

TEXS HP: Transition Element X-ray Spectrometer

PRODUCT BULLETIN—WDS

Introduction

EDAX raises the standard as the Technical Innovator giving you high performance and functionality and Confidence in Your Results. EDAX offers the next generation of wavelength dispersive X-ray spectrometers (WDS), the LambdaSpec.

- A compact parallel beam X-ray spectrometer (PBS)
- Uniquely designed to fit on all SEM chambers
- A WDS system that acts like an EDS system
 - Software designed to enable the LambdaSpec to be operated as an EDS system
 - Easy to use user interface
 - All controls in energies
- The perfect complimentary tool to EDS
 - Improved accuracy and precision with lower detection limits
 - Combines EDS and WDS data for full element analysis

TEXS HP

The TEXS HP (Transition Element X-ray Spectrometer – High Precision), a member of the LambdaSpec range of PBS, is a compact WDS system that will fit all SEM models. The features include:

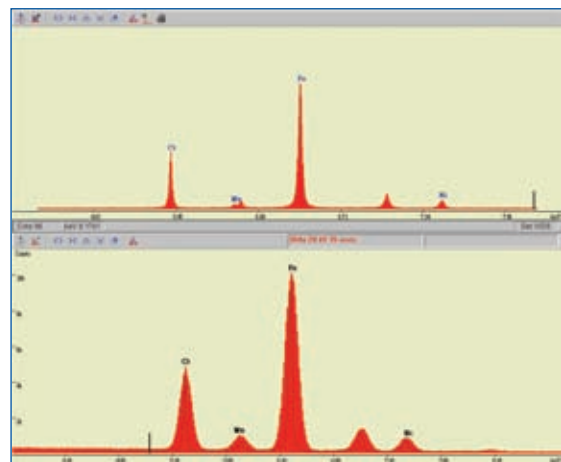
- Compact spectrometer design – 10" x 10" x 6" (250 x 250 x 150 mm) – optic positioner add 6" (150mm) to length
- Light weight – 22lbs (10kg) (plus 10lbs [4.5kg] for optic positioner)
- Complete with 5 diffracting crystals, optimized for any particular application
- Fitted with a capillary optic to produce a parallel X-ray beam
- Optimized to cover low energy and transition element energies from 150eV up to 10keV (B K α to Cu K α)
- Automatically positions the optic and sample to within +/- 1 μ m for accurate quantification measurements
- Resolves the α / β overlaps of the transition elements



TEXS HP.

Scanning Modes

- Perform a scan over the entire energy range of the spectrometer (TEXS 150eV - 10KeV)
 - Selected energy range to suit the application
 - Step size and speed per step are user selectable
- Peak and background mode for a selection of elements
 - Selected from a periodic table interface
 - Software suggests crystal, peak and background positions



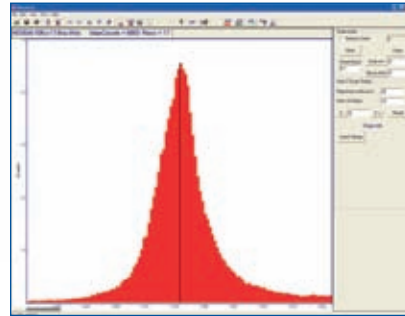
Example of WDS and EDS spectra for Stainless Steel K lines.

AutoFocus

A unique feature of the LambdaSpec is the AutoFocus routine. The routine adjusts the sample height to enable the optimum performance of the spectrometer (SEM Z axis control is required).

Qualitative and Quantitative

LambdaSpec provides the analyst with the capability of both qualitative and quantitative measurements. EDS and WDS data can be collected simultaneously and overlaid for easy qualitative confirmation. The analyst can select which source per element (EDS or WDS) for quantitative calculations to improve precision and detection limits.



AutoFocus routine to optimize sample height.

Conclusion

The TEXS HP provides the ideal complimentary tool to an EDS system improving quantification and detection limits. You can be confident that all your elements have been correctly identified due to the superior energy resolution of the TEXS HP ensuring Results with Confidence.

Crystals for TEX HP

2d=120	Primarily for C, extremely high count rates
2d=80 Sc	Optimized for N but works well for C
2d=80 Cr	Optimized for Ti (L) line but works for N and C as well. For the Ti (L) line it gives 4-5X the count rate of the 2d=80 Cr/Sc
2d=60	Works well for O and F, not as good as 2d=80 Cr/Sc for N. Works for energies from about 400 eV up to 1000 eV. Very good for Mn, Fe, Co, Ni, Cu and Zn
2d=30	Useful for energies above 1000 eV to about 2700 eV. Particularly good for Mg and Al, and works for higher energies giving about 2X the count rate of PET
LiF220	Covers Ti to Zn, resolves $K\alpha$ / $K\beta$ line overlaps of transition elements
LiF200	Covers Cr to Zn – lower count rate than LiF220, though better resolution
PET	Useful for energies from 1.4keV to 3keV