

# X-ray fluorescence spectrometry for elemental determination

## Overview

Since its commercialization in the 1950s, X-ray fluorescence (XRF) spectrometry has become the dominant elemental technique of choice for determining low parts-per-million (ppm) to percentage concentration levels in solid samples, including metals, alloys, ores, rocks, soils . Since its commercialization in the 1950s, X-ray fluorescence (XRF) spectrometry has become the dominant elemental technique of choice for determining low parts-per-million (ppm) to percentage concentration levels in solid samples, including metals, alloys, ores, rocks, soils . 5. 1 X-ray fluorescence spectrometry can provide an accurate determination of metallic and many non-metallic elements in a wide variety of solid and liquid materials. This guide covers the information that should be included in an X-ray spectrometric analytical method and provides direction to the. X-ray fluorescence (XRF) is a fast, non-destructive analytical technique used to identify and quantify the elemental composition of a material. Using XRF, researchers can achieve rapid material characterization and analysis to ensure product chemistry specifications are met—and our XRF instruments provide the fast and. Some common elements are not listed in this method because they are considered "light" elements that cannot be detected by field portable x-ray fluorescence (FPXRF). These light elements are: lithium, beryllium, sodium, magnesium, aluminum, silicon, and phosphorus. Most of the analytes listed below.



## Article Content

Oct 09, 2025

X-Ray Fluorescence (XRF): Theory, Practice and Applications

Discover how X-ray fluorescence (XRF) works, from its principles to real-world applications in elemental analysis,

Jan 08, 2026

X-Ray Fluorescence Spectroscopy: Introduction, Latest ...

One of the most popular and straightforward methods for non-destructive multi-element material analysis is X-ray

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Experimental methods in chemical engineering: X-ray fluorescence

Every element has a characteristic fluorescence, which depends on the element and the electrons in the orbitals that are ejected and

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Standard Guide for Elemental Analysis by Wavelength Dispersive X-Ray ...

5.1 X-ray fluorescence spectrometry can provide an accurate determination of metallic and many non-metallic

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Recent topics in X-ray fluorescence spectrometry

X-ray fluorescence spectrometry (XRF) is a powerful tool for elemental analysis in various field samples. XRF has

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The Basics of Elemental Analysis with XRF – Q& A

XRF is an elemental analysis technique that can quantify many elements in a sample. The characteristic X-ray photons

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X-Ray Fluorescence Spectroscopy: Introduction, Latest ...

XRF spectroscopy is the most effective method for analyzing materials' qualitative and quantitative composition. There

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## Standard Guide for Elemental Analysis by Wavelength Dispersive X

This guide covers the information that should be included in an X-ray spectrometric analytical method and provides

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## X-ray fluorescence spectroscopy for simplified elemental analysis

Unlike other measurement techniques, XRF provides instantaneous measurements without any sample preparation.

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## X-Ray Fluorescence (XRF)

Applications of X-Ray Fluorescence XRF is a versatile analytical technique that finds application across an extensive

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## Principle of XRF Analysis : Hitachi High-Tech Corporation

These fluorescent X-rays possess energies that are characteristic to each type of element enabling qualitative analysis by using

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## Method 6200: Field Portable X-Ray Fluorescence Spectrometry for the ...

Radiation from one or more radioisotope sources or an electrically excited x-ray tube is used to generate characteristic x-ray

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## X-ray fluorescence (XRF) in the investigation of the composition of ...

Abstract and Figures X-ray fluorescence (XRF) spectrometry is a well-known, well-established and widely applied

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## X-Ray Fluorescence | XRF | Thermo Fisher Scientific

X-ray fluorescence spectroscopy is designed for rapid materials characterization, providing nondestructive elemental analysis for a

May 12, 2026

## (PDF) X-ray Fluorescence Spectrometry

Abstract X-ray spectrometry techniques are powerful tools for the elemental, chemical, crystalline, structural and

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## X-Ray Fluorescence

X-ray fluorescence (XRF) is defined as the emission of characteristic secondary X-rays from a sample that has been excited by high

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## X-Ray Fluorescence Spectroscopy

The elemental composition of materials is determined using XRF (X-ray fluorescence). By detecting the fluorescence (or secondary)

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## XRF Analysis & Principle Explained | Non-Destructive

Learn how XRF works, the X-ray fluorescence principle, and why sample preparation is key to accurate

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## Basic Concepts of X-ray Fluorescence

Principles of X-ray Energy Spectroscopy X-ray Energy Spectroscopy (XES) is a technique for rapid, simultaneous multi-element

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## X-ray Fluorescence Spectrometry

X-ray fluorescence spectrometry is well established and widely used for multi-elemental determination as a rapid, simple, and easy

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Field portable X-ray fluorescence (FP-XRF) as powerful, rapid, non ...

FP-XRF (field portable X-Ray Fluorescence Spectroscopy) is a powerful tool for element determination, both

Dec 08, 2025

## Total Reflection X-ray Fluorescence Spectrometry: A Comprehensive ...

Abstract Total reflection X-ray fluorescence spectrometry (TXRF) is a pivotal technique in modern atomic

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## X-Ray Fluorescence Spectroscopy

X-ray fluorescence (XRF) is defined as a method for qualitative and quantitative analysis of elements, where secondary X-rays

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X-ray fluorescence spectrometry for environmental analysis: Basic ...

X-ray fluorescence spectrometry (XRF) is a well-established analytical atomic technique for qualitative and quantitative

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Experimental methods in chemical engineering: X-ray fluorescence

X-ray fluorescence (XRF) is a non-destructive spectrometric technique to detect elements with an atomic number

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X-Ray Fluorescence Spectroscopy

X-Ray Fluorescence Spectrometry X-ray fluorescence spectroscopy (XRF) is based on the excitation of atoms of the material under

Jul 31, 2025

Metals Analysis by X-ray Fluorescence

X-ray Fluorescence Spectroscopy Learning Outcomes At the end of this assignment students will be able to: Describe the process of

Apr 06, 2026

The Basics of Elemental Analysis with XRF – Q& A

X-ray fluorescence spectroscopy (XRF) is a powerful analytical technique that provides both qualitative and

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Elemental Analysis by X-Ray Fluorescence Spectroscopy

Elemental analysis by X-ray fluorescence spectroscopy is based on the principle that primary x-rays from a target tube cause the

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Element Analysis Based on Energy-Dispersive X-Ray Fluorescence

Abstract Energy-dispersive X-ray fluorescence (EDXRF) spectrometry is a nondestructive, rapid, multielement, highly

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Method 6200: Field Portable X-Ray Fluorescence Spectrometry for the ...

FIELD PORTABLE X-RAY FLUORESCENCE SPECTROMETRY FOR THE DETERMINATION  
OF ELEMENTAL

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What is X-ray Fluorescence (XRF)

What is X-ray Fluorescence? X-ray Fluorescence (XRF) is an analytical technique that  
uses the interaction of X-rays with a material

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X-ray fluorescence spectroscopy for simplified elemental analysis

Kiruba Catherine Vincent explains how X-ray fluorescence spectroscopy can be used  
to characterize photovoltaic

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