Spectrometer for collecting precious metals



Overview

SPECTRO offers a broad range of XRF and OES spectrometers optimized for precise analysis of precious metals, ensuring accuracy and reliability.

Key Takeaways

XRF and OES spectrometers are the most widely used tools for fast, precise, and non-destructive analysis of precious metals. Types of SpectrometersX-ray Fluorescence (XRF) Spectrometers XRF spectrometers are non-destructive and require minimal sample preparation, making them ideal for jewelry, coins, dental alloys, and other precious metals. They work by irradiating a sample with X-rays and measuring the characteristic secondary X-rays emitted by each element.

Portable handheld XRF analyzers, such as the GEMORO XRF and JITAI9201, allow for field analysis with high accuracy, automated beam switching, and plating detection features.

Benchtop XR

F systems, like the Niton DXL and ARL QUANT'X, provide high precision for laboratory use and can quantify major, minor, and trace elements. Optical Emission Spectrometers (OES) Arc/spark OES instruments, such as SPECTROLAB and ARL iSpark Plus, are high-performance tools for analyzing pure precious metals and alloys. They offer ultra-low detection limits, high measurement speed, and excellent stability.

OE

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S is particularly suitable for automated, high-throughput laboratory environments where precise quantification of major and trace elements is required.

IC

P Optical Emission Spectrometers (ICP-OES) ICP-OES instruments, like SPECTRO ARCOS, provide ultra-low limits of detection in the ppb-ppm range and are ideal for analyzing pure precious metals. They are highly precise, can be automated, and are suitable for laboratories requiring high sample throughput and unattended operation.

Key Features to Consider

Detection Limits: ICP-OES offers the lowest detection limits, while XRF provides fast, non-destructive analysis suitable for surface and bulk testing. Portability: Handheld XRF analyzers are lightweight and rugged, ideal for fieldwork or retail environments. Automation and Throughput: Benchtop OES and ICP-OES systems can handle high sample volumes with automated operation.

Plating Detection: Advanced XRF analyzers, such as Niton XL2 and GEMORO XRF, include software to detect gold plating and differentiate alloys. Data Management: Modern spectrometers offer onboard storage, USB/Bluetooth connectivity, and software for exporting results to Excel or other formats.

Applications

Jewelry and coin authenticationDental and medical alloy analysisPrecious metal refining and recyclingQuality control in manufacturingField testing for mining and exploration Choosing the right spectrometer depends on the required accuracy, portability, sample type, and throughput. For fast, non-destructive testing, handheld XRF analyzers are ideal, while laboratories needing ultra-precise quantification may prefer OES or ICP-OES systems.

Article Content

Precious Metals Analysis | SPECTRO

SPECTRO offers a broad range of XRF and OES spectrometers optimized for precise analysis of precious metals, ensuring accuracy and reliability.

XRF Spectrometer Buying Guide: Precious Metals 2026

How to choose the right XRF spectrometer for jewelry, pawn, refinery, or lab use. Compare detectors, form factors, accuracy specs, and TCO — with practical recommendations by

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For precious metals analysis, such as jewelry or dental alloys, fast and non-destructive XRF spectrometers which require little sample preparation are most frequently used for analysis, e.g.

Portable XRF Metal Analyzer

This rugged 245x250x90mm portable spectrometer delivers fast, precise elemental identification in the field.The 50kV X-ray tube and high sensitivity Si-PIN diode

XRF Analyzer (Precious Metals) – SPECTRO MIDEX

Our XRF Analyzer (Precious Metals) - SPECTRO MIDEX spectrometer is optimized for all your precious metal testing needs.

Spectrometer XRF EDX3000 PLUS

XRF spectrometer EDX3000 PLUS is the latest model of energy dispersive X-ray fluorescence spectrometer EDXRF, designed specifically for non-destructive analysis of alloys and products made

EVDENT Vanta Series Handheld Energy Dispersive X-Ray

Overview The EVDENT Vanta Series Handheld ED-XRF Spectrometer is an industrial-grade, field-deployable analytical instrument engineered for rapid, non-destructive elemental quantification of

EVDENT XRF-Port Handheld Energy Dispersive X-Ray Fluorescence Spectrometer

Overview The EVDENT XRF-Port is a field-deployable, handheld energy dispersive X-ray fluorescence (ED-XRF) spectrometer engineered for rapid, non-destructive elemental analysis of solid and

Precious Metals Analysis with Skyray XRF Spectrometers

Ability to analyze Precious Metals non-destructively and detect counterfeit within a few seconds makes XRF Spectrometers the best instruments to use for Precious Metals Analysis. Our Precious Metals

Technologies and solutions used in precious metals analysis and

In industries that use precious metals, such as jewelry, electronics, and automotive, but also for mining and recycling companies, analyzing the metals ensures adherence to quality standards. By verifying

GEMORO® XRF Gold & Precious Metal Analyzer

The GEMORO XRF is a top-of-the-line Energy Dispersive XRF Spectrometer, perfect for jewelers, appraisers, and precious metal buyers. Made in the USA,

Niton DXL XRF spectrometer for precious metal

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With the daily changes in precious metal prices, inaccuracies in testing can significantly affect your results. The Niton™ DXL spectrometer identifies the

Solutions for Analyzing Precious Metals

Gain trust from your customer Thermo Scientific Niton XRF precious metal analyzers provide retailers, pawn shops, cash-for-gold businesses, jewelers, recyclers, and refineries with fast, reliable and

Analyzing Precious Metals

spectrometer.These instruments are factory-calibrated and validated for an exceptionally wide range of precious metals samples. Their SPECTRO XRF Analyzer Pro operating software was recently

Advanced Technologies for Analyzing Precious Metals

Advanced technologies for analyzing precious metals and identifying elements and alloys When it comes to assessing the value of gold, silver, and other precious metals, both buyers and sellers need to

XRF Precious Metal Analyers

XRF precious metal analysis is a nondestructive testing method for verifying the purity and composition of precious metals, such as gold, silver, and platinum. As a fast technique, XRF precious metal

5 Precious Metals Analysis Methods

Why portable XRF technology may be better than scratch, acid, electronic testers, fire assay, and lab equipment to test gold and precious metals.

XRF Spectrometers and Metal Analyzers | Worldoftest

This technology is widely used for metal analysis, alloy verification, precious metal testing, and RoHS compliance screening. Applications of XRF Spectrometers &

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