

C, S determination in high purity Nickel



Suitable analyzers

- ELEMENTRAC CS-*i*

Used accessories

- Ceramic crucibles (90149)
- Tungsten accelerator (90220)
- Suitable calibration material (NIST or other)



Application Settings

I) General

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

Stabilizing

Stabilize by time:	on
Stabilize duration:	50 sec

II) Analysis

Voltage:	80 %
Power duration:	100 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	40	10	0,1
Low S	90	40	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 anhydron, sodium hydroxide, platin catalyst if necessary); clean the combustion tube, brush, heating 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 nickel should be like this:

- (1) Weigh in approx. 500 mg into the crucible
- (2) Add 1.7 g of tungsten accelerator (90220)
- (3) Place the crucible on the pedestal and start analysis

Repeat steps (1) – (3) at least three times;

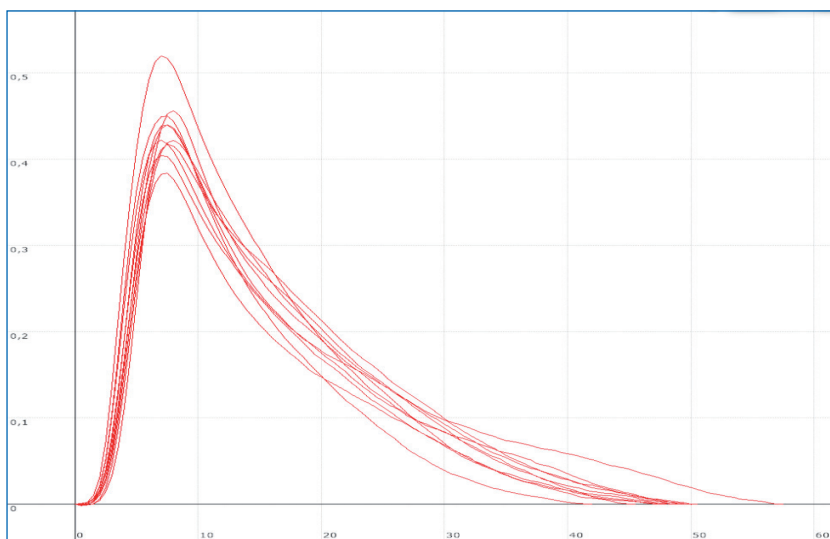
Mark the results and use the calibration function in the software.

-> Now start with the actual analysis.



Typical results		
IARM -187 A ¹⁾		
Weight (mg)	Carbon (ppm)	Sulfur (ppm)
501.0	15.72	0.91
494.1	10.79	2.16
516.3	11.29	5.18
509.1	9.55	3.21
513.4	11.74	3.30
508.1	13.15	3.26
492.4	11.92	1.49
501.3	10.43	1.86
505.7	13.46	1.65
498.6	12.56	3.91
Average values		
	12.06	2.69
Deviation / Relative deviation (%)		
	1.68/13.89	1.25/45.98

1) certified value: ppm C: 13 ±5 (38.5%)
ppm S: 1.9 ±1.1 (57%)



Subject to technical modification and errors