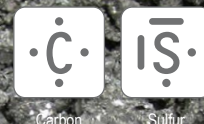


# C, S determination in chromium



## Suitable analyzers

- ELEMENTRAC CS-i

## Used accessories

- Ceramic crucibles (90149)
- Tungsten (90220)
- Copper (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:	10 sec
Furnace purge flow:	180 l/h

### Stabilizing

Stabilize by time:	on
Stabilize duration:	20 sec

### II) Analysis

Voltage:	100 %
Power duration:	120 sec
Flow:	180 l/h
Chamber only:	0 sec
Lance and chamber:	0 sec
Drift compensation:	on

Channel	Max time [sec]	Min time [sec]	Integration delay [sec]	Comparator factor [%]
Low C	120	40	6	0.05
Low S	80	40	6	0.05

### 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 and/or sulfur determination. Preheat 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 anhydrous, 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)

## Caution !

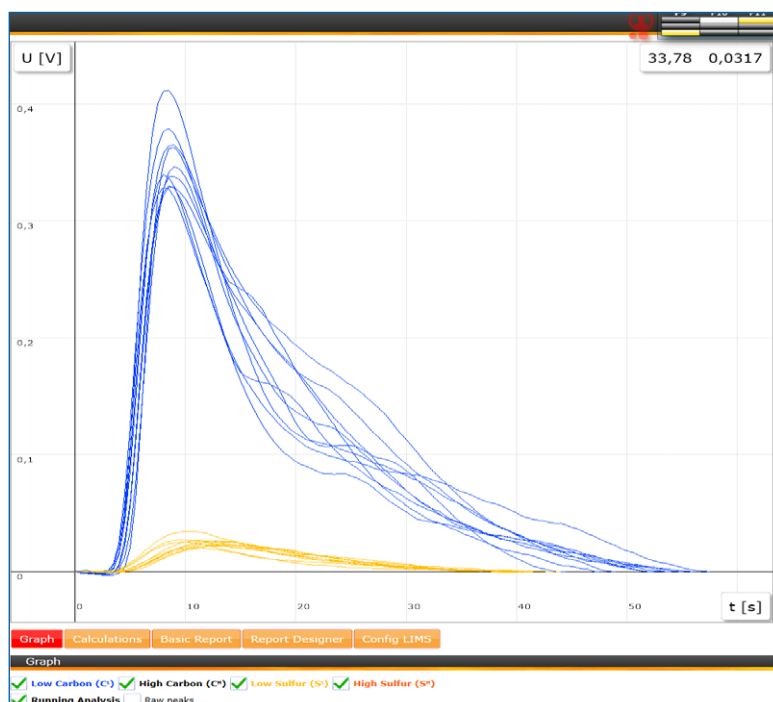
Chromium metal can be analysed with two different accelerator combinations. When the determination of carbon and sulfur is required please add to 200 mg of sample a spoon (1.7 g) of tungsten (90220) and a spoon of high purity iron accelerator (0.7 g of 88600-0013). When a best precise carbon measurement is wanted please add 1 g of high purity iron accelerator (88600-0013) and 1 g of copper accelerator (90240) to 200 mg sample. When copper is used as accelerator the measured sulfur content is not stable and cannot be used for measurements.



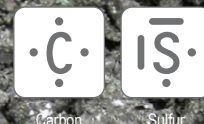
## (A) C,S results with iron and tungsten as accelerator

Typical results		
BCS-CRM No 361 <sup>1)</sup>		
Weight (mg)	Carbon (ppm)	Sulfur (ppm)
203.1	45.1	45.5
202.0	38.8	35.5
201.4	32.3	34.9
197.1	40.0	44.4
207.7	35.1	49.2
200.4	42.0	55.0
202.0	44.4	44.3
207.1	39.3	48.1
198.3	38.0	38.2
204.3	38.0	42.7
Average Values		
	39.4	43.8
Deviation / Relative deviation (%)		
	3.9 (9.9%)	6.0 (14%)

<sup>1)</sup> certified values: Carbon: 39 ± 6 ppm; Sulfur: 43 ± 6 ppm



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## (B) C results with iron and copper as accelerator

Typical results	
BCS-CRM No 361 <sup>1)</sup>	
Weight (mg)	Carbon (ppm)
205.5	36.7
197.5	37.8
213.3	38.3
205.0	40.5
199.4	39.3
203.0	39.7
197.4	40.3
199.4	41.2
203.8	37.9
197.9	38.8
Average Values	
	39.05
Deviation / Relative deviation (%)	
	1.4 (3.6 %)

<sup>1)</sup> certified values: Carbon: 39 ±6 ppm; Sulfur: 43 ±6 ppm

