ELTRA®
ELEMENTAL ANALYZERS

C, S determination in Ferrochrome (Low Carbon)

Suitable analyzers

- ELEMENTRAC CS-*i*

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:	Advanced
Standby flow:	10 l/h
Purging while closing:	yes
Open Furnace:	yes
Furnace purge through:	Exhaust
Furnace purge time:	3 sec
Furnace purge flow:	180 l/h

Stabilizing

Lance valve:	on
Stabilize by time:	off
Stability:	0.02 V
Minimum time:	15 sec
Maximum time:	30 sec

II) Analysis

Voltage:	100 %
Power duration:	35 sec
Flow:	180 l/h
Chamber only:	1 sec
Lance and chamber:	1 sec
Drift compensation:	on

Channel	Max time [sec]	Min time [sec]	Integration delay [sec]	Comparator factor [%]
Low C	80	30	7	0.1
Low S	80	15	10	0.1

III) Postwaiting

Postwaiting time:	10 sec

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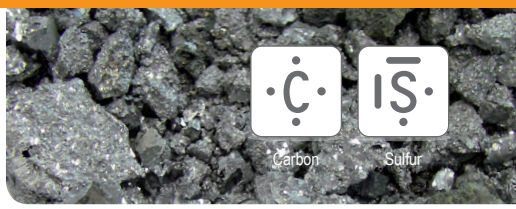

Sample preparation

Make sure that your sample is free from contaminations and inclusions which could influence the carbon determination. Pre-heat the crucibles at least for 1 h at 1000 °C. Let the crucibles cool down in a desiccator.

Procedure

- Prepare ELTRA analyzer (e.g. exchange anhydrone, sodium hydroxide, platin catalyst if 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 1.7 g tungsten)
- Calibrate the analyzer with suitable calibration material (NIST or other)

  The procedure of analysis Ferro-Chromium should be like this:
  (1) Weigh in approx. 200 mg of sample into the crucible
  (2) Add 0.7 g of high purity iron accelerator (88600-0013)
  (3) Add 1.7 g of tungsten (90220)

Repeat steps (1) – (3) at least three times;
Mark the results and use the calibration function in the software.

-> Now start with the actual analysis.

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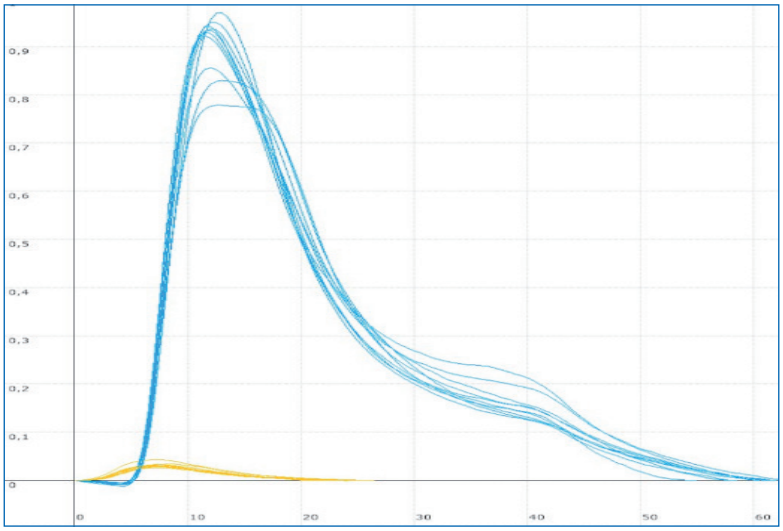
Typical results		
Euronorm 580-1 [1)]		
Weight (mg)	**Carbon (ppm)**	**Sulfur (ppm)**
198.4	190.62	22.75
202.6	181.32	19.21
208.3	186.46	17.45
202.4	181.99	17.68
198.3	189.73	16.45
200.7	197.63	16.86
200.8	186.47	18.37
201.5	198.48	16.66
204.9	199.25	16.40
199.6	190.05	16.62
Mean value		
	190.20	17.84
Deviation / Relative deviation (%)		
	6.50/3.42	1.95/10.94

[1)] certified value: C: 0.019 % ±0.002 (10.5 %)
S: not certified



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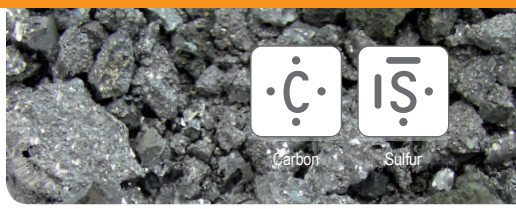
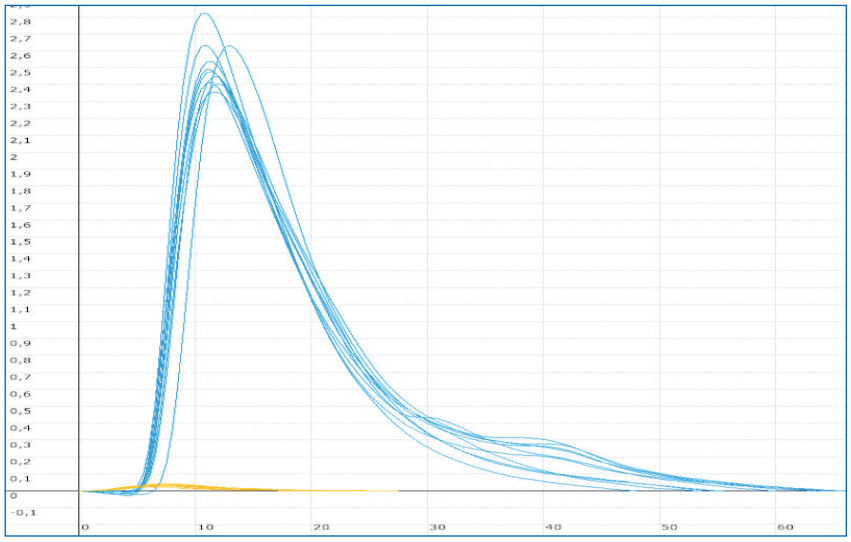


Typical results		
D-Lab (Sweden): DFS 1 [1)]		
Weight (mg)	**Carbon (ppm)**	**Sulfur (ppm)**
200.5	563.23	17.26
199.2	547.90	19.95
203.3	551.84	16.67
200.5	549.86	18.28
200.1	544.32	18.05
204.6	540.70	17.62
200.3	546.44	20.31
201.4	538.57	16.54
202.8	566.90	14.05
202	541.66	13.82
Meanvalue		
	549.14	17.25
Deviation / Relative deviation (%)		
	9.39/1.71	2.14/12.42



1) certified value: C: 0.0549 ±0.0014 (2.56%)
S: 0.0017% (Deviation not certified)