Skyray Instruments

ICP-3000

Inductively Coupled Plasma Optical Emission Spectrometer

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ICP-3000 Inductively Coupled Plasma Optical Emission Spectrometer is powerful simultaneous full—spectrum direct-reading spectrometer designed to trace elemental analysis in various samples with excellent analytical precision and accuracy. ICP2060 has wide wavelength r ange of 190nm to 800nm with 2400 line grating.
The instrument features superb optical system, full automation as well as powerful analysis software with auto-matching.

Application fields

- Metallurgical industry: analyze As, Bi, Pb, Sb, Sn and other elements
- Geological mineral industry: analyze Ca, Mg, Na, Fe, Cu, Mn, Zn, Co, Ni, Au, Ag and other elements in the rock samples
- Biological and chemical industries
- Petrochemical and metallurgic industries: Analysis of 30+ elements in crude oils- Fe, Na, Mg, Ni, V,
- Ca, Pb, Mo, Mn, Cr, Co, Ba, As, etc.
  Pharmaceutical, Health and Food safety

Features

- Advanced CID detector and Full-frame Imaging entire ICP-OES spectrum can be analyzed(165-900 nm)
- Fast analysis, analyzing 5-8 elements per minute
- Intuitive Software controls all parts of the instrument
- Fast auto-matching
- Automatic cooling water system

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Complete automation
ICP-3000 features full PC-Control and automation

Peristaltic pump
High precision 12 roller 4 channel peristaltic pump provides smooth and stable sample introduction

Automatic - gas flow control
Advanced mass flow controller (MFC) controls carrier gas, plasma gas and auxiliary gas and ensures the stability of the sample introduction system and stable light source.

Precise wavelength positioning
Precise automatic wavelength calibration algorithm completes the measurement without additional peak calibrations, ensuring an accurate measurement at minimum measurement time.

Fast, accurate auto-matching
The load terminals employs the full-automatic matching technology with fast matching and high precision while achieving maximum power output

Ultra-fast analysis speed
ICP3000 can set suitable integration time for all analytical lines in one exposure to achieve optimal measurement, or acquire the intensity integral value in the end of the exposure to enable faster analysis

Stable solid-state RF power
Compact Solid-state RF power delivers reliable performance with power stability and safety

Powerful software analysis function
Easy to use ICP3000 advanced software features qualitative, semi-quantitative and quantitative analysis, intelligent optimization, flexible full-spectrum research, strong offline reprocessing, intelligence background correction and interference cancellation algorithms

Sample introduction system
Sample introduction system is equipped with several nebulizers/spray chambers, optional high solids nebulizer and hydrogen fluoride-resistant are available as special order items . Optional Auto sampler simplifies analysis.

Superb optical system
Echelle-prism polychromator maximizes the flux while enabling excellent spectral resolution. Ultra-low stray light design reduces background interference and improves the detection limits.

Excellent performance detector
Advanced CID detector and Full-frame Imaging c apture entire ICP-OES spectrum can be analyzed (165-900 nm).Excellent linear dynamic range allows measurement of weak emission signals together with strong emission signals while providing flexibility to choose the ideal wavelength




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Spectrometer Specifications

Grating: 52.67 lp/mm, 64°blaze angle, Zerodur® substrate (produced by SCHOTT-Germany) with near zero thermal expansion coefficient

Prism: Ultra-pure Corning UV fused silica, transmittance 99.6% at 170nm.

Wavelength range: standard 175nm-900nm, optional DUV optical components extend wavelength range to 165nm 900nm

Focal Length: 430 mm

Resolution: 0.0068nm@200nm

Optical Chamber: Precise thermostat 35±0.1 C;

N purge: normal purge 2L/min, fast purge 4L/min

Stray light: Equivalent background concentration of 10000ppm Ca solution

RF Generator

Input/Output Power: AC 220V-input,
20A 700-1600W-output

Stability: Frequency- < 0.05%, output power- <0.1%

Working Frequency: 27.12MHz

Accuracy: 2W

Detector Specifications

Detector Type: Charge injection detector (CID)

Pixel Size: 27 x 27, Random Access Integration (RAI)

Read mode: Full frame readout (FF), Random Access Integration (RAI) with non-destructive read (NDRO)

Linear dynamic range 10^8

Wavelength response range: 165nm-1000nm

Quantum efficiency: No coating-up to 35% within 200nm UV region

Detector Cooling: High efficiency triple stage thermoelectric cooling device maintains the detector at -45C

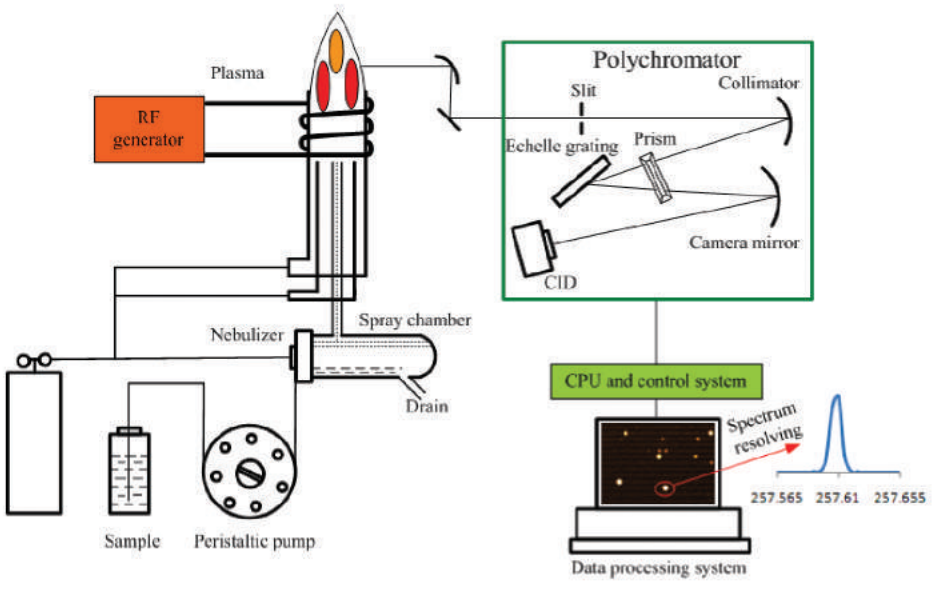
Other Specifications

Analysis Speed: Single CID readout time- 2ms, analysis for all elements can be achieved within one minute

Detection Limits: 1ppb-10ppb for most elements

Stability: relative standard deviation RSD <0.5% (<1% within 2 Hours)

Size: 130cm x 84cm x 74cm



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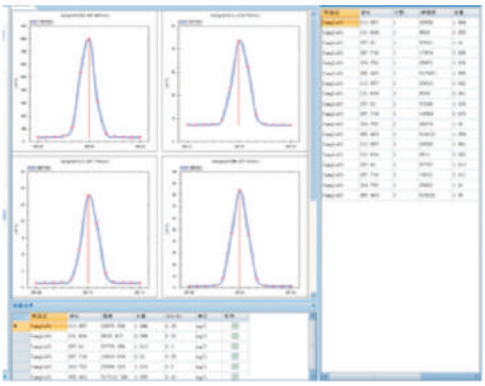
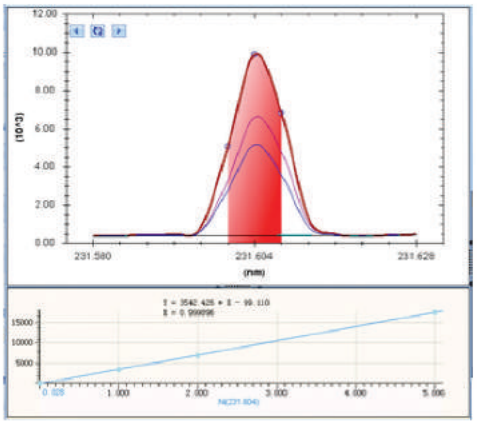
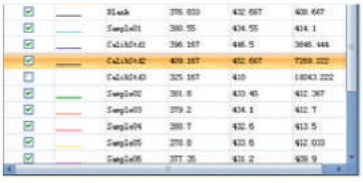
Analysis Software

Specifying individual pixel or subarray region for quantitative analysis



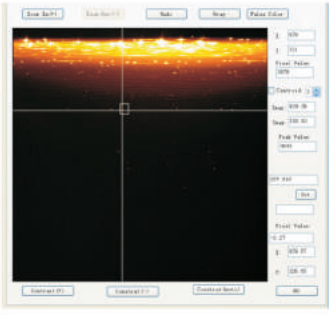
Methods and data set management, re-processing, auto or manual real-time background correction

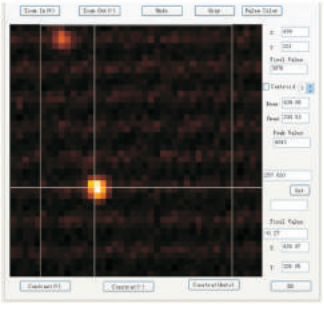


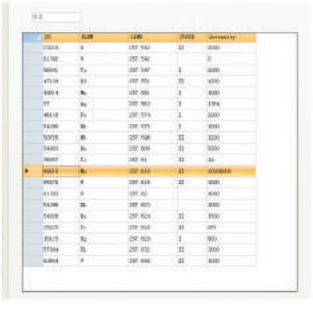


Full frame spectrum mode

Qualitative & semi-quantitative analysis of the elements-showing complete emission spectra, intensity, auto-peak identification and interactive spectral library







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- Spectroscopy
- Chromatography
- Mass Spectrometry

Skyray Instruments specializes in the R&D, manufacturing and sales of analytical and measuring instruments in Spectroscopy, Chromatography and Mass Spectroscopy fields. Our Products include X-ray Fluorescence Spectrometry, Atomic Absorption Spectrometry, Gas Chromatography, Inductively Coupled Plasma Spectrometry, Mass Spectrometry and many others

Skyray has been providing customers around the world with reliable and affordable Scientific Instruments for more than 20 years