

Optical Emission Spectrometer



Description:

Desktop emission spectrometer is designed for industrial analytical laboratories of mechanical engineering, metallurgical and metalworking facilities.

Spectrometer is capable to replace a whole laboratory for identification of metal and alloy chemistry, having drastic effects on final product quality.

Represents the best solution for our clients striving for express results, high technical characteristics reliability and high precision of complete element composition of metal products versus minimum costs for procurement, introduction and performance of the instrument.

Emission spectrometer embodies a number of technical solutions having certain advantages versus known analogs:

(1) Spark-gap oscillator is a new development, which maximum power and stability of discharge parameters exceed other arc oscillators. This feature allows determining concentration of higher number of chemical elements with high sensitivity and lower value of root-mean-square deviation.

(2) Application dry vacuum pump provides for rarefaction to a value below 1 mbar, which allow improving convergence and sensitivity drastically during determination of sulfur and phosphorus.

(3) Algorithm of random measurement error automatic minimization is used within one "Spot" of sparking which drastically improves convergence of analysis results.

(4) Optical unit implements layout of CCD matrix strips produced by TOSIBA (Japan), guaranteeing complete absence of "dead zones" in received spectrum.

(5) Software is perfectly suitable for both manual and automatic selection of analytical couples, as well as automatic adjustment of drift directly during investigation process, thus excluding "human factor" during analysis of results.

(6) Instrument design implements a unique technical solution, which allows achieving high temperature stability of spectrometer without application of active thermal stabilization system.

Brief technical characteristics:

Optical circuit:

- Paschen-Runge Circuit
- Rowland circle diameter: 330mm
- Reverse dispersion: 1.4nm/mm
- Diffraction grating: 2100 line marks/mm
- System of 7 multi-element CCD detectors with a total number of channels over 25 000 and channel size about 8 μ m
- Spectral range: 176-457 nm (non-vacuum option: 190-457 nm);
- Automatic profiling and drift recording.

Vacuum system:

- Dry type pre-evacuation pump (Germany);
- Computer-aided control;
- Computer-aided vacuum control.

Spectrum excitation system:

- Low-voltage-unipolar spark in argon atmosphere;
- Computer-aided control of discharge frequency, pulse voltage and energy;
- Automatic change of discharge parameters during transition from sparking to analysis;
- Opened desk design;
- Tungsten electrode;
- Accessories for analysis of wire and bar chemistry

Control & processing system:

- Built-in PC;
- Windows XP operating system;
- Output to monitor and printer;
- Optional connection to in-company network and Internet;
- Transfer of analysis results using USB-Drive.

Software:

- Graphical spectrum presentation;
- Database of spectrum lines for quality analysis;
- Automatic profiling and drift recording;
- Control of sparking process;
- Individual recording of spectrum background for each line
- Using of several spectrum lines and lines of comparison for each element;
- Automatic selection of the best comparison lines;
- Unique algorithm of result processing based on application of correlation analysis methods to reduce random and systematic errors;
- Automatic recording of inter-element additive and multiplication effects;
- Recording of base material dilution;
- One and two point recalibration.

Spectrometer overall dimensions, weight:

- Length x Width x Height, max. mm
670 x 500 x 400;
- Weight, max, Kg 65

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Spectrometer operating environment:

Spectrometer operates in premises satisfying requirements to laboratory conditions:

- Ambient air temperature: 10-35°C
- Atmospheric pressure: 84-106, 7 Kpa (630-800 mm pt. ct.)
- Relative humidity (at T=25°C): max. 80%
- Electricity supply: (220+20-33)B, (50 \pm 2) Hz

For normal spectrometer performance, the desk with spectrometer has to be mounted on a rigid floor inside premises with low vibration levels.

Avoid direct sun rays on spectrometer surface.

Do not place electric heaters nearby and avoid draught.

Support & Services

HPLC Servicing, Validation, Trainings and Preventive Maintenance :

- HPLC Servicing** :We have team of service engineers who can attend to any make of HPLC promptly @the most affordable cost.
- Trainings** :We also take up preventive Maintenance to reduce downtime of HPLC's
- AMC's/CMC** :We offer user training both in-House and at customer sites on HPLC principles, operations, troubleshooting.
- Validations** :We have protocols for carrying out periodic Validations as per GLP/GMP/USFDA norms
- Instruments** :We offer instruments / Renting Services Modules like pumps, detector etc. on Rent.



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2. Improving quality of life by offering YOGA Training courses, Work shops / Seminars etc.
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Reach us @



HPLC Solutions MultipleLabs Analytical Bio-Med Analytical Distributors Analytical Foundation (Trust)

Corporate & Regd. Office:
Analytical House, # E67 & E68,
Ravi Park, Vasna Road, Baroda,
Gujarat 390 015. INDIA

T: +91 265 2253620
+91 265 2252839
+91 265 2252370
F: +91 265 2254395

E: info@hplctechnologies.com
info@multiplelabs.com
info@analyticalgroup.net
info@analyticalbiomed.com

W: www.ais-india.com
www.analyticalgroup.net
www.hplctechnologies.com
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