ELTRA®
ELEMENTAL ANALYZERS

C, S determination in copper samples

Carbon Sulfur

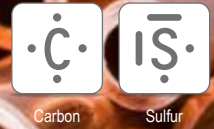Induction furnace

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

Used accessories
- Ceramic crucibles (90150)
- Copper accelerator (90240)
- Suitable calibration material (NIST or other)

Settings
- Comparator level: 20 mV
- Minimum time: 65 sec
- Maximum time: 80 sec
- Integration delay: 8 sec
- Post-waiting: 10 sec
- Pre-purging: 20 sec

- Base line deviation: 10 mV
  Base line time: 20 sec
- T1 - Pre-purging: 5 sec
- T2 - Chamber only: 60 sec
- T3 - Chamber and lance: 1 sec
- T4 - Generator: 30 sec

CS-800

CS-2000 (induction furnace)

Sample preparation
For best results preheat the 90150 crucibles at 1000 °C for at least 1 h. Make sure that copper is free from surface carbon like oil or dust. Clean samples with acetone if necessary.

Procedure
- Prepare the ELTRA analyzer (e.g. change anhydrone, sodium hydroxide, copper oxide when necessary); clean the combustion tube and dust trap.
- Run three warm up samples. Place one gram of suitable calibration material or suitable copper samples on the bottom of the crucible and add 1 g of 90240 copper accelerator.
- Calibrate the analyzer with suitable calibration material (NIST or other)
  (1) Weigh in 1 g of sample
  (2) Cover the sample with 1 g of 90240 copper accelerator
  (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			Typical results		
Copper sample: ELTRA 9100-01			Copper sample: AR 148		
Weight (mg)	ppm C	ppm S	Weight (mg)	ppm C	ppm S
1006.7	4.37	3.25	1003.9	25.96	6.78
1005.4	6.87	4.00	1004.3	26.06	6.69
1007.5	6.75	3.74	1001.2	24.42	7.99
1010.1	6.85	4.49	1002.3	23.62	4.15
1003.4	6.77	3.35	1003.3	27.25	8.18
1000.1	4.79	4.65	1004.1	25.88	6.29
1007.7	6.55	4.29	1003.5	27.36	7.10
998.4	5.84	3.78	1004.2	25.70	6.39
1006.4	5.98	4.13	1007	26.61	6.64
1003.4	5.30	4.32	1004.3	27.68	5.52
Average values			Average values		
	6.00	4.00		26.05	6.57
Deviation			Deviation		
	0.91	0.46		1.28	1.15