



When results matter

SPECTRO XEPOS

ED-XRF Spectrometers

Introducing a new era in
analytical performance



AMETEK[®]
MATERIALS ANALYSIS DIVISION

SPECTRO XEPOS

Redefining ED-XRF analysis with exceptional new levels of performance



The new SPECTRO XEPOS spectrometer represents a quantum leap in energy dispersive X-ray fluorescence technology. It leads SPECTRO's newest generation of ED-XRF instruments, providing breakthrough advances in multi-elemental analysis of major, minor, and trace element concentrations. New developments in excitation and detection deliver outstanding sensitivity and detection limits — yielding remarkable gains in precision and accuracy.

The amazing SPECTRO XEPOS excels at critical tasks from rapid screening analysis to precise product quality control. Apply it for at-line processing in a variety of applications, such as petrochemicals, chemicals, environmental and geological samples, clinker/cement/slag, cosmetics, food, pharmaceuticals, and more.

Different versions maximize performance for selected element groups in



targeted matrices. An innovative 50 W / 60 kV X-ray tube and unique new adaptive excitation technology furnish the highest possible sensitivity, optimized to target elements

of choice. Redesigned operating software provides proven ease and power, while unique new TurboQuant II software quickly and accurately analyzes practically any unknown liquid, powder, or solid sample. And SPECTRO XEPOS exhibits a significantly lower cost of investment and ownership than wavelength dispersive X-ray fluorescence (WD-XRF) spectrometers.

SPECTRO XEPOS

Extraordinary advantages

Spectacular sensitivity

Compared to previous models, this latest generation of SPECTRO XEPOS analyzers dramatically improves sensitivity — often by 10x or even more! The difference: SPECTRO innovations in adaptive excitation plus tube and detector technologies. This exceptional sensitivity contributes to boosting precision as well as realizing significantly lower detection levels. So according to their needs, users get fast and accurate analysis of a wide range of elements, from sodium to uranium.

Faster measurements

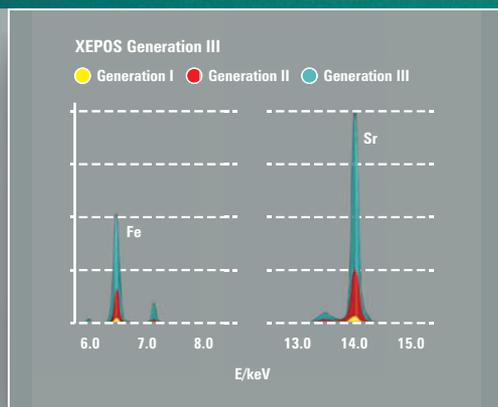
Some users need speed more than utmost precision. SPECTRO XEPOS gives them that choice. Operators can dramatically cut measurement times, while still maintaining precision levels comparable to traditional ED-XRF spectrometers. The system's high speed helps achieve analyses of most samples within a few minutes.

Unprecedented affordability

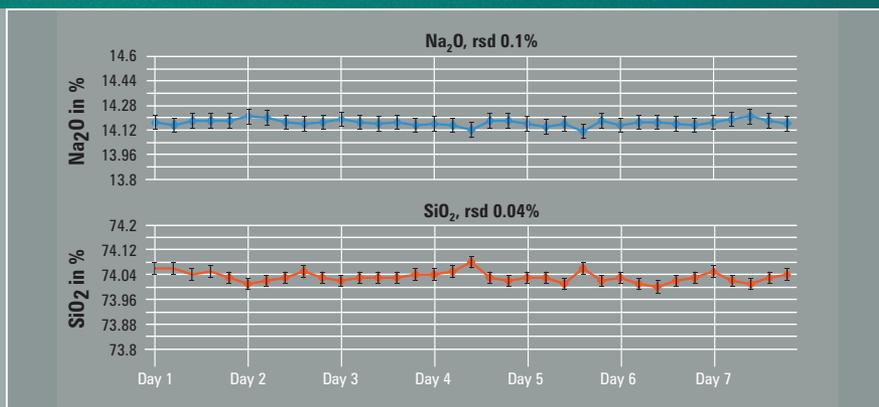
The instrument incorporates numerous strategies that lower its continuing cost of ownership: such as low-volume helium purging for light elements in liquids and powders, and a vacuum system for solid samples. Best of all, for many applications, its new capabilities mean it can now perform on equal terms with much more expensive WD-XRF technology. So SPECTRO XEPOS users get WD performance at an ED price!

Four advanced versions

Adaptive excitation and other advances let us craft several predefined SPECTRO XEPOS configurations to 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.



Three generations of SPECTRO XEPOS: sensitivity trending ever upward



Excellent long-term-stability: Glass sample analyzed 35x over the course of 7 days

Unparalleled precision

Unlike most ED-XRF analyzers, SPECTRO XEPOS has always kept 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 amazing sensitivity to realize an exceptionally high degree of precision in elemental analysis — up to 3x better than before. An added advantage: substantially improved analytical accuracy for concentrations from trace elements to major components.

Lower LODs

Combining advanced components for peak performance, SPECTRO XEPOS deploys its proprietary adaptive excitation technology for optimum effect with its new high-count detector and tube designs. So it can use its new sensitivity and minimized backgrounds to achieve exceptionally low limits of detection (LODs) for a wide range of elements.

SPECTRO XEPOS

Exciting new technologies

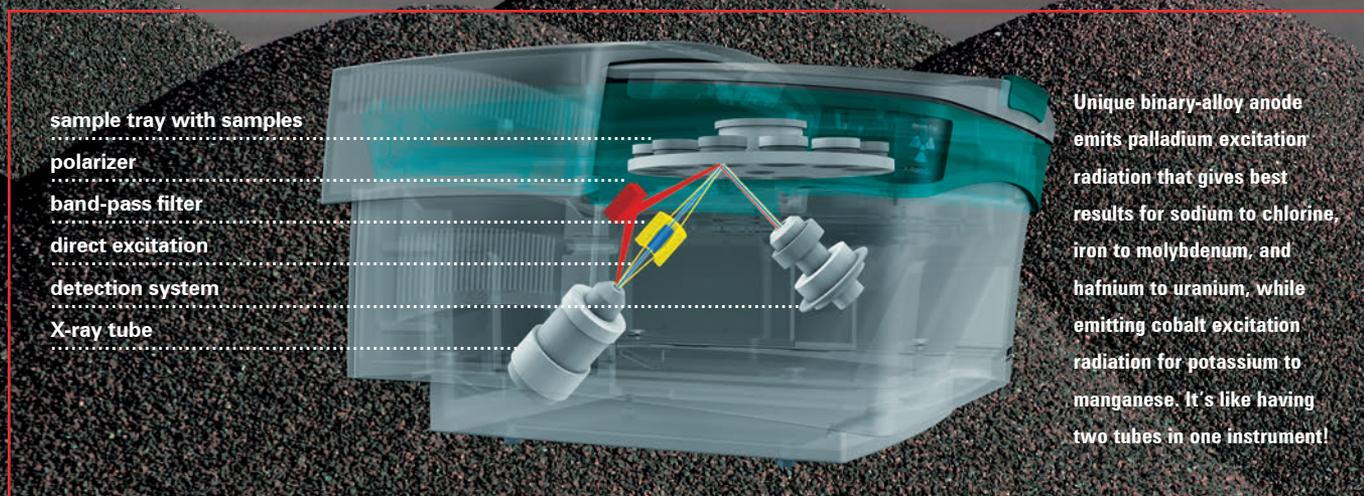
Rethinking the X-ray tube

One potential weakness of traditional ED-XRF designs: cycling power off between each measurement. Resulting temperature variations inevitably decrease signal stability. Especially with the higher count rates of WD-XRF and newer ED-XRF instruments, this can complicate analysis, add error, and degrade accuracy.

SPECTRO XEPOS employs a new air-cooled end window X-ray tube — a brighter, laboratory-quality excitation source optimized for maximum energy generation.

It remains powered up, even between measurements, avoiding the instability of constant on/off cycling. The tube also displays a new thick-target anode

design. Its revolutionary binary cobalt/palladium alloy provides extra sensitivity and lower LODs for specific element groups. So the instrument can fully realize its advantages in lower LODs, higher sensitivity, minimal matrix effect impact, and exceptional accuracy for concentrations — both high and low — while attaining substantially longer tube life.



- band-pass filter excitation
- combined polarized/direct excitation

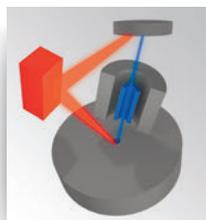
Introducing adaptive excitation

To provide precisely targeted analysis for each purchaser's application, SPECTRO XEPOS incorporates revolutionary new adaptive excitation technology. This unique capability is enabled by the instrument's new high-resolution detector, together with a new readout system. All contribute

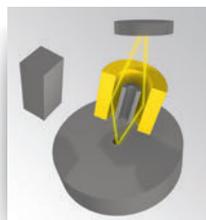
to the analyzer's ultra-high sensitivity and minimal background interference, for greater precision and lower LODs.

The customer specifies an analysis task prioritized for either high sample throughput or best precision. The analyzer is then configured to produce

optimum excitation conditions for a specified group or groups of elements. The X-ray beam is optimized by fixed excitation optics with different beam channels. So each excitation configuration can precisely fit the user's chosen analytical task.



Combined polarized/direct excitation This configuration uses a polarizer in combination with direct excitation for optimum analysis of light, medium, and heavy elements.

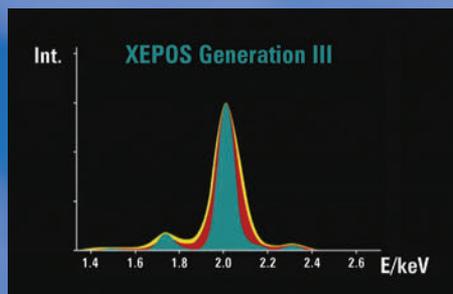


Band-pass filter excitation This configuration utilizes a band-pass filter — a first in commercial ED-XRF analysis — for extra performance in the element range potassium to manganese.

Redesigning the detector

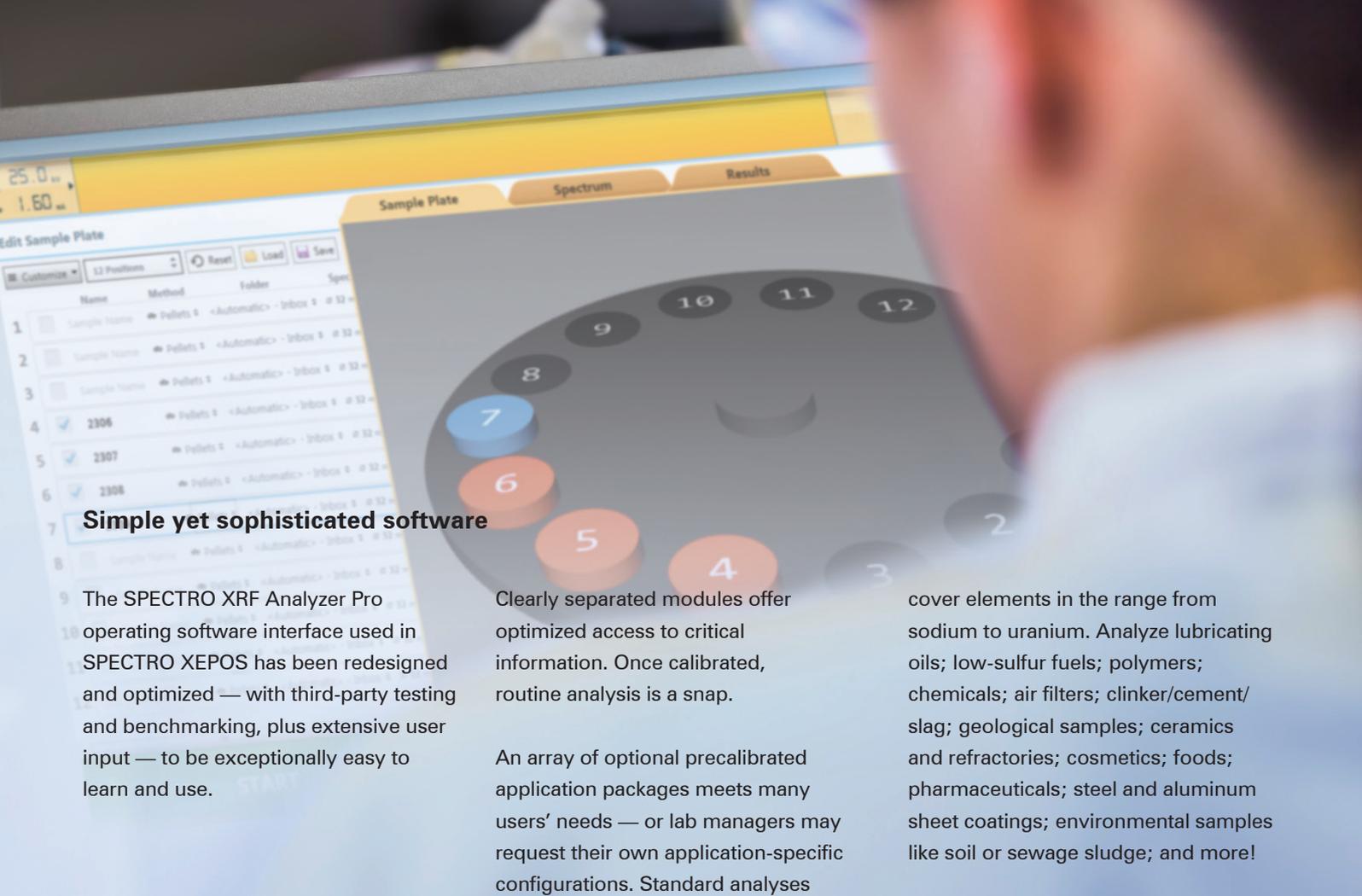
The newest generation of SPECTRO XEPOS debuts a new silicon drift detector (SDD) design. This detector class has delivered high resolution with low spectral interference in previous models. The newest version possesses an enlarged surface (25 mm²) with maximized active area (17 mm²).

In addition, its new high-speed readout system provides an ultra-high count rate — up to 1 million counts per second (cps) — combined with even better resolution than before. It also contributes to the system's greatly improved peak-to-background ratios, extremely low LODs, and ultra-high sensitivity.



With improved resolution and peak-to-background, even smaller peaks emerge from the background.

SPECTRO XEPOS achieves excellent limits of detection in a wide range of matrices.



Simple yet sophisticated software

The SPECTRO XRF Analyzer Pro operating software interface used in SPECTRO XEPOS has been redesigned and optimized — with third-party testing and benchmarking, plus extensive user input — to be exceptionally easy to learn and use.

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

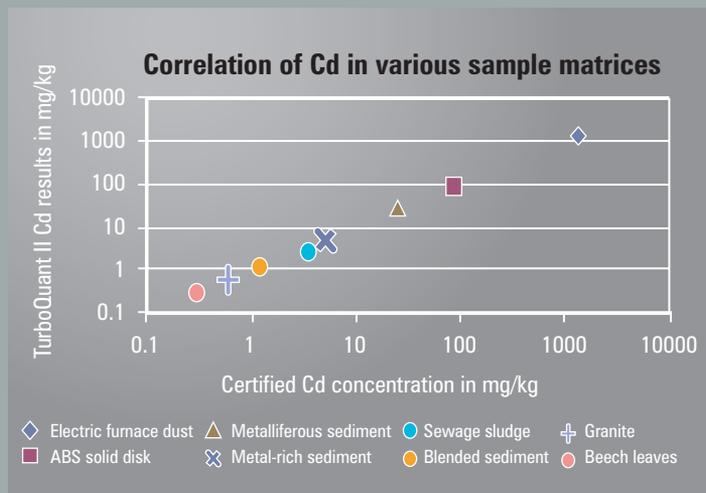
An array of optional precalibrated application packages meets many users' needs — or lab managers may request their own application-specific configurations. Standard analyses

cover elements in the range from sodium to uranium. Analyze lubricating oils; low-sulfur fuels; polymers; chemicals; air filters; clinker/cement/slag; geological samples; ceramics and refractories; cosmetics; foods; pharmaceuticals; steel and aluminum sheet coatings; environmental samples like soil or sewage sludge; and more!

Exemplary ease of use

Superb analysis of unknown samples

A dramatically improved, even more flexible version of a best-in-class SPECTRO software tool, TurboQuant II is available only with new SPECTRO XEPOS. It's unmatched at screening unknown samples for elements from sodium to uranium, without extensive setup. New TurboQuant II handles an even greater range of samples — now 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 new SPECTRO XEPOS benefits. It conquers matrix effects (even at low concentration levels), achieves breakthrough speed and precision, and handles previously impossible applications. So TurboQuant II supplies screening results in a few minutes.





Maximum flexibility with versatile sample compartment

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

The instrument's more 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 redesigned 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!



Wide array of elemental analysis solutions

The flagship of our ED-XRF line, our newest SPECTRO XEPOS spectrometers take their place among today's most complete suite of advanced elemental analyzers. The XRF suite also features our small-spot SPECTRO MIDEX spectrometer plus our powerful yet portable SPECTROSCOUT and hand-held SPECTRO xSORT models. This line is complemented by our extensive array of ICP-OES instruments, such as the top-of-the-line SPECTRO ARCOS, compact midrange SPECTROBLUE, and "plug-and-analyze" SPECTRO GENESIS. Finally, we provide a full line of both stationary and mobile metal analyzers, including leading brands such as SPECTROLAB, SPECTROMAXx, and SPECTROTEST. Whatever the instrument, SPECTRO's experience and innovation ensure superb results.





Ultimate confidence with remote monitoring

Users talked, and SPECTRO listened. So the newest SPECTRO XEPOS spectrometers extend the instrument's self-diagnostic functions with AMECARE M2M. This optional machine-to-machine support allows proactive alerts, backed up by direct connection with a remote SPECTRO service expert's PC. It's the ultimate in quick, sure response and resolution.



Ensured uptime services help make certain that SPECTRO XEPOS analyzers keep up and running for maximum productivity. More than 200 service engineers based in 50+ countries can safeguard uninterrupted performance plus maximum ROI over the instrument's entire service life. Users can choose proactive performance maintenance, performance upgrades, application solutions, consultation, targeted training, and ongoing support — now including new AMECARE M2M remote monitoring with ongoing diagnostics and alerts.

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