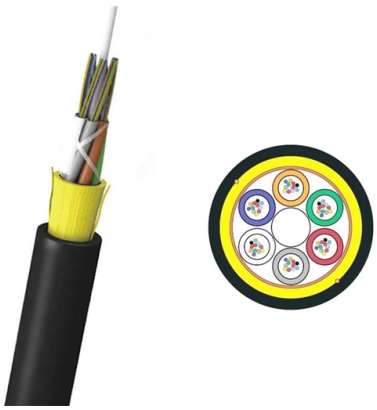
Handheld Mining Spectrometer



Overview

Bruker''s portable mineral testers enable the fast & accurate elemental analysis of mineral''s on-site, even in remote mining locations.

Key Takeaways

Handheld mining spectrometers are portable XRF or LIBS devices that provide rapid, on-site elemental analysis of minerals, ores, and soils, enabling real-time decision-making in exploration and mining operations.

Overview and Technology

Handheld mining spectrometers primarily use X-ray fluorescence (XRF) or laser-induced breakdown spectroscopy (LIBS) to analyze the elemental composition of materials directly in the field. XRF-based devices, such as the Bruker TITAN, SPECTRO xSORT, and Thermo Fisher Niton XL5 Plus, allow non-destructive testing of rocks, drill cores, soils, and sediments, providing near-instant results without the need for laboratory analysis.

LIB

S analyzers, like the SciAps Z Series, are particularly effective for detecting light elements such as lithium, beryllium, and carbon, which are challenging for traditional XRF.

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Key Features

Portability and Rugged Design: Devices are built to withstand harsh field conditions, including extreme temperatures, dust, and moisture. Many models are lightweight and ergonomically designed for extended use.

Rapid On-

Site Analysis: Handheld spectrometers provide immediate elemental data, supporting exploration, grade control, and ore characterization without waiting for lab results. Wide Elemental Range: Modern analyzers can detect elements from magnesium to uranium, including rare earth elements (REEs), heavy metals, and trace elements. Advanced Detectors and Calibration: Devices feature high-sensitivity detectors (Si-PIN or SDD) and matrix-matched calibrations for accurate quantification, even for light elements.

Data Management and Connectivity: Many handheld spectrometers include onboard storage, GPS tagging, Bluetooth, and USB connectivity for seamless data collection and export.

Applications in Mining

Exploration and Geological Mapping: Identify geochemical anomalies, lithological variations, and mineralized zones in real time. Ore Grade Control: Rapidly distinguish ore from waste, optimize drill locations, and monitor extraction processes. Environmental Monitoring: Screen soils, sediments, and tailings for heavy metals and toxic elements to ensure compliance with environmental regulations.

Rare Earth Element Analysis: Detect and quantify REEs in complex matrices, aiding in resource evaluation and processing decisions.

Popular Models

Bruker TITA

N: Rugged XRF analyzer with graphene window for light element sensitivity, suitable for field exploration.

SPECTR

O xSORT: Compact, ergonomic XRF device with fast, lab-quality screening and flexible calibration options. Thermo Fisher Niton XL5 Plus: High-power XRF with GPS integration for mapping and rapid geochemical analysis.

Sci

Aps X and Z Series: Handheld XRF and LIBS analyzers offering lab-quality results, including light element detection and REE analysis. Portable Metal Analyzers (e.g., JITAI9201): Lightweight, high-sensitivity XRF devices for precise metal alloy and impurity analysis in the field.

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Advantages

Time and Cost Efficiency: Reduces reliance on external labs, shortens exploration timelines, and minimizes unnecessary drilling.

Real-

Time Decision Making: Immediate results allow geologists and mining engineers to adjust sampling strategies and optimize operations on-site.

Non-

Destructive Testing: Preserves samples for further analysis or archival purposes. Handheld mining spectrometers have become essential tools in modern exploration and mining, combining portability, speed, and analytical precision to enhance operational efficiency and resource evaluation.

Article Content

Portable Mineral Testers for Mining and Exploration

Bruker''s portable mineral testers enable the fast & accurate elemental analysis of mineral''s on-site, even in remote mining locations.

Handheld XRF Spectrometers for Elemental Analysis

In mineral exploration and mining, fast access to reliable geochemical data helps guide decisions in the field. X-Ray Fluorescence (XRF)-based portable mineral

SPECTRO xSORT XRF Handheld Analyzer for many

Fast on-site elemental analysis: The SPECTRO xSORT handheld XRF is the ideal analyzer for compliance testing and quick screening of non-metallic samples.

Portable handheld spectrometers

The Z Series excels in applications like alloy analysis, mining exploration, and environmental testing, delivering accurate results with minimal sample

Handheld Mineral Analyzer (TrueX 900)

Truex 900 ore analyzer can provide fast and accurate results of element analysis in all stages of mining activities, including primary

Handheld/Portable XRF Analyzers for Precise Elemental Analysis

Ideal for applications such as alloy grade identification, elemental composition verification, and multi-material analysis, these handheld XRF analyzers are used across industries including

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Mineral / Mining Analysis with Skyray XRF Spectrometers

Handheld X-Ray Fluorescence Spectrometers have revolutionized mineral and mining exploration analysis. With Skyray XRF Analyzers your laboratory is wherever you are.

Geology | Mining Spectrometers

Field Portable UV-Vis-NIR Spectrometers for Mineral Identification and Analysis in Mining Exploration With Spectral Evolution field portable UV-Vis

Handheld XRF Spectrometer

Handheld XRF spectrometers are a fast, accurate, and portable tool that can be used for a variety of tasks in the mining industry. What is a portable

AURA® handheld NIR | Versatile & portable spectrometer

AURA® handheld NIR is a portable spectrometer system, which enables measurements to be taken directly on site, suitable for a variety of applications.

reveNIR Handheld NIR Spectrometer | Malvern Panalytical

The NEW SciAps handheld Vis-NIR (Near-Infrared Spectroscopy) analyzer is a game-changing portable instrument that delivers unmatched performance in

XRF Mineral Analyzer

XRF Analyzer for Mining Exploration X-Ray Fluorescence Guns XRF Analyzer Provides On-Site Analysis of Ore Samples With Minimal Sample Preparation, Reducing the Time for Lab Assay from

OreXpress Field Portable Spectroradiometer

OreXpress Field Portable Spectrometer For Mineral Identification and Analysis SPECTRAL EVOLUTION OreXpress Spectrometers are ideally suited for mining exploration, mineral

Mobile Metal Analyzer

For onsite metal analysis, SPECTRO offers a complete range of mobile metal analyzer products, from handheld XRF to portable Arc Spark OES spectrometers.

New SPECTRO xSORT Handheld XRF Application Packages

The SPECTRO xSORT handheld XRF analyzer now supports a broader range of applications: geology, mining, environmental screening, and compliance testing.

Portable handheld spectrometers

Malvern Panalytical offers a range of portable spectrometers and a portable XRF analyzer alternative to a XRF handheld or XRF gun.

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High-end Handheld XRF Spectrometer Analyzer

High-end Handheld XRF Spectrometer Analyzer - Smart Metal & Mineral Scanner for Mining, Recycling, Geology | 42-Element Detection | 100% Waterproof | 10

Handheld XRF Spectrometers for Elemental Analysis | Bruker

Applications of Handheld XRF Portable Mineral Testers for Mining and Exploration In mineral exploration and mining, fast access to reliable geochemical data helps guide decisions in the field. X-Ray

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