

Spectrometer for Foundry Enterprises



AI Overview

A foundry spectrometer is an optical emission spectrometer (OES) designed for rapid, precise elemental analysis of ferrous and non-ferrous metals in foundry environments. Foundry spectrometers are essential tools for quality control, melt monitoring, and material verification in metal production. They operate on the principle of atomic emission, where a high-energy spark excites atoms in a metal sample, causing them to emit light at element-specific wavelengths. The emitted light is separated by an optical system, and detectors measure the intensity of each spectral line. Proprietary software then converts these signals into precise elemental concentrations using calibration curves.

Key Applications

- Scrap Reception:** Identifying unknown raw materials and preventing contamination from tramp elements.
- Furnace Control:** Guiding alloying additions in induction furnaces or converters before tapping.
- Final Verification:** Certifying chemical composition of castings against international standards such as AISI, ASTM, DIN, EN, BS, JIS, and GOST.

Foundry spectrometers are particularly critical for measuring light elements like Carbon, Phosphorus, Sulfur, and Nitrogen at parts-per-million levels, which XRF cannot reliably detect.

Features of Modern Foundry Spectrometers

- High-speed analysis:** Many models provide results in under 20–30 seconds for main alloying elements.
- Multi-element coverage:** Capable of analyzing a wide range of elements including Ni, Sn, Cu, Mn, Cr, Mo, V, and rare-earth elements like Ce for steel refinement.
- Compact and durable design:** Instruments like the FOUNDRY-MASTER Smart 2 fit small labs or shop floors and are resistant to electromagnetic interference.
- Intuitive software:** Systems such as SpArcfire allow non-specialist operators to perform analyses with minimal training.
- Calibration and standardization:** Features like iCAL 2.0 maintain consistent calibration across samples.
- Global material database:** Access to millions of records for cross-referencing grades and specifications.

Sample Preparation

Accurate analysis r...

Article Content

Optical emission spectrometer

Find out all of the information about the Hitachi High-Tech Analytical Science product: optical emission spectrometer FOUNDRY-MASTER Smart 2. Contact a

Foundry spectrometer

Find your foundry spectrometer easily amongst the 8 products from the leading brands (Hitachi, SPECTRO, Belec, ...) on DirectIndustry, the industry specialist

Spectrochemical Analysis | Metal Casting Resources

Spectrochemical analysis is used to determine the arrangement of atoms and electrons within molecules of chemical compounds. Optical emission

Spectrometer: The Quality Gatekeeper in the daily production of a

In the daily production of foundries, the application of spectrometers is mainly concentrated in three core areas, each directly determining product quality and production efficiency.

Spark Spectrometer | Process Control | Metal Foundry

Hitachi High-Tech offers a range of spark spectrometers/OES analyzers for process control and to ensure the right melt chemistry within a metal foundry.

Foundry | GNR S3 Mini Lab 300 Optical Emission Spectrometer

High-precision spectrometer for foundries offering fast and accurate metal composition analysis. Ideal for cast iron, steel, and alloy quality control.

Laboratory metals analyser

The FOUNDRY-MASTER Pro is the ideal solution for metal producing and processing industries who are looking for wide wavelength range precise elements identification. This optical emission

Analyses for Secondary Producers and Foundries

SPECTRO provides a range of metal analyzers, offering tailored solutions for secondary producers and foundries to ensure accurate and efficient metal analysis.

Elemental Analysis Solutions & Analytical Instruments | SPECTRO

Ideal for routine analysis and precise analysis of all incoming/outgoing materials and for process control (including nitrogen) in foundries — covering 10 matrices, 65 methods and 59 elements

Spectrometer: The Quality Gatekeeper in the daily production of a foundry

For foundries, the value of a spectrometer is never just that of a cold testing device, but rather a quality assurance system that runs through the entire production process, an "invisible

Stainless Foundry

STAINLESS FOUNDRY & ENGINEERING, INC. 5110 North 35th Street Milwaukee, Wisconsin 53209-5381 U.S.A. Telephone (414) 462-7400 - FAX (414) 462-7303 A

Used Foundry Spectrometers For Metal Analysis | We Buy & Sell

We are a dealer specializing in second hand optical emission spectrometers (OES) used for base metal analysis of primary metal and secondary metal used in ferrous and non-ferrous foundry and die

PROCESS / QUALITY CONTROL

The FOUNDRY-MASTER Smart is the ideal solution for the metal production and processing industry, providing cost-effective, reliable analysis. This new generation optical emission spectrometer offers

FOUNDRIES

Built on advanced CMOS technology, this versatile and powerful spectrometer combines flexibility with performance. In fact, it rivals traditional photomultiplier-based systems, making it a cost-effective yet

Analyses for Secondary Producers and Foundries

Advanced Spectrometers for the Elemental Analysis in Foundry Applications

Ultimate quality control. No compromise.

The FOUNDRY-MASTER Pro2 optical emission spectrometer is a metals analyser engineered to deliver superior analysis at every stage, without compromising your productivity. Thanks to its near constant

Foundry | Spectrocheck | Foundry Spectrometer for Metal Analysis ...

High-precision spectrometer for foundries offering fast and accurate metal composition analysis. Ideal for cast iron, steel, and alloy quality control.

Optical emission spectrometer

The FOUNDRY-MASTER Smart is the ideal solution for the metal production and processing industry, providing cost-effective, reliable analysis. This new

News Archive

Browse and search for NVIDIA latest news and archive news by month, year or category.

Spectrometers for Steel Testing in Steel Industry Plants

Enhance steel testing with OES Spectrometer. It ensures precise analysis of carbon, nitrogen, oxygen & fine wire, foil, thin analysis in steel plants,

FOUNDRY-MASTER Smart 2 | Optical Emission Spectrometer

Engineered for value, ease of use, and backed by application-driven support. The FOUNDRY-MASTER Smart 2 delivers lab-grade precision for ferrous and non-ferrous metal analysis

FOUNDRY-MASTER COMPACT

The FOUNDRY-MASTER COMPACT is the ideal cost-effective solution for a range of analytical applications where good repeatability and high levels of accuracy are required.

FOUNDRY-MASTER Smart Optical Emission

The FOUNDRY-MASTER Smart Optical Emission Spectrometer provides seamless quality control for the metals industry at multiple stages of production.

FOUNDRYLAB: Fully-Automatic Quality Inspection In

Use Sample preparation and analysis of cast iron and steel foundry samples by grinding and optical emission spectroscopy. The FoundryLab is the fully

2026 Foundry Guide: Selecting Optical Emission Spectrometers

Selecting an Optical Emission Spectrometer fundamentally shapes a foundry quality architecture. OES remains the undisputed technology for delivering rapid, multi-elemental analysis

Contact Us

For more information, pricing, or custom solutions, please contact us:

Website: <https://www.introspec.co.za>

Email: info@introspec.co.za

Phone: +27 73 849 2156

Address: 25 Riebeek Street, Cape Town, 8001, South Africa

This document is for informational purposes only. Specifications subject to change without notice.

