600-0009 |  | Screen glass with edge guard, 1 piece, protection when working with hot furnace |

## CALIBRATION MATERIALS

**Calibration materials may show slight variations depending on the current lot.**
**To see the current certification please visit www.ELTRA.com.**

| STEEL AND CAST IRON | | |
|---|---|---|
| 92400-3020 |  | Steel, 150 g, 0.001 – 0.01 % C Details |
| 92400-3030 |  | Steel, 150 g, 0.01 – 0.05 % C Details |
| 92400-3050 |  | Steel, 150 g, 0.1 – 0.2 % C Details |
| 92400-3060 |  | Steel, 150 g, 0.2 – 0.5 % C Details |
| 92400-3061 | | Steel, 150 g, 0.2 – 0.5 % C Details |
| 92400-3062 | | Steel, 150 g, 0.2 – 0.5 % C Details |
| 92400-3070 |  | Steel, 150 g, 0.5 – 1.0 % C Details |
| 92400-3090 |  | Cast iron, 150 g, 2.0 – 3.0 % C Details |
| 92400-3091 | | Cast iron, 150 g, 2.0 – 3.0 % C Details |
| 92400-3100 |  | Cast iron, 150 g, 3.0 – 5.0 % C Details |
| 92400-3101 | | Cast iron, 150 g, 3.0 – 5.0 % C Details |
| 92400-3102 | | Cast iron, 150 g, 3.0 – 5.0 % C Details |
| 92400-4005 | | Steel, 150 g, ~0.05 % S Details |
| 92400-4010 | | Steel, 150 g, ~0.1 % S Details |
| 92400-4020 | | Steel, 150 g, ~3 % S Details |

| STEEL PINS | | DETAILS |
|---|---|---|
| 92500-1001 | C/S pins, 454 g, ~0.2 %~C Details | |
| 92500-1002 | C/S pins, 454 g, ~0.4 %~C Details | |
| 92500-1003 | C/S pins, 454 g, ~0.8 %~C Details | |
| 92500-2001 | C/S pins, 454 g, ~0.2 % S Details | |

| TUNGSTEN CARBIDE | | |
|---|---|---|
| 90816-3001 |  | Tungsten carbide, 100 g, ~6,1 % C |

| OTHER CALIBRATION MATERIAL SUITABLE FOR RESISTANCE AND INDUCTION FURNACE | | |
|---|---|---|
| 90812-3001 |  | Limestone, 25 g, 0.04 % S |
| 90812-3002 |  | Limestone, 25 g, 0.4 % S |
| 90812-3003 | | Limestone, 25 g, < 5 % C |
| 90812-3004 | | Limestone, 25 g, 5 – 10 % C |
| 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 |
| 91900-1001 |  | Ore, 30 g, ~1.4 % S |
| 91900-1002 |  | Ore, 30 g, ~4.2 % S |
| 91900-1003 | | Ore, 30 g, ~3 % S |
| 91900-2001 | | Zinc sulfide, 50 g, 32 % S |
| 90810 |  | Calcium carbonate, 100 g |
| 90821 |  | Barium sulphate, 50 g |

## OTHER CALIBRATION MATERIAL ONLY SUITABLE FOR RESISTANCE FURNACE

| | | |
|---|---|---|
| 90710-3010 |  | EDTA, 50 g |
| 90710-3030 | | Sucrose, 50 g |
| 90824 |  | Sulfanilic acid, 50 g |
| 92511-3005 | | Coal, 50 g, < 0.1 % S |
| 92511-3010 |  | Coal, 50 g, 0.1 – 0.5 % S |
| 92511-3020 |  | Coal, 50 g, 0.5 – 1.0 % S |
| 92511-3030 |  | Coal, 50 g, 1.0 – 1.5 % S |
| 92511-3040 |  | Coal, 50 g, 1.5 – 2.0 % S |
| 92511-3050 |  | Coal, 50 g, 2.0 – 3.0 % S |
| 92511-3060 |  | Coal, 50 g, 3.0 – 4.0 % S |
| 92511-3070 |  | Coal, 50 g, 4.0 – 5.0 % S |
| 92511-3080 |  | Coal, 50 g, >5.0 % S |

## COAL, PREMIUM, C/H/N/S, ASH, VOLATILE CONTENT, CERTIFIED

| | | |
|---|---|---|
| 92550-3010 | | Coal, premium, 50 g, < 1.0 % S |
| 92550-3020 |  | Coal, premium, 50 g, ~ 1 % S |
| 92550-3040 |  | Coal, premium, 50 g, 1.0 – 3.0 % S |
| 92550-3060 |  | Coal, premium, 50 g, > 3.0 % S |

| COKE, PREMIUM, C/H/N/S, ASH, VOLATILE CONTENT, CERTIFIED | | |
|---|---|---|
| 92560-3010 |  | Coke, premium, 50 g |

| PET COKE, PREMIUM, C/H/N/S, ASH, VOLATILE CONTENT CERTIFIED | |
|---|---|
| 92570-3020 | Pet coke, premium, 50 g, ~ 1 % S |
| 92570-3040 | Pet coke, premium, 50 g, ~ 1 % S |

| LIQUID CALIBRATION MATERIAL |
|---|

## SPARE AND WEAR PARTS ELTRA CS-D