C determination in silicon carbide

Carbon

Suitable analyzers

- ELEMENTRAC CS-*i*

Used accessories

- Ceramic crucibles (90149)
- Copper accelerator (90240)
- Suitable calibration material (NIST or other)

Application Settings

I) General

Sample type:	Advanced
Standby flow:	180 l/h
Lance purging:	on
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:	off
Stabilize by time:	off
Stability:	0.001
Minimum time:	30 sec
Maximum time:	60 sec

II) Analysis

Voltage:	100 %
Power duration:	50 sec
Flow:	180 l/h
Chamber only:	25 sec
Lance and chamber:	5 sec
Drift compensation:	off

Channel	Max time [sec]	Min time [sec]	Integration delay [sec]	Comparator level [mv]	Comparator peak [%]
High C	90	30	8	10	1

III) Postwaiting

Postwaiting time:	10 sec

ELTRA®
ELEMENTAL ANALYZERS

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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)

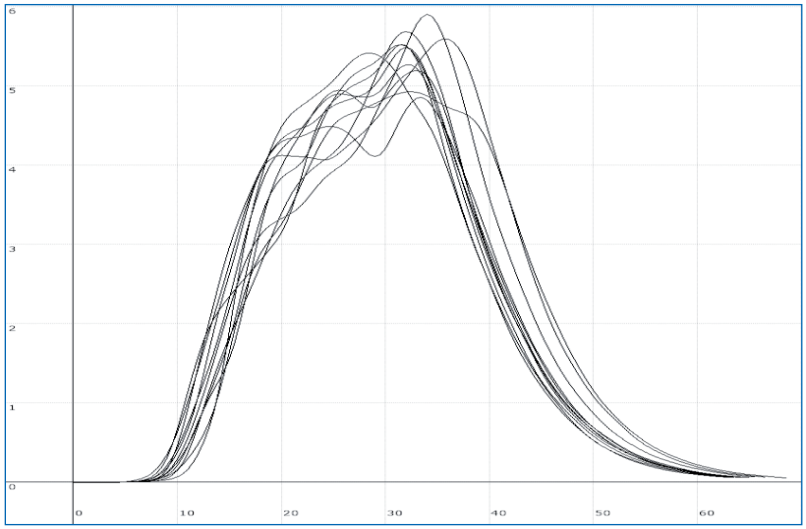
  The procedure of analysis silicon carbide should be like this:
  (1) Weigh in approx. 70 mg of the sample into the ceramic crucible
  (2) Add 2 g of copper accelerator (90240)
  (3) Place the crucible on the pedestal and start analysis

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.

Typical results	
BAM-S003 [1)]	
Weight (mg)	**Carbon (%)**
71.6	29.88
68.4	29.88
71.7	29.90
66.2	29.91
73.6	29.86
69.4	29.89
69.0	29.94
66.2	29.88
67.7	29.91
80.2	29.93
Average values	
	29.90
Deviation / Relative deviation (%)	
	0.03/0.09

[1)] Zertified value: C: 29.89 % ±0.07



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