Nickel Alloy Material Spectrometer

Article Overview

Nickel-based alloy spectrometers are specialized instruments used to accurately determine the elemental composition of nickel alloys, employing techniques such as optical emission spectrometry (OES), X-ray fluorescence (XRF), and microwave plasma atomic emission spectrometry (MP-AES).

Optical Emission Spectrometry (OES)

OES is widely used for precise, rapid, and bulk analysis of nickel alloys. Instruments like the Thermo Scientific ARL iSpark 8860 and SPECTROMAXx LMX10 utilize an arc or spark source to excite atoms in the sample, producing characteristic emission spectra for each element. These spectrometers offer high resolution, excellent repeatability, and trace element detection, making them suitable for incoming material control, process quality control, and final product certification in industries such as aerospace, petrochemical, and nuclear applications . Advanced OES systems employ time-resolved spectroscopy to optimize signal acquisition and minimize matrix effects, improving detection limits and precision .

X-Ray Fluorescence (XRF)

XRF spectrometers, such as those used in METAL-QUANT systems, provide a non-destructive method for analyzing nickel alloys. XRF works by irradiating the sample with X-rays, causing inner-shell electron transitions that emit characteristic X-ray energies. This technique is particularly useful for rapid, multi-element analysis without extensive sample preparation and is widely applied in nuclear, chemical, and metallurgical industries . XRF can analyze powders, solids, and solutions, making it...

Article Content

Oct 09, 2025

Material identification of metals using F-OES

In the analysis of metallic materials, spark OES is superior to other, often significantly more expensive

Jan 15, 2026

E1834 Standard Test Method for Analysis of Nickel Alloys by Graphite ...

Significance and Use 5.1 This test method is primarily intended to test material for compliance with specifications such

Sep 06, 2025

Material analysis

Material report The results of the spectrometer analysis are processed into a materials report. This report is delivered by default

Feb 24, 2026

Alloy Analysis with Skyray XRF Spectrometers

Zinc Alloys -galvanized alloys with high Copper content, Brass being the most popular Zinc alloy Precious Metals - alloys based on

Sep 02, 2025

Nickel alloys are widely used in high-temperature, high-corrosion, and ...

For nickel alloy testing and analysis, Gold Plus XL provides the performance and reliability required for accurate multi-element nickel

Nov 06, 2025

Analytical Chemistry Standards

ASTM''s analytical chemistry standards are instrumental primarily in chemical analysis of various metals, alloys, and ores. These

Feb 02, 2026

Determination Method of High Content of Nickel in Ferronickel and ...

Abstract and Figures The atomic absorption spectrometric method was applied to the determination of the high

Dec 21, 2025

Determination and Identification of Nickel (II) Spectroscopy in Alloy ...

Determination and Identification of Nickel (II) Spectroscopy in Alloy Samples Using Chromogenic Reagent (HPEDN)

Dec 10, 2025

Quick guide Spark-Optical Emission Spectrometry (OES)

Emission Spectrometry (OES) Easy elemental analysis of metals and alloys in less than • Ideal for process control in metal

May 05, 2026

ASTM E2823 Standard Test Method for Analysis of Nickel Alloys by ...

ASTM E2823 is a performance-based test method standard for chemical analysis of nickel alloys by inductively

Aug 11, 2025

ASTM E3047 Nickel Alloy Spark AES Testing | In-Situ Ni Alloy ...

ASTM E3047 describes a standard test method for the chemical analysis of nickel alloys using spark atomic emission spectrometry

Sep 05, 2025

E3047 Standard Test Method for Analysis of Nickel Alloys by Spark ...

5.1 This test method for the chemical analysis of nickel alloys is primarily intended to test material for compliance with

Oct 06, 2025

ASTM E2594-20

Standard Test Method for Analysis of Nickel Alloys by Inductively Coupled Plasma Atomic Emission Spectrometry (Performance

Aug 31, 2025

Analysis of Nickel Using the SPECTROMAXx Metal Analyzer

Application Brief Analysis of Nickel and its Alloys The SPECTROMAXx enables the accurate analysis of nickel and its alloys. The

Apr 19, 2026

E1473 Standard Test Methods for Chemical Analysis of Nickel, Cobalt ...

Significance and Use 4.1 These test methods for the chemical analysis of metals and alloys are primarily intended as

Aug 20, 2025

Analytical Chemistry Standards

E2823-25 Standard Test Method for Analysis of Nickel Alloys by Inductively Coupled Plasma Mass Spectrometry (Performance

Aug 01, 2025

Optical Emission Spectrometry

Calibrations for nickel and cobalt alloys For nickel alloys analysis, the following calibrations are available:

Nov 20, 2025

Nickel, atomic absorption spectrometric, direct

2. Summary of method Nickel is determined by atomic absorption spectrometry by direct aspiration of the sample into an air

Mar 04, 2026

Nickel Alloy Certified Reference Material

Whether you''re analyzing for high-temperature strength, corrosion resistance, or mechanical properties, our collection encompasses

Jul 14, 2026

Analysis-of-Nickel-Metal-Alloys-by-LA-ICP-MS

Introduction The coupling of ICP-MS, mass spectrometry with inductively coupled plasma and laser ablation allows the

Jul 16, 2026

Nickel Alloys

Nickel alloys are versatile materials known for their corrosion resistance, magnetic properties, and applications in transformers,

Dec 03, 2025

Cupronickel

Cupronickel or copper–nickel (CuNi) is an alloy of copper with nickel, usually along with small quantities of

Mar 20, 2026

Elemental Analysis of Nickel Using the SPECTROMAXx

This application report describes the elemental analysis of nickel and its alloys using the SPECTROMAXx

Jan 08, 2026

Guide to Nickel Alloys: Exploring Properties, Applications, Advantages

Discover nickel alloys'' unique properties, versatile applications and industry advantages in our comprehensive guide.

Nov 11, 2025

Optical Emission Spectrometry

Analysis of nickel and cobalt alloys with ARL iSpark 8860 Optical Emission Spectrometer Since 1934, our company has set the

Apr 30, 2026

SPECTROMAXx Metal Analyzer | SPECTRO Analytical Instruments

From incoming materials to in-process testing to final inspection for outgoing quality, metal producing and fabricating plants demand

May 13, 2026

Ni Analysis by Atomic Absorption

reducing the oxide using carbon. Ni is a silver-white metal with abundant malleability and ductility, however, since it is extremely

Jul 02, 2026

Standard Test Method for Analysis of Nickel Alloys by Inductively ...

5.1 This test method for the chemical analysis of nickel and nickel alloys is primarily intended to test material for

Apr 03, 2026

Standard Test Method for Analysis of Ni-Base Alloys by Wavelength ...

Scope 1.1 This test method covers the analysis of Ni-base alloys by wavelength dispersive X-ray Fluorescence

Oct 26, 2025

Standard Test Method for Analysis of Nickel Alloys by Inductively ...

1.1 This test method describes the inductively coupled plasma mass spectrometric analysis of nickel and nickel allys,

Dec 12, 2025

Analysis of Nickel Ore by ICP-OES With Dual-Side-On Plasma

6 Analysis of Nickel Ore by ICP-OES With Dual-Side-On Plasma Observation Twelve commercially available nickel laterite certified

Feb 03, 2026

A Comparative Guide to Analytical Methods for Nickel Determination

This guide provides a detailed comparison of common analytical methods for the determination of nickel, tailored for researchers,

Jun 17, 2026

New ASTM Standard on Analysis of Nickel Alloys Published

Test Method Covers Inductively Coupled Plasma Atomic Emission Spectrometry A new ASTM International standard

Apr 06, 2026

Laser Ablation ICP MS for Production Control of Nickel Alloys

Application Introduction Special Metals Corporation purchased the Inco Alloys group of companies in 1998 to become world leader in

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