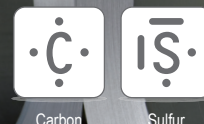


C, S determination in steel and steel rings



Suitable analyzers

- CS-800
- CS-2000 (induction furnace)

Used accessories

- Ceramic crucibles (90150)
- Tungsten (90220)
- Ceramic lids (88600-0014)
- Suitable calibration material (NIST or other)

Settings

- Comparator level: 20 mV (all Channels)
- Minimum time: 30 sec
- Maximum time: 1:00 min
- Integration delay: 6 sec
- Post-waiting: 10 sec
- Pre-purging: 10 sec
- Base line deviation: 10 mV
- Base line time: 20 sec
- T1 - Pre-purging: 5 sec
- T2 - Chamber only: 1 sec
- T3 - Chamber and lance: 1 sec
- T4 - Generator: 60 sec



Induction furnace

Sample preparation

In general no sample preparation is needed.
For best repeatable carbon results preheating of the crucibles is recommended.

Procedure

- Prepare ELTRA analyzer (e.g. exchange anhydrous, sodium hydroxide, copper oxide when 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 1.5 g tungsten)
- Calibrate the analyzer with suitable calibration material (NIST or other)
 - (1) Weigh in approx. 500 mg of sample in the ceramic crucibles (90150), or a steel ring with approx. 1 g
 - (2) Add 1.5 (± 0.1) g of tungsten (90220) and cover the crucible with a lid (88600-0014)
 - (3) Place the crucible on the pedestal and start analysis

Repeat Step (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		
AR 875 (LOT751256) ¹⁾		
Weight (mg)	% C	ppm S
1002.8	0.8627	100.11
1001.5	0.8655	100.60
998.9	0.8662	104.47
1000.3	0.8571	101.52
1002.3	0.8676	105.03
1000.8	0.8641	106.54
1005.5	0.8627	107.78
1001.7	0.8716	99.89
1002.0	0.8671	103.09
1001.7	0.8627	104.35
Average values		
	0.862	100.0
Deviation		
	± 0.0037 0.43 %	± 3.0 2.90 %

Typical results		
LECO 501-502 (LOT1344) ²⁾		
Weight (mg)	ppm C	ppm S
999.9	716.08	166.37
998.1	707.46	165.80
1000.6	707.28	167.45
1000.2	727.69	166.40
999.1	713.27	161.40
1000.3	701.96	168.68
1001.4	708.92	167.17
1000.1	704.07	167.58
999.6	703.59	170.14
999.4	709.67	169.01
Average values		
	710.0	167.0
Deviation		
	± 7.6 1.06 %	± 2.4 1.42 %

¹⁾ Certified: % C: 0.862 (± 0.005 / 0.58 %)
ppm S: 100 (± 10) / 10 %

²⁾ Certified: ppm C: 710 (± 20 / 2.8 %)
ppm S: 167 (± 8 / 4.79 %)