ELTRA®
ELEMENTAL ANALYZERS

O, N determination in CeO_2 samples

Oxygen Nitrogen

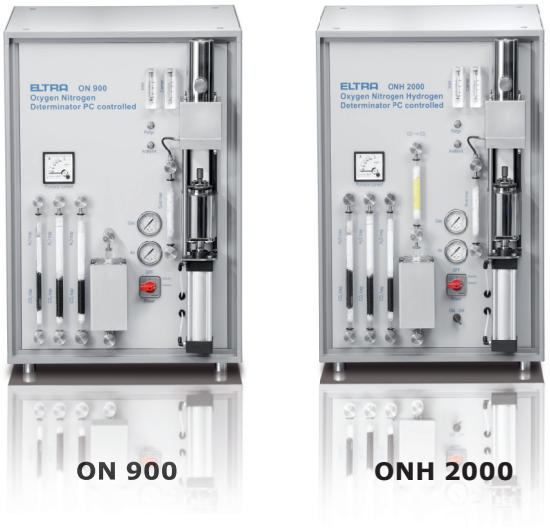
Suitable analyzers

- ON 900
- ONH 2000

Impulse furnace

Used accessories

- Graphite crucibles 90190 or 90185 and 90180
- Suitable calibration material (NIST or other)
- Nickekel capsule (90257)



Settings

- Comparator level: 20 mV
- Minimum time: 15 sec
- Maximum time: 1:30 min
- Post waiting: 10 sec
- Base line deviation: 20 mV; Step: 16 mV; Time: 15 sec
- Mode: continuous
- Outgas
  Time: 45 sec
  Power: 6.0 kW
- Time
  Purge: 15 sec
  Stability: 30 sec
- Integration delay
  IR cell: 2 sec
  TC cell: 10 sec
- Analysis (1)
  Time: 60 sec
  Power (1): 4.75 kW
  Power (2): 4.75 kW

Sample preparation

Make sure that the CeO_2 sample is dry, otherwise remove the moisture at 105 °C. The dried sample is filled in the nickel capsule, and the nickel capsule has to be sealed completely to remove residual air.

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 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

Customer sample: CeO_2		
Weight (mg)	**% O**	**ppm N**
15.63	18.57	99.0
15.76	18.48	91.7
15.47	18.38	101.4
15.05	18.49	114.2
15.68	18.63	107.9
15.62	18.60	97.5
15.96	18.30	105.6
15.44	18.33	109.7
15.24	18.12	100.8
15.32	18.52	106.9
Average values		
	18.44	103.5
Deviation		
	0.15 (0.85%)	6.6 (6.4%)