# Application Note 1022





# Hydrogen determination in titanium samples

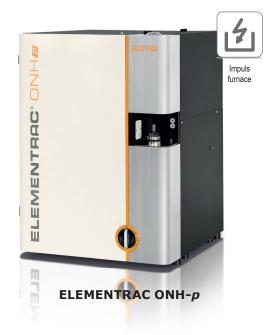
### Suitable analyzers

- ELEMENTRAC ONH-p
- ELEMENTRAC OH-p

#### **Used accessories**

- Graphite crucibles (90180 and 90185)
- Tin pellets (90252)
- Suitable calibration material (NIST or other)





# **Application Settings**

#### I) General

Furnace mode: OH 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 [I/h]
Outgasing	65	4000	27
Stabilizing	75	3800	27

A second outgasing cycle or an increased outgasing time could improve the precision for very low oxygen and nitrogen contents. To reduce dust it could be useful to split the outgasing cycle in 30 sec (0 W Power) and 30 sec (3800 W Power).

### III) Analysis

Power duration: 35 sec Drift compensation: on Open furnace: yes

Flow: 27 l/h

Channel	Minimum time	Maximum time	Integration delay	Comparator factor
	[sec]	[sec]	[sec]	[%]
Low and High H	45	80	12	0.3

#### IV) Postwaiting

Postwaiting time: 25 sec Furnace clean up: No



ELEMENTAL ANALYZERS



# Hydrogen determination in titanium samples



## Sample preparation

Make sure that the surface of the titanium 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, Schuetze reagent 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
  - (1) Fill one inner crucible (90180) with 2 tin pellets (90252) in one outer crucible (90185) and place them 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 fill in a new one. The outer crucibles can be used approximately 10 times

