

O determination in copper samples

Suitable analyzers

- ON 900
- OH 900
- ONH 2000

Used accessories

- Graphite crucibles (90190)
- Suitable calibration material (NIST or other)

Settings

- | | |
|--------------------------------|---------------------|
| ■ Comparator level: 20 mV | ■ Time |
| ■ Minimum time: 15 sec | Purge: 20 sec |
| ■ Maximum time: 1:30 min | Stability: 45 sec |
| ■ Post waiting: 10 sec | ■ Integration delay |
| ■ Base line deviation: 200 mV; | IR cell: 2 sec |
| Step: 16 mV; Time: 10 sec | TC cell: 10 sec |
| ■ Mode: continuous | ■ Analyse (1) |
| ■ Outgas | Time: 75 sec |
| Time: 45 sec | Power (1): 3.0 kW |
| Power: 3.5 kW | Power (2): 3.0 kW |



OH 900



ON 900



ONH 2000



Oxygen



Impulse furnace

Sample preparation

Make sure that the surface of the copper is free from contaminations; otherwise clean the sample with acetone p.a. and let dry at atmosphere. In case of very low oxygen concentrations (< 5 ppm) rinse the sample in nitric acid (HNO₃) first, than water, last with acetone. Let this sample dry at atmosphere and analyze immediately.

Procedure

- Prepare ELTRA analyzer (exchange anhydrone, sodium hydroxide, copper oxide or Schuetze reagent when necessary), clean furnace, sample drop mechanism, electrode tip
- Run three blanks with empty crucibles
- Calibrate the analyzer with suitable calibration material (NIST or other)
 - (1) Place empty crucible (90190) on the electrode tip, close furnace (F2 Button)
 - (2) Weigh calibration material (usually pins)
 - (3) Place calibration material in the sample drop mechanism and start analysis (F5 Button)

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	
Copper sample; ELTRA 9100069	
Weight (mg)	ppm O
1004.1	397.6
1002.9	388.9
991.1	389.4
999.3	393.5
996.1	394.8
991.2	400.9
1002.9	395.3
1005.6	396.0
993.2	396.7
1002.7	396.9
Average values	
	395.0
Deviation	
	3.65 / 0.92%

Typical results	
Copper sample; ELTRA 91000050	
Weight (mg)	ppm O
1008.5	10.5
1004.9	10.1
1005.8	10.2
1005.7	10.8
1006.3	9.8
1004.9	10.4
1009.9	10.8
1014.1	9.6
1008.9	10.1
998.8	10.4
Average values	
	10.27
Deviation	
	0.39 / 3.81%