ONH3500

--Oxygen/Nitrogen/Hydrogen Analyzer

Instrument Introduction

NCS Testing Technology Co., Ltd. is a high-tech enterprise, which was established by China Iron & Steel Research Institute Group, and it has a strong technical force in production and development.

ONH3500 Oxygen/Nitrogen/Hydrogen Analyzer is a new product, and it is used for oxygen, nitrogen and hydrogen determination in ferrous and non-ferrous metals, rare earth materials, alloys, and some other inorganic materials.
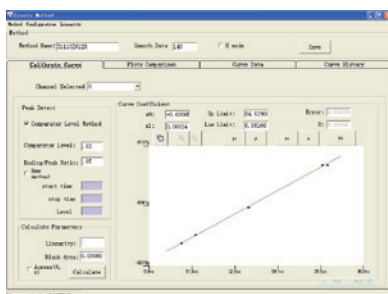
Instrument Principle:

1.Introduction:

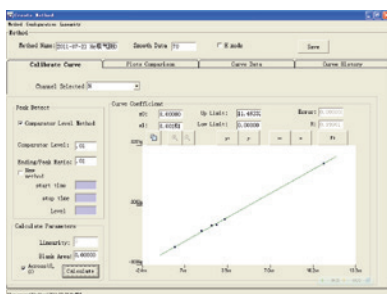Pulse heating inert gas fusion.

O (Oxygen): NDIR(Non Dispersive Infrared absorption);

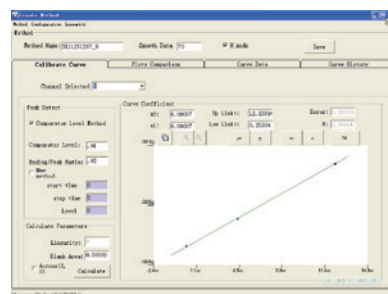N/H (Nitrogen/Hydrogen): TCD(Thermal Conductivity Detection).

2.Working Curve:
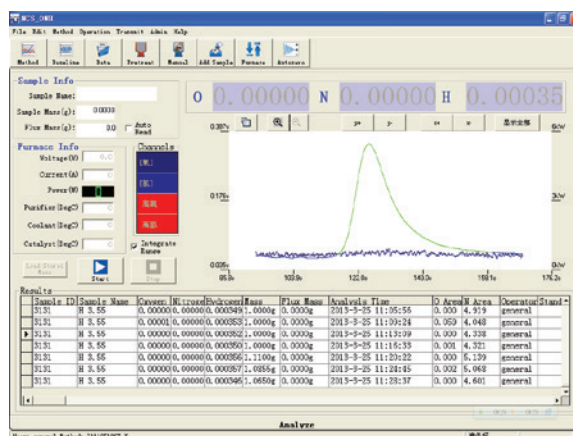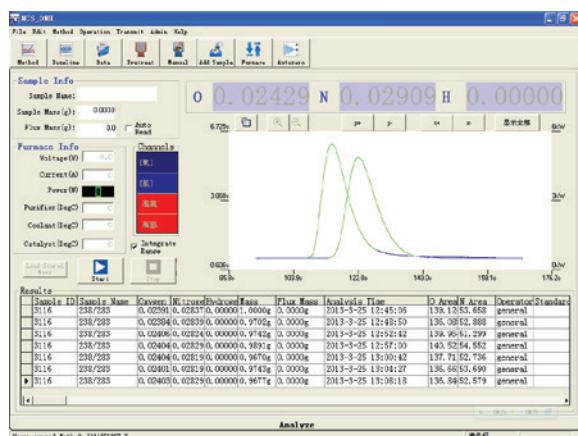

| Working curve for oxygen | Working curve for nitrogen | Working curve for hydrogen |

3. Main Analysis Window:

Technical features:

1. Range: Oxygen: Low Oxygen: 0.1ppm ~ 0.5%*; High Oxygen: 0.5% ~ 20%*

    Nitrogen: Low Nitrogen: 0.1ppm ~ 0.5%*; High Nitrogen: 0.5% ~ 50%*

    Hydrogen : Low Hydrogen: 0.1ppm ~ 200ppm* ; High Hydrogen: 200ppm ~ 5000ppm*

    Note: * the measurement range can be changed by changing the measurement quantity.

2. Sensitivity: Oxygen ,Nitrogen and Hydrogen:0.01ppm

3. Repeatability: Oxygen and Nitrogen:1ppm or ≤1%; Hydrogen: 0.2ppm or ≤2%

4. Sample mass: 1g (Sample mass can be changed according to the content)

5. Analysis time: about 3 min

6. Carrier gas: High purity helium for O/N, high purity nitrogen for H

7. Pneumatic gas: Nitrogen, industrial grade

8. Structure: Modular Structure, including analyzer, computer, electronic balance*, printer*, water circulate chillers*.

    Note: * is optional.

9. Detection system: Solid state Infrared detector is used for Oxygen. Thermo-conductivity detector is used for Nitrogen & Hydrogen.

    Infrared Cells: Two IR cells are installed in the analyzer. The length of each cell can be customized according to the content of samples

    Detector: Solid-state pyroelectric detector made in Germany

    Motor: Synchronous motor made in Swiss

    Source: Anti-oxide, stable IR emitter made in US

    Temperature control: Keep constant temperature in the whole infrared unit to make sure the temperature of detected gas to be stable and the results to be accurate

    Protecting gas: Infrared emitter and the detector are separated from the ambient by nitrogen, which can improve the stability and the accuracy

    Thermo-conductivity (TCD) detecting unit: Anti-oxide NTC thermistor

    Signal processing: Small current control technique is developed to make sure the thermistors can be used without carrier gas

    Reference gas circuit: Low flow control technique is used

10. Gas flow control: High sensitive and accurate electric flow control technique based on the low pressure difference is applied, and Anti-Overshoot System is applied

11. Pulse heating electrode furnace: Current:0-1500A, Power:8.5KVA, Temperature:Max 3500℃

12. Calibration: 1) Fast calibration 2) Normal calibration

13. Power: 220VAC±10%, 50±1Hz, current max. 50A (Max.10KW)

Parameters configuration:

1. Parameters of outgassing, analyzing, flux etc can be setup according to the sample characteristic.

2. Analyzing method with parameters and calibration curve can be established separately according to different samples and can be stored into the database.

Diagnostic function:

1) Cooling water temperature feedback and display

2) Voltage and current of the furnace feedback and display

3) Catalyst heaters temperature feedback and display

4) Valves action feedback and display

5) IR baseline and TCD baseline adjustment and display

6) Furnace adjustment

Software:

1) Analyzing results can be display quickly;

2) Data can be stored into the disk automatically after analyzing;

3) Releasing plot is drawn dynamically;

4) Sample mass can be transfer from balance into computer automatically;

5) Analyzing results are calculated by the calibration curve either in high content channel or in low content channel according to sample content, the selection will be done by software automatically.

Data processing:

1) ACCESS is used as database to manage and store the data.

2) Inquiring, statistic, printing can be done.

3) Data can be sorted by date or name.

4) Releasing plots can be analyzed.

Typical data:

content: O:88ppm N: 32ppm H: 5.8ppm			
Sample No.	O content	N content	H content
1	0.00878	0.00315	0.000591
2	0.00882	0.00319	0.000577
3	0.00865	0.00321	0.000592
4	0.00870	0.00316	0.000580
5	0.00900	0.00312	0.000558

Instrument configuration:

1) Electronic balance: Sartorius BSA124S.
2) Water circulate chillers: independent development.