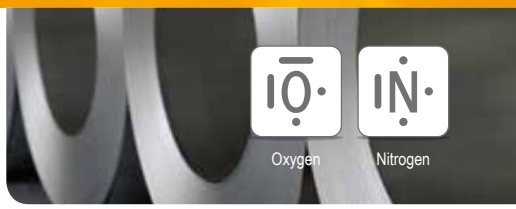
ELTRA
ELEMENTAL ANALYZERS

# O, N determination in steel samples (single graphite crucibles)




## Suitable analyzers

- ON 900
- ONH 2000

Impulse furnace

## Used accessories

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

## Settings

- Comparator level: 5 mV (low oxygen); 20 mV (other)
- Minimum time: 15 sec (oxygen); 35 sec (nitrogen)
- Maximum time: 3:00 min
- Post waiting: 20 sec
- Base line deviation: 20 mV; Step: 16 mV; Time: 10 sec
- Mode: continuous
- Outgas
  Time: 45 sec
  Power: 5 kW
- Time
  Purge: 15 sec
  Stability: 45 sec
- Integration delay
  IR cell: 2 sec
  TC cell: 10 sec
- Analyse (1)
  Time: 40 sec
  Power (1): 4 kW
  Power (2): 4 kW


ON 900


ONH 2000

## Sample preparation

Make sure that the surface of the steel is free from contaminations; otherwise clean the sample with acetone p.a. and let dry at atmosphere.

## Procedure

- Prepare ELTRA analyzer (exchange anhydrone, sodium hydroxide, copper oxide 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 | | |
|---|---|---|
| Steel: Eltra 91100-1004 | | |
| Weight (mg) | ppm O | ppm N |
| 1015.8 | 153.4 | 65.5 |
| 1016.0 | 153.2 | 64.8 |
| 1012.8 | 150.2 | 65.3 |
| 1015.0 | 140.6 | 64.9 |
| 1015.9 | 142.5 | 66.2 |
| 1011.8 | 141.8 | 62.6 |
| 1017.4 | 148.1 | 65.6 |
| 1017.7 | 147.7 | 61.7 |
| 1018.4 | 152.7 | 68.1 |
| 1017.1 | 153.2 | 63.3 |
| Average values | | |
| | 148.34 | 64.8 |
| Deviation | | |
| | 5.08 / 3.42% | 1.85 / 2.86% |

| Typical results | | |
|---|---|---|
| Steel: AR 659 | | |
| Weight (mg) | ppm O | ppm N |
| 511.5 | 119.4 | 67.1 |
| 508.7 | 117.6 | 61.7 |
| 511.7 | 123.3 | 68.7 |
| 509.0 | 118.2 | 62.3 |
| 509.0 | 120.3 | 66.4 |
| 523.4 | 120.9 | 63.1 |
| 511.1 | 119.0 | 66.6 |
| 511.9 | 119.9 | 65.0 |
| 511.6 | 119.2 | 67.8 |
| 510.9 | 118.6 | 66.4 |
| Average values | | |
| | 119.64 | 65.51 |
| Deviation | | |
| | 1.61 / 1.34% | 2.39 / 3.65% |



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