

C/S determination in soil



Suitable analyzers

- ELEMENTRAC CS-d (Resistance Furnace)

Used accessories

- Disposable porcelain boats (90160)
- Suitable calibration material



Application Settings

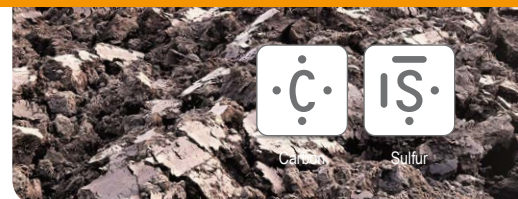
I) General

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 [%]
Low Carbon	50	300	5	8	10	1
Low Sulfur	50	300	5	8	10	1

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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 anhydrous, 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 250 mg until the results are consistent
- Calibrate the system with a suitable calibration material (NIST or other):

- (1) Weigh in 250 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

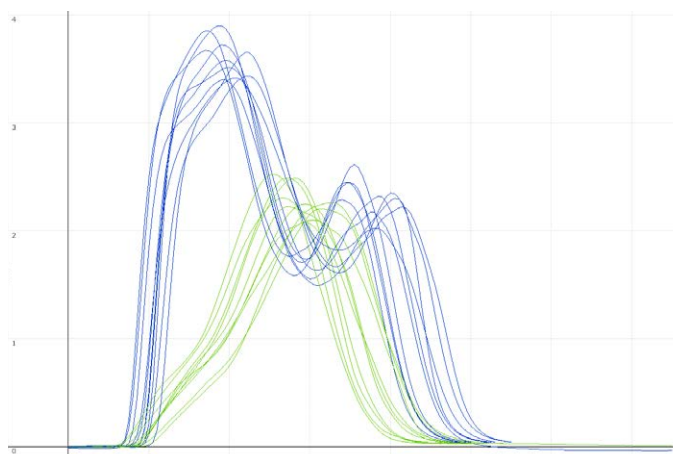
Repeat steps (1) – (5) at least three times;

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

-> Now start with the actual analysis.



Typical results		
Alpha AR 4017 (LOT 313b) *1		
Weight (mg)	Carbon (%)	Sulfur (%)
256.1	0.48	0.43
253.2	0.48	0.42
250.7	0.51	0.44
259.6	0.50	0.44
260.0	0.50	0.43
258.1	0.50	0.44
263.3	0.49	0.43
260.4	0.49	0.43
263.7	0.50	0.45
257.1	0.51	0.45
Average Values		
	0.50	0.44
Deviation / Relative deviation (%)		
	0.008 (1.7%)	0.009 (2.2%)



*1 certified values: C: 0.5% ± 0.06 ; S: 0.44% ± 0.06