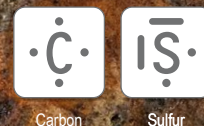


## C/S determination in ore



### Suitable analyzers

- ELEMENTRAC CS-d (Resistance Furnace)

### Used accessories

- Disposable porcelain boats (90160)
- Suitable calibration material



### Application Settings

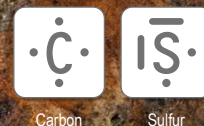
#### I) General

|                     |                             |
|---------------------|-----------------------------|
| Temperature:        | 1450 °C (± 20 °C tolerance) |
| Stabilize baseline: | Enable                      |
| Stability:          | 0.01 V                      |
| Minimum time:       | 20 sec                      |
| Maximum time:       | 60 sec                      |
| Flow:               | 180 l/h                     |
| Drift compensation: | Disable                     |

#### II) Analysis

| Channel     | Min time [sec] | Max time [sec] | Integration delay [sec] | Peak max [V] | Comperator level [mv] | Comperator peak [%] |
|-------------|----------------|----------------|-------------------------|--------------|-----------------------|---------------------|
| High Carbon | 60             | 300            | 5                       | 8            | 10                    | 1                   |
| High Sulfur | 60             | 300            | 5                       | 8            | 20                    | 1                   |

## C/S determination in ore



### Sample preparation

Dry the sample to constant mass at 105°C (at least 1 hour).

### Procedure

- Prepare and clean the ELTRA analyzer (e.g. exchange anhydron, filter, boat stop) and set the furnace temperature to 1450°C
  - Run at least three warm up samples (e.g. ELTRA 92511-3020) with a medium sample weight of 350 mg until the results are consistent
  - Calibrate the system with a suitable calibration material (NIST or other):
- (1) Weigh in 350 mg of sample in a porcelain boat (90160)
  - (2) Start analysis (F5 Button)
  - (3) Wait until baseline is stable  
(Look at message in ELEMENTS software and wait for green light at the resistance furnace)
  - (4) Load the sample into the furnace and wait until the PC calculates results
  - (5) Remove combustion boat

Repeat steps (1) – (5) at least three times;

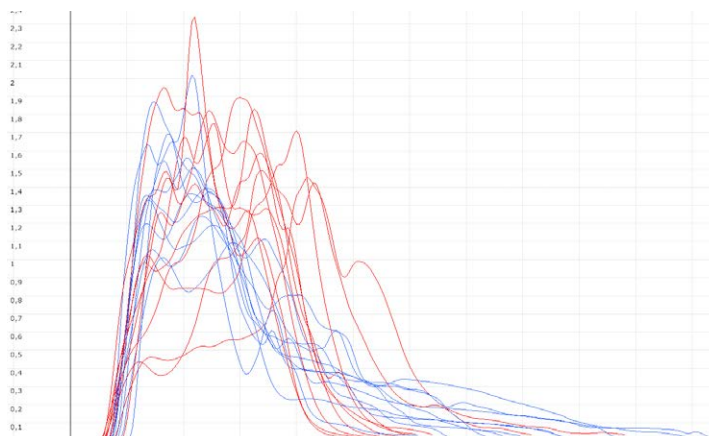
Mark the results and use the calibration function in the software.

**-> Now start with the actual analysis.**



**ELEMENTRAC CS-d**

| Typical results                    |             |             |
|------------------------------------|-------------|-------------|
| ELTRA 90812-3002 (LOT 101602) *1   |             |             |
| Weight (mg)                        | Carbon (%)  | Sulfur (%)  |
| 353.5                              | 3.80        | 3.84        |
| 356.3                              | 3.81        | 3.77        |
| 381.3                              | 3.80        | 3.76        |
| 373.0                              | 3.73        | 3.82        |
| 366.7                              | 3.75        | 3.81        |
| 356.2                              | 3.64        | 3.82        |
| 352.8                              | 3.73        | 3.86        |
| 369.8                              | 3.75        | 3.85        |
| 357.1                              | 3.74        | 3.85        |
| 363.9                              | 3.70        | 3.79        |
| Average Values                     |             |             |
|                                    | 3.75        | 3.82        |
| Deviation / Relative deviation (%) |             |             |
|                                    | 0.05 (1.4%) | 0.03 (0.9%) |



\*1 certified values: C: 3.75 % ± 0.22 ; S: 3.82 % ± 0.19