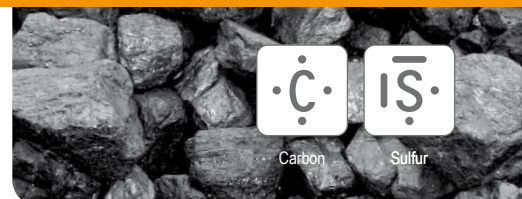


# C/S determination in coke and pet coke



**Suitable analyzers**

- ELEMENTRAC CS-d (Resistance Furnace)

**Used accessories**

- Disposable porcelain boats (90160)
- Suitable calibration material



**Application Settings**

**I) General**

Temperature: 1350 °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	20	1
Low Sulfur	60	300	5	8	20	1
High Sulfur	60	300	5	8	20	1

Subject to technical modification and errors

## C/S determination in coke and pet coke



### 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).

### Procedure

- Prepare and clean the ELTRA analyzer (e.g. exchange anhydron, filter, boat stop) and set the furnace temperature to 1350 °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

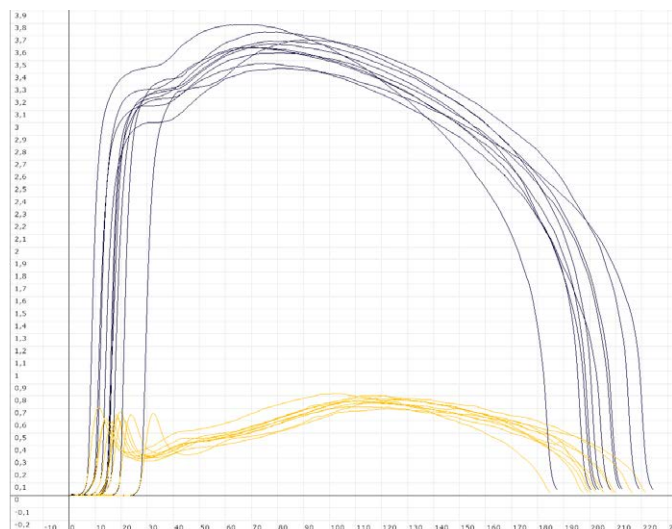


Repeat steps (1) – (5) at least three times;

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

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

Typical results		
ELTRA premium coke 92560-3010 (LOT 772914) *1		
Weight (mg)	Carbon (%)	Sulfur (%)
334.8	88.7	0.76
349.8	88.5	0.76
328.4	88.7	0.76
359.7	88.7	0.77
350.7	89.0	0.76
346.0	88.6	0.77
354.9	88.4	0.76
349.7	88.9	0.77
342.2	88.4	0.77
351.7	88.5	0.77
Average Values		
	88.67	0.77
Deviation / Relative deviation (%)		
	0.19 (0.2%)	0.002 (0.3%)

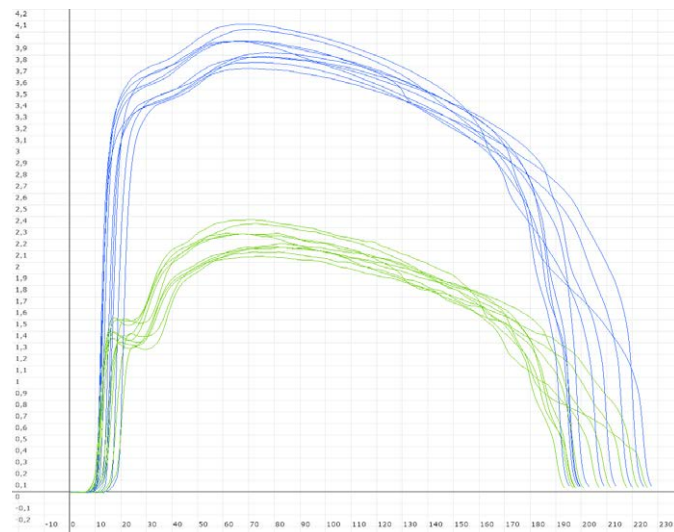


\*1 certified values: C: 88.69% ±1.59 ; S: 0.77 ±0.03

## C/S determination in coke and pet coke



Typical results		
Pet coke AR 744 (LOT 744216) *2		
Weight (mg)	Carbon (%)	Sulfur (%)
362.8	96.1	2.49
361.7	96.4	2.50
360.4	96.3	2.50
373.1	96.4	2.49
371.3	96.0	2.50
353.9	96.2	2.50
356.8	96.2	2.50
383.3	96.0	2.50
362.1	96.0	2.49
364.8	96.2	2.49
Average Values		
	96.2	2.50
Deviation / Relative deviation (%)		
	0.17 (0.2%)	0.003 (0.1%)



\*2 certified values: C: 96.21 ± 0.46; S: 2.50 ± 0.06