SPECTRO
AMETEK

SPECTRO XEPOS XEP05

ED-XRF Spectrometers

Analytical Performance in a Class by Itself



Outstanding ED-XRF analysis just got even better

The latest generation of SPECTRO XEPOS spectrometers represents another quantum leap in energy-dispersive X-ray fluorescence technology. SPECTRO XEPOS outpaces standard ED-XRF instruments with performance that often matches that of wavelength-dispersive WD-XRF models, at a much lower cost of ownership. Significant upgrades include improved spectra handling for greater screening method accuracy, up to 2X shorter measurement times compared to the previous model, and new capabilities for layer analysis.

The amazing SPECTRO XEPOS excels at critical tasks from rapid screening analysis to precise product quality control. Apply it for at-line processing in applications such as petrochemicals, chemicals, environmental and geological samples, ores/concentrates/tailings, clinkers/cements/slags, cosmetics, foods, pharmaceuticals, and more.

Four different versions maximize performance for selected element groups in targeted matrices. An innovative 50 W / 60 kV X-ray tube and unique adaptive excitation technology furnish the highest possible sensitivity, optimized to target elements of choice. The instrument's operating software provides proven ease and power. And its unique TurboQuant II software quickly and accurately analyzes practically any unknown liquid, powder, or solid sample.







SPECTRO **XEPOS**
Extraordinary advantages

Improved screening

Previous versions of SPECTRO XEPOS delivered excellent accuracy in elemental screening analysis. These capabilities have now been even further enhanced. Updated screening methods take advantage of fresh approaches to spectra handling. Result: new levels of performance, especially in accurately analyzing samples emitting complex sample spectra.

Faster measurements

SPECTRO XEPOS lets users select the right balance between precision and speed. They may choose the most exacting results within standard measurement times — or realize up to 2X faster measurements, while maintaining precision levels comparable to traditional ED-XRF spectrometers. This speed can be a decisive advantage for applications with high count rates. The system can complete analyses of many samples in as little as 1-2 minutes.

Multilayer analysis

A new multilayer package brings capabilities already proven in SPECTROCUBE and SPECTRO MIDEX analyzers. SPECTRO XEPOS can now analyze the thickness (down to nanometer scale) and composition of up to 8 layers on 1 substrate, for up to 55 elements — including precious metals. The package greatly simplifies measurement, eliminating the necessity for layer calibration samples. It delivers reference-free analytics based on solid bulk samples alone.







Spectacular sensitivity

In recent generations, SPECTRO XEPOS analyzers have dramatically improved their sensitivity — by 10x or even more! This contributes to higher precision and lower detection levels. So according to their needs, users get fast and accurate analysis of an even wider range of elements, from Na to Am, optionally (C) F-Am.

Unparalleled precision

Unlike most ED-XRF analyzers, SPECTRO XEPOS keeps its X-ray tube powered on between measurements, preventing on/off variations from affecting readings. This provides excellent long-term stability, and helps leverage the instrument's sensitivity to realize exceptionally high precision — for concentrations from trace elements to major components.

Lower LODs

SPECTRO XEPOS deploys its proprietary adaptive excitation technology to maximum effect with its advanced high-count detector and tube designs, plus newly improved spectra handling. So with high sensitivity and minimized backgrounds, it can achieve exceptionally low limits of detection (LODs) for a wide range of elements.



Four advanced versions

Different predefined SPECTRO XEPOS configurations can get the most out of a purchaser's chosen analytical task. Users can prioritize measurement speed, ultimate precision, or groups of specific elements in targeted matrices.

SPECTRO **XEPOS**

Innovative technologies

Rethinking the X-ray tube

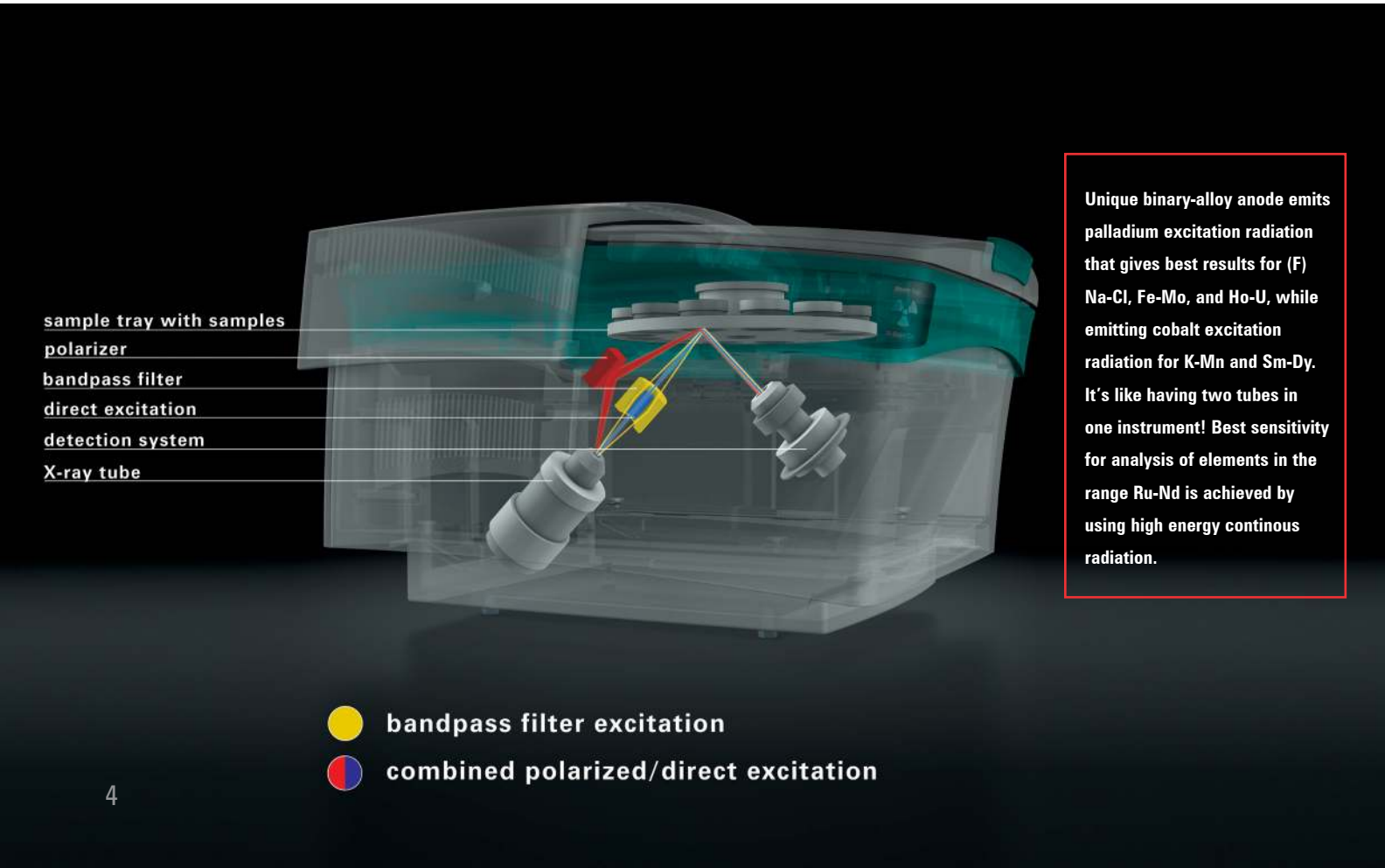
SPECTRO XEPOS employs an air-cooled end window X-ray tube — an extra-bright, laboratory-quality excitation source that generates high energy for maximum performance Avoiding the instability of constant on/off cycling, it stays powered up between measurements. It uses an optimized thick-target anode design. And its revolutionary binary cobalt/palladium alloy provides extra sensitivity and lower LODs for specific element groups.

Presenting adaptive excitation

To provide precisely targeted analysis for a given application, SPECTRO XEPOS incorporates revolutionary adaptive excitation technology. The analyzer is configured to produce the best excitation conditions for a specified group or groups of elements. Its X-ray beam is optimized by fixed excitation optics with different beam channels. So each configuration can precisely fit the user's chosen analytical task.

Faster shaping times

The latest SPECTRO XEPOS design realizes significant reductions in ***shaping time:*** the interval it takes to process each signal pulse intensity. These new shorter times enable a higher count rate at the detector because the tube power does not need to be reduced. That's vital in analyzing samples containing high concentrations of certain elements. Depending on user choices, the result can be up to 2X faster measurement times for increased throughput; greater precision; or better LODs.



Unique binary-alloy anode emits palladium excitation radiation that gives best results for (F) Na-Cl, Fe-Mo, and Ho-U, while emitting cobalt excitation radiation for K-Mn and Sm-Dy. It's like having two tubes in one instrument! Best sensitivity for analysis of elements in the range Ru-Nd is achieved by using high energy continous radiation.







Upgraded spectra handling

SPECTRO XEPOS now features substantially improved handling of complex spectra. This is the basis for increased accuracy even for challenging samples.

Significant improvements have been obtained across the board, including in the instrument's TurboQuant II and fundamental parameters [FP] methods: The performance of TurboQuant II has now been validated with over 300 certified reference samples — 50% more than in previous models.

Example: detecting arsenic traces in fly ash samples. The ash's complex spectrum displays major concentrations of lead. Problem: lead lines overlap and obscure arsenic lines in measured spectra, with the added difficulty of interferences due to bromine. Fortunately, powerful spectra handling processing can separate the signals and enables reliable screening results even for trace elements such as arsenic.

Other improvements

Low-energy window detector. Formerly offered only with special calibrations, this optional thin-window design can now routinely help improve sample analysis with all SPECTRO XEPOS methods: TurboQuant II, FP, fused beads, cement, and geochem traces. It enables a quantitative analysis of fluorine, as well as a qualitative analysis of elements such as carbon, nitrogen, and oxygen.

Updated calibration ranges. Ranges are enhanced to fit the instrument's new capabilities across a wide array of calibrations.

Easy calibration transfer. Organizations using multiple SPECTRO XEPOS analyzers — at one site, or around the globe — can now align calibrations smoothly from instrument to instrument. New calibrations, or those developed locally, can be installed elsewhere via simple downloads.



Exemplary ease of use

Maximum flexibility with versatile sample compartment

Compared to ICP or flame atomic absorption spectroscopy (AAS) technologies, ED-XRF requires relatively little sample preparation. And SPECTRO XEPOS makes sample handling more convenient than ever.

The instrument's spacious 372 mm (14.6 in) x 253 mm (9.9 in) x 45 mm (1.8 in) measurement compartment accepts an optional sample tray with up to 25 positions for maximized productivity. Simply take out the sample tray, and — unlike single-sample analyzers — the SPECTRO XEPOS also accommodates direct analysis of large and/or irregularly shaped samples.

The compartment's optional low-consumption helium purge permits analysis of light elements in liquids and powders. SPECTRO XEPOS even offers an optional vacuum system for economical analysis of pressed powder pellets, fused beads, or solid samples. Another option: both capabilities in a single unit!

Simple yet sophisticated software

The SPECTRO XRF Analyzer Pro operating software interface used in SPECTRO XEPOS is optimized to be exceptionally easy to learn and use. In addition, it includes functions to support compliance with the U.S. FDA's 21 CFR part 11 criteria.

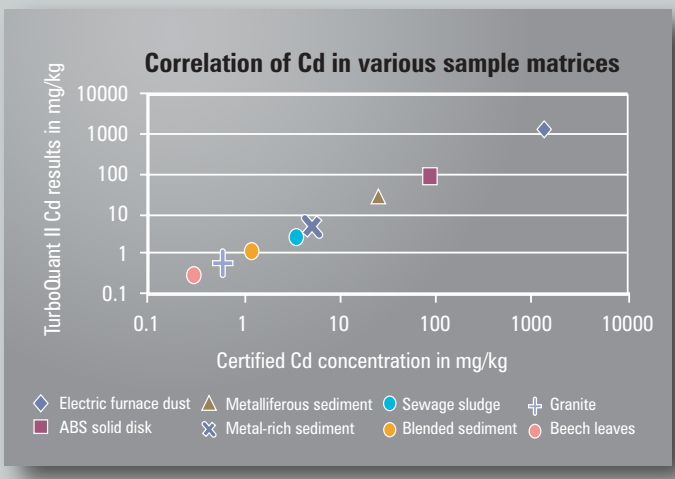
Clearly separated modules offer optimized access to critical information. Once calibrated, routine analysis is a snap.

An array of optional precalibrated application packages meets many users' needs — or lab managers may request their own application-specific configurations. Standard analyses cover elements in the range from carbon to americium. Analyze lubricating oils; low-sulfur fuels; polymers; chemicals; air filters; clinker/cement/slag; geological samples; ores/concentrates/tailings; ceramics and refractories; cosmetics; foods; pharmaceuticals; steel and aluminum sheet coatings; environmental samples like soil or sewage sludge; and more!



Superb analysis of unknown samples

The latest ultra-flexible version of a best-in-class SPECTRO software tool, TurboQuant II is available only with SPECTRO XEPOS. It's unmatched at easily screening unknown samples for elements from (F) Na-U, without extensive setup. TurboQuant II handles a wide range of samples — including any type of liquids, plus solids from tree leaves to plastics, granite to glass — with a single calibration. This revolutionary software takes full advantage of the latest SPECTRO XEPOS improvements. It conquers matrix effects (even at low concentration levels), achieves breakthrough speed and precision, and handles previously impossible applications. For most samples, TurboQuant II supplies screening results in as little as 1 to 2 minutes!



SPECTRO **XEPOS**

ED-XRF SPECTROMETERS



Wide array of elemental analysis solutions

The flagships of our ED-XRF line, our newest SPECTRO XEPOS spectrometers take their place among today's most complete suite of advanced elemental analyzers. XRF instruments also include our compact, fast, easy-to-use SPECTROCUBE and small-spot SPECTRO MIDEX spectrometers, plus our powerful yet portable SPECTROSCOUT and handheld SPECTRO xSORT models. This line is complemented by our extensive array of ICP-OES instruments, such as the flagship SPECTRO ARCOS; flexible yet powerful SPECTROGREEN; and SPECTRO GENESIS. Finally, we provide full suites of both stationary and mobile metal analyzers, including leading brands such as SPECTROLAB S, SPECTROMAXx, SPECTROCHECK, SPECTROTEST, and SPECTROPORT. Whatever the instrument, SPECTRO's experience and innovation ensure superb results.

Outstanding support

AMECARE Performance Services maximize uptime for all the world-class elemental analyzer products and services from SPECTRO Analytical and associated companies. The program is staffed by hundreds of experienced service engineers in 50 countries. They provide high-value, customized support designed to ensure optimum performance plus the longest possible equipment life. Ask about AMECARE virtual or on-site demos, SPECTRO PROTEKT secure global remote monitoring, proactive performance maintenance, performance upgrades, applications solutions, consultation, targeted training, and ongoing support.

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