

Zinc Alloy Measurement Using Spectrometer

Article Overview

Zinc content in alloys can be accurately determined using atomic absorption spectroscopy (AAS) or energy-dispersive X-ray fluorescence (EDXRF) with proper sample preparation and calibration.

Sample Preparation

For zinc alloys, the sample must first be dissolved or atomized depending on the spectrometer type. In AAS, the alloy is typically dissolved in acid to form a solution suitable for analysis, while in EDXRF, solid samples can often be analyzed directly or after preconcentration on a solid phase. For accurate results, the sample may require dilution to bring the zinc concentration within the instrument's linear range.

Instrumentation and Measurement

Atomic Absorption Spectroscopy (AAS):

- A zinc cathode lamp emits light at a characteristic wavelength (e.g., 213.9 nm) that passes through the atomized sample.
- The sample is atomized in a flame or graphite furnace, and zinc atoms absorb light proportional to their concentration.
- The absorbance is measured by a detector and compared to a standard calibration curve prepared from known zinc concentrations.
- Interferences, such as chlorides forming zinc chlorides, can affect sensitivity, so t...

Article Content

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Abstract An X-ray fluorescence (XRF) technique has been developed for analysis of zinc-aluminum-magnesium

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Standard Test Methods for Chemical Analysis of Zinc and Zinc Alloys

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

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Application and Protocols for the Determination of Zinc by Atomic ...

Atomic Absorption Spectrometry (AAS) stands as a robust, sensitive, and widely adopted analytical technique for zinc determination

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ISO 3815-1:2005 (en), Zinc and zinc alloys — Part 1: Analysis of solid ...

This part of ISO 3815 specifies analytical methods for determining the chemical composition of zinc and zinc alloys in accordance

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A spectrophotometric method for the determination of zinc, copper,

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Analysis of Zinc Using the SPECTROMAXx Metal Analyzer

This application report describes the elemental analysis of zinc and its alloys using the SPECTROMAXx metal analyzer.

Aug 08, 2025

Analytical Methods for Iron and Zinc Quantification in Plant Samples

Analytical techniques such as colorimetry, atomic absorption spectrophotometry (AAS), inductively coupled plasma

Mar 11, 2026

Zinc Testing Methods, An Overview of Common Analytical Techniques

In spectrophotometry, a sample containing zinc is placed in a spectrophotometer and a beam of light at a specific

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