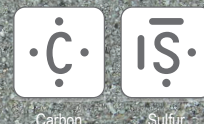


# C, S determination in flue ash samples



## Suitable analyzers

- CS-800
- CS-2000 (induction furnace)

## Used accessories

- Ceramic crucibles (90150)
- Tungsten (90220)
- Suitable calibration material (NIST or other)

## Settings

- Comparator level: 10 mV (low C, S Channel)
- Comparator level: 20 mV (High C, S Channel)
- Minimum time: 45 sec
- Maximum time: 1:00 min
- Integration delay: 6 sec
- Post-waiting: 10 sec
- Pre-purging: 15 sec
- Base line deviation: 5 mV
- Base line time: 30 sec
- T1 - Pre-purging: 5 sec
- T2 - Chamber only: 5 sec
- T3 - Chamber and lance: 1 sec
- T4 - Generator: 40 sec



## Sample preparation

For best results grind the sample down to a particle size of approx. 200 µm.  
Dry the sample to constant mass at 105°C (at least 1 hour).  
Pre-heating the crucibles (1 h; 1000°C) could improve the precision.

## Procedure

- Prepare ELTRA analyzer (e.g. exchange anhydrous, sodium hydroxide, copper oxide when necessary); clean the combustion tube, brush, heat shield, dust trap
- Run three warm up samples (e.g. steel samples (92400-3050) with a minimum weight of 500 mg; add 1.5 g tungsten)
- Calibrate the analyzer with suitable calibration material (NIST or other)
  - (1) Weigh in approx. 500 mg of sample in the ceramic crucibles (90150)
  - (2) Add 0.7 (±0.1) g of iron accelerator (90260) and 2.0 (±0.1) g of tungsten (90220)
  - (3) Place the crucible on the pedestal and start analysis

Repeat step (1) - (3) at least three times;

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

-> Now start with the actual analysis.

## Typical results

| Flue ash       |                 |                 |
|----------------|-----------------|-----------------|
| Weight (mg)    | % C             | % S             |
| 153.2          | 1.438           | 0.170           |
| 152.1          | 1.439           | 0.175           |
| 151.8          | 1.436           | 0.177           |
| 151.1          | 1.436           | 0.178           |
| 154.1          | 1.446           | 0.177           |
| 151.7          | 1.439           | 0.179           |
| 160.0          | 1.425           | 0.178           |
| 155.2          | 1.436           | 0.179           |
| 154.9          | 1.423           | 0.178           |
| 151.2          | 1.442           | 0.179           |
| Average values |                 |                 |
|                | 1.436           | 0.177           |
| Deviation      |                 |                 |
|                | 0.007 / 0.487 % | 0.002 / 1.492 % |