

C determination in tungsten carbide



Suitable analyzers

- ELEMENTRAC CS-i

Used accessories

- Ceramic crucibles (90149)
- Copper accelerator (90240)
- High purity iron accelerator (88600-0013)
- Suitable calibration material (NIST or other)



Application Settings

I) General

Sample type:	Advanced
Standby flow:	180 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

Stabilize by time:	off
Stability:	0.001
Minimum time:	30 sec
Maximum time:	60 sec

II) Analysis

Voltage:	100 %
Power duration:	80 sec
Flow:	180 l/h
Chamber only:	1 sec
Lance and chamber:	1 sec
Drift compensation:	off

Channel	Max time [sec]	Min time [sec]	Integration delay [sec]	Comperator level [mv]	Comperator peak [%]
High C	90	30	6	20	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 anhydron, 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 tungsten carbide should be like this:

- (1) Weigh in approx. 250 mg of the sample into the ceramic crucible
- (2) Add 1 g of copper accelerator (90240)
- (3) Add 1 g of high purity iron accelerator (88600-0013)
- (4) Place the crucible on the pedestal (use tongs!) and start analysis

Repeat steps (1) – (4) at least three times;

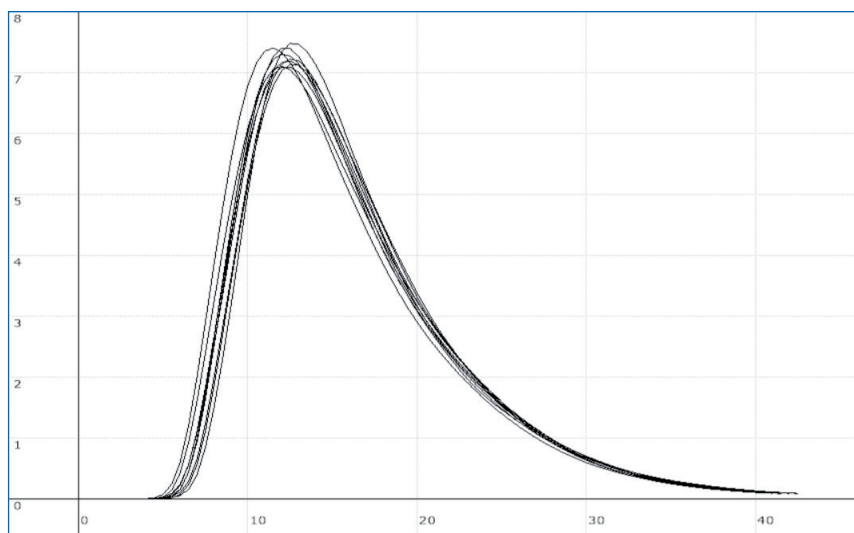
Mark the results and use the calibration function in the software.

-> Now start with the actual analysis.



Typical results	
ELTRA 90816-3001; LOT 914 C ¹⁾	
Weight (mg)	% C
257.7	6.1299
258.7	6.1206
264.7	6.1292
254.9	6.1270
261.8	6.1319
255.1	6.1288
261.8	6.1258
265.2	6.1378
256.2	6.1375
250.3	6.1310
Average values	
	6.1300
Deviation / Relative deviation (%)	
	0.0051/0.1

¹⁾ Certified value: % C: 6.13 ± 0.03 (0.5%)



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Typical results	
ECRM 783-1 ¹⁾	
Weight (mg)	% C
250.7	6.1885
252.6	6.1906
256.2	6.1902
265.4	6.1933
269.8	6.1869
248.7	6.1770
250.9	6.1908
249.7	6.1803
254.9	6.1908
261.1	6.1917
Average values	
	6.188
Deviation / Relative deviation (%)	
	0.0053/0.085

¹⁾ Certified value: % C: 6.188 ±0.011 (0.178%)

