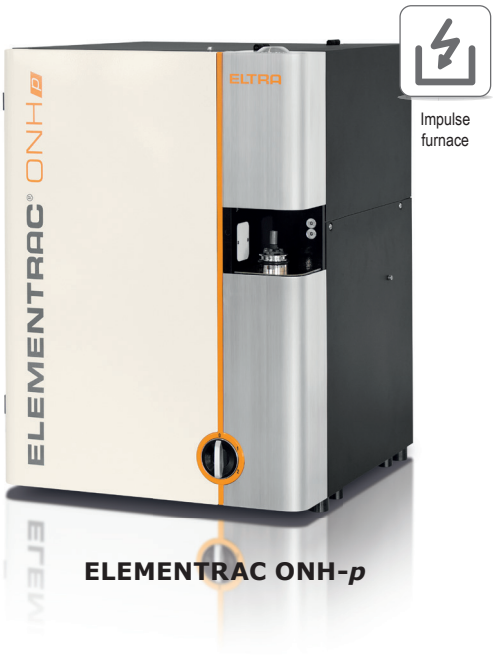
ELTRA®
ELEMENTAL ANALYZERS

Oxygen determination in copper samples

Suitable analyzers
- ELEMENTRAC ONH-*p*
- ELEMENTRAC ON-*p*

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



Application Settings

I) General

Furnace mode: ON
Furnace cooling: 35/45 °C
Standby Flow: 0

A flow of 10 l/h could improve precision when there is a long time distance between 2 measurements.

II) Outgasing and stabilizing

Setting / Phase	Time [sec]	Power [W]	Flow [l/h]
Outgasing	60	3300	27
Stabilizing	70	2900	27

A second outgasing cycle or an increased outgasing time could improve the precision for very low oxygen contents.
To reduce dust it could be useful to split the outgasing cycle in 30 sec (0 W Power) and 30 sec (3300 W Power).

III) Analysis

Power duration: 80 sec
Power: 2900 W
Flow: 27 l/h
Drift compensation: on
Open furnace: yes

Channel	Minimum time [sec]	Maximum time [sec]	Integration delay [sec]	Comparator factor [%]
Low and High O	45	80	4	0.3

IV) Postwaiting

Postwaiting time: 10 sec
Furnace clean up: No

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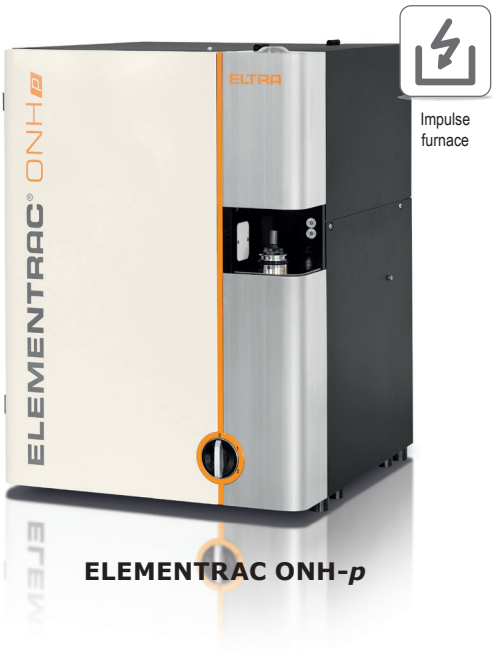
Sample preparation
Make sure that the surface of the copper is free from contaminations; otherwise clean the sample with acetone p.a. and let it air dry.

Procedure

- Prepare ELTRA analyzer (exchange anhydrone, copper oxide if necessary), clean furnace, sample drop mechanism, electrode tip (if necessary)
- Run three blanks with empty crucibles
- Calibrate the analyzer with suitable calibration material (NIST or other)
  - (1) Place one empty crucible (90190) on the electrode tip, close furnace
  - (2) Weigh calibration material and place it in the sample drop mechanism and start analysis
  - (3) After analysis give the inner crucible into waste and place a new one on the electrode tip.

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.



ELEMENTRAC ONH-*p*

Typical results	
ELTRA 91000-1004 (LOT 113C)[1)]	
Weight (mg)	**ppm O**
991.7	7.10
1001.4	7.30
996.6	7.20
993.5	6.20
993.2	7.00
997.6	6.60
995.4	6.30
991.9	7.00
995.8	7.00
990.4	9.30
Average values	
	7.10
Deviation / Relative deviation (%)	
	0.81 / 11.46 %

[1)] certified: ppm O : 7 (±2 / 28 %)

Typical results	
91000-051 (LOT 20150606)[2)]	
Weight (mg)	**ppm O**
995.2	621.8
1004.6	617.1
1007.2	613.6
1002.7	615.5
1005.4	607.5
992.5	618.1
1000.3	620.1
1004.4	621.1
1007.6	626.4
1001.2	629.3
Average values	
	619.05
Deviation / Relative deviation (%)	
	5.94 / 0.96 %

[2)] certified: ppm O : 614 (±14 / 2,2 %)