Spectrometer for Precious Metal Detection

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.

Advanced Technologies for Analyzing Precious Metals

Achieve simultaneous quantitative determination of the content of all precious metals in fire assay lead buttons in less than a minute. The ARL iSpark Plus Fire Assay Analyzer is a top-of-the-range spark

Desktop XRF Spectrometer Buyer Guide

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Learn how to choose a desktop XRF spectrometer for gold, silver, platinum, jewelry and precious metal recycling. Compare gas proportional, Si-PIN and FAST-SDD detectors, CDO-N3, CDO-X5, CDO-S6,

Precious Metals Analysis | SPECTRO

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.

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

Niton™ XL2 XRF Precious Metal Analyzer

Niton™ XL2 XRF Precious Metal Analyzer. Perform accurate gold analysis, quickly detect gold plating and counterfeit gold, test the purity and chemistry of precious

GEMORO XRF GOLD & PRECIOUS METAL

The GEM ORO XRF is a handheld, portable Energy Dispersive XRF Spectrometer designed for jewelers, pawnshops, appraisers, precious metals buyers, and

High-Performance XRF Spectrometers

Explore our professional XRF analyzers for accurate precious metal testing and coating thickness measurement. Our gold testers and XRF analyzers provide

Bourn And Koch compact spectrometers

Discover the compact spectrometer product range of Bourn And Koch. Contact the manufacturer directly.

CDOCAST Portable Handheld Atomic Absorption Spectrometer for

The intensity of this emitted radiation is directly proportional to the concentration of the element within the sample. Support to test with the Aluminum Alloy, Precious metal and Mineral (1) The handle XRF

Skyray Benchtop XRF Spectrometer for Fast Elemental Analysis

□□ Is Your Lab Still Sending Samples Out for Elemental Analysis? If you''re in manufacturing, electronics, or metals — chances are you''re dealing with RoHS compliance, coating thickness ...

edxrf spectrometers

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XRF spectrometer EDX 3000 is designed primarily for the analysis of precious metals in jewelry samples, coating thickness testing, testing RoHS Compliance. By using electrically-cooled Si-PIN

Vanta Precious Metal Analyzer by EVDENT (Former Olympus

Overview The Vanta Precious Metal Analyzer by EVDENT is a handheld energy-dispersive X-ray fluorescence (EDXRF) spectrometer engineered for rapid, non-destructive elemental quantification of

EVDENT Vanta Handheld Energy Dispersive X-Ray Fluorescence Spectrometer ...

Overview The EVDENT Vanta Handheld Energy Dispersive X-Ray Fluorescence (ED-XRF) Spectrometer is an industrial-grade, field-deployable analytical instrument engineered for rapid, non

Elemental Analysis Solutions & Analytical Instruments | SPECTRO

Small spot ED-XRF spectrometer optimized for precious metal testing and compliance screening The market recognized gold standard for precious metals analysis Widest scope of elements backed by

Alloy Analyzer Gun China Trade,Buy China Direct From Alloy

Best Price Portable X-ray Spectrometer Metal AlloyAnalyzerGun with High Performance Si-Pin Detector HITACHI FPI MIX5 Pro $18,000-19,000 MOQ: 1 piece Luoyang Yubo Testing Technology Co., Ltd. 4

Helium Leak Detector factory

China Helium Leak Detector Manufacturer, Anhui Wanyi Science and Technology Co., Ltd. is Liquid Chromatography Instrument factory, offering quality products at factory prices.

How Do Jewelers Test Gold Without Damaging It?

Jewelers often use non-destructive testing methods such as XRF analyzers to verify gold purity without scratching or damaging jewelry. Learn how VRAY XRF systems provide fast, accurate,

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