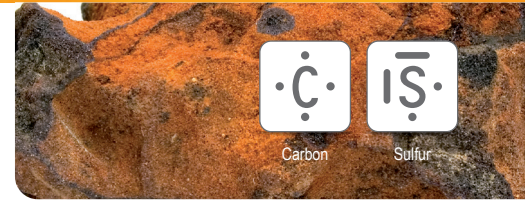


C,S determination in iron ore and ore



Suitable analyzers

- ELEMENTRAC CS-i (cement configuration)
- ELEMENTRAC CS-i (standard configuration)

Analysis data have been measured with the CS-i cement configuration. A CS-i with standard configuration can also be used with the same settings:

Used accessories

- Ceramic crucibles (90149)
- Tungsten (90220)
- High purity iron accelerator (88600-0013)
- Suitable calibration material (NIST or other)



Application Settings

I) General

Sample type:	Dusty sample
Standby flow:	180 l/h
Open Furnace	yes
Furnace purge time:	3 sec
Furnace purge flow:	180 l/h

Stabilizing

Stabilize duration:	45 sec
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II) Analysis

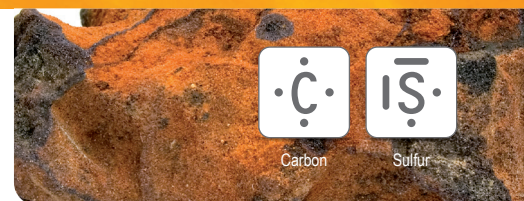
Flow:	180 l/h
Ramping:	off
Voltage:	100 %
Power duration:	45 sec
Auto comparator:	off
Drift compensation:	on

Channel	Min time (sec)	Max time [sec]	Integration delay [sec]	Comparator factor [%]
Low C	25	90	5	0,3
High C	25	90	5	0,3
Low S	35	90	9	0,3
High S	35	90	9	0,3

III) Postwaiting

Postwaiting time:	10 sec
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C,S determination in iron ore and ore



Sample preparation

Make sure that the sample is disintegrated to a suitable sample size and is free from contaminations. Please dry the sample until mass constancy at 105°C. Pre heat the ceramic crucibles at least for 1h at 1000°C. Let the crucibles cool down in a desiccator.

Procedure

- Prepare the ELTRA analyzer (e.g. exchange anhydron, sodium hydroxide, catalyst if necessary); clean combustion tube, heat shield and furnace area
- Run three warm up samples (e.g. steel samples (92400-3050)) with a minimum weight of 500 mg and 1.7 g tungsten as accelerator
- Calibrate the analyzer with suitable calibration material (NIST or other)
 - (1) Weigh in approx. 60 – 100 mg of the sample into the ceramic crucible
 - (2) Add 0.7 g of high purity iron accelerator (88600-0013)
 - (3) Add 1.7 g of tungsten (90220)
 - (4) Place the crucible on the pedestal (use tongs!) and start analysis

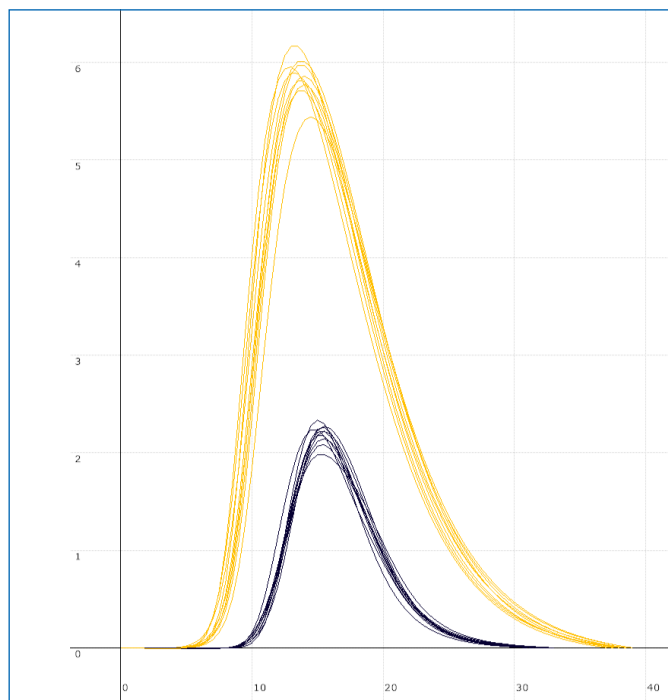
Repeat steps (1) – (4) at least three times;
Mark the results and use the calibration function in the software.

-> Now start with the actual analysis.



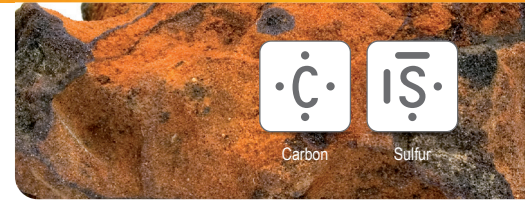
Typical results		
AR-4007 (LOT 1212E) ⁽¹⁾		
Weight (mg)	Carbon (%)	Sulfur (%)
60.6	7.49	3.10
62.1	7.10	3.21
61.6	7.31	3.18
63.6	7.24	3.21
60.7	7.39	3.35
61.5	7.09	3.28
59.3	7.20	3.33
64.7	7.19	3.31
62.4	7.45	3.44
62.0	7.20	3.27
Average		
	7.27	3.26
Deviation / Relative deviation		
	0.13 (1.9%)	0.09 (3.0%)

(1) certified values: C: 7.27 % ± 0.36 / S: 3.26 % ± 0.26



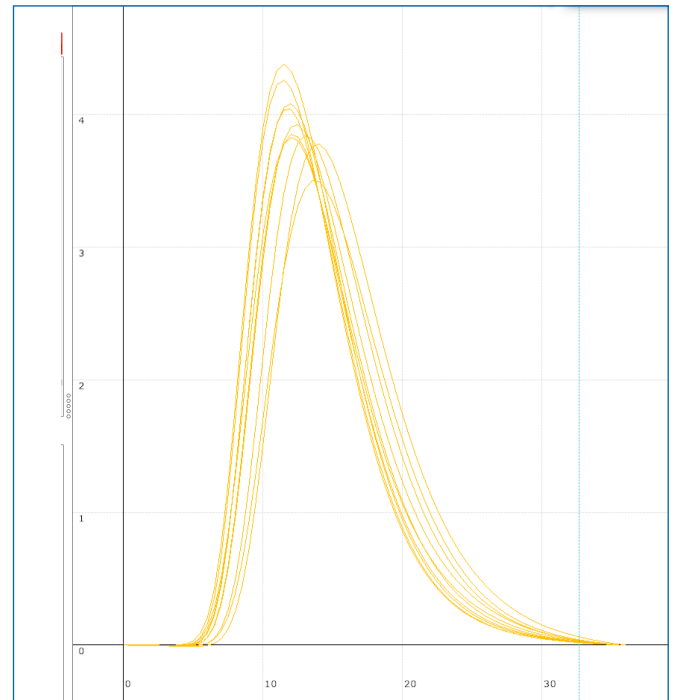
Subject to technical modification and errors

C,S determination in iron ore and ore



Typical results	
NCS iron ore NCS DC 11010 ⁽²⁾	
Weight (mg)	Sulfur (%)
61.2	1.54
58.1	1.54
64.5	1.61
59.7	1.55
61.1	1.60
64.6	1.50
57.8	1.55
63.0	1.51
61.6	1.58
62.5	1.58
Average	
	1.56
Deviation / Relative deviation	
	0.03 (2.4%)

⁽²⁾ certified values: S: 1.56 % ± 0.04



Subject to technical modification and errors