Oxygen / Hydrogen Analyzer OH-900

General Information

The OH-900 determines oxygen and hydrogen in inorganic samples via inert gas fusion in an impulse furnace with temperatures in excess of 3,000 °C.

The OH-900 guarantees precise and fast sample analysis. The analyzer covers a wide range of applications such as metal, ceramics and other inorganic materials.

The OH-900 can be supplied with up to two infrared cells with different path lengths, accommodating both high and low level oxygen analysis. Hydrogen concentration is determined in the OH-900 by a robust and sensitive thermal conductivity cell.

Application Examples

alloys, cast iron, ceramics, copper, refractory metals, steel, ...

Product Advantages

- simultaneous hydrogen and oxygen determination with inert gas fusion technique
- flexible configurations and measuring ranges for O and H
- ramping and fractional analysis included
- high sensitivity IR and TC cells with low detection limits
- short analysis time
- powerful 8 kW impulse furnace for temperatures in excess of 3,000 °C
- economic analysis of grains without capsules
- easy to replace, economic upper electrode insert
- rapid, precise, accurate and reliable element determination
- powerful software (multilingual, customized display, export of results)
- single and multipoint calibration
- low maintenance
- robust design allows usage in production control and laboratory

Features

Measured elements	hydrogen, oxygen
Samples	inorganic
Furnace alignment	vertical
Sample carrier	graphite crucibles
Field of application	ceramics, engineering / electronics, steel / metallurgy
Furnace	electrode impulse furnace (max. 8 KW), temperatures in excess of 3000 °C
Detection method	solid state infrared absorption for oxygen thermal conductivity for hydrogen
Typical analysis time	120 - 180 s

Oxygen / Hydrogen Analyzer OH-900

Chemicals required	magnesium perchlorate, Schuetze reagents, sodium hydroxide
Gas required	compressed air (4 - 6 bar / 60 - 90 psi) helium 99.995 % pure (2 - 4 bar / 30 - 60 psi)
Power requirements	3~ 400 V, 50/60 Hz, max. 8500 W
Dimensions (W x H x D)	55 x 80 x 60 cm
Weight	~ 140 kg
Required equipment	balance (resolution 0.0001g), monitor, PC
Optional accessories	carrier gas purification, gas calibration unit, voltage stabilizer 5 KVA

Function Principle

Operation OH-900

Operation of the OH-900 is simple and safe. The samples are weighed on the interfaced balance and the weight is transferred to the linked PC. Manual weight entry is also possible. The sample is placed into the loading head and the empty graphite crucible is put on the lower electrode tip. Depending on the application the addition of auxiliary materials which lower the melting point, such as tin or nickel, may be required. The analysis time is 2 to 3 minutes, depending on the application parameters. Cell outputs are displayed in real time. All peak profiles are saved on the data base along with the results. Also all results can be transferred to a “Laboratory Information Management System” (LIMS). The OH-900 requires minimum maintenance. The particle filters and chemicals which need to be maintained are easily accessible.

Measuring Principle OH-900

The measuring principle of the OH-900 allows for a wide measuring range. To analyze the sample, it is weighed and placed in the sample drop mechanism Flushing with carrier gas prevents atmospheric gas from getting into the furnace. The graphite crucible is outgassed in the impulse furnace to reduce possible contaminations (e.g. residual hydrogen). After a stabilization phase the sample is dropped into the crucible and melts. Carbon monoxide is produced by the reaction of carbon in the graphite crucible and oxygen of the sample. Nitrogen and hydrogen are released in its elemental form. The carrier gas (nitrogen) and sample gasses pass through a dust filter before entering a Schuetze reagent catalyst which converts the CO to CO2. The CO2 is measured by the infrared cells to determine the oxygen content. CO2 is removed chemically and the hydrogen content is measured in the thermal conductivity cell.

Order data

Oxygen / Hydrogen Analyzer OH-900

ELTRA OH-900

(Please order PC, monitor, balance and consumables (starter-kit, anhydrone, sodium hydroxide, schuetze reagent) separately)

Measuring ranges at 1,000 mg sample weight

88100-2006	OH-900 1xO 0.1 - 200 ppm O
88100-2007	OH-900 2xH 0.01 - 50 ppm H | 20 - 1,000 ppm H
88100-2008	OH-900 2xO 0.1 - 200 ppm O | 10 ppm - 2 % O
88100-2009	OH-900 1xO 0.1 - 200 ppm O + 2xH 0.01 - 50 ppm H | 20 - 1,000 ppm H
88100-2010	OH-900 2xO 0.1 - 200 ppm O | 10 ppm - 2 % O + 2xH 0.01 - 50 ppm H | 20 - 1,000 ppm H

Further measuring range combinations on request

PC, Monitor, Balance

71015	Computer with dual core processor, 300 GB HDD, 4 GB RAM, Windows operating system, DVD-ROM, keyboard, mouse
71016	Monitor, TFT
88600-0002	Balance (resolution 0.0001 g)
71002	Printer

Accessories

22000-2001	Gas calibration unit (integrated in analyzer)
21000	Carrier gas purification furnace, without filling (integrated in analyzer, please order filling and quartz wool separately)
72080	Nitrogen regulator
88600-0003	Chiller

Consumables

Required consumables

88500-0008	Starter-kit for 500 analyses (400 graphite crucibles, 50 outer graphite crucibles, 200 inner graphite crucibles, 50 g glass wool, 50 g quartz wool)
90200	Anhydrone (magnesium perchlorate), 454 g
90210	Sodium hydroxide, 500 g
90270	Schuetze reagent, 100 g
90426-1001	Filling for carrier gas purification furnace

Optional consumables

90190	Graphite crucibles, 400 pieces
90180	Inner graphite crucibles, 100 pieces

Oxygen / Hydrogen Analyzer OH-900

90185	Outer graphite crucibles, 50 pieces
90331	Glass wool, 454 g
90330	Quartz wool, 50 g
91000-1001	Calibration standard - Copper, 100 pins, 1 g each ~500 ppm O
91100-1001	Calibration standard - Steel, 100 pins, 1 g each 25-40 ppm N
91205-1001	Calibration standard - Titanium, 100 pins, 0.1 g each 10-35 ppm H
91400-1001	Calibration standard - Steel, 100 pins, 1 g each 0.5 - 1 ppm H
92610	Tube of high vacuum grease
90870	Cooling agent, 0.5 l

Spare and Wear Parts

31250	Upper electrode
31360	Graphite tip
71010	Brush
71035	Cleaning brush / furnace brush
11062	Reagent tubes 160x16 mm, 2 pieces
11064	Reagent tubes 280x16 mm, 2 pieces
20040	Catalyst tube
31365	Graphite tip holder
77033	Circuit breaker 32 A