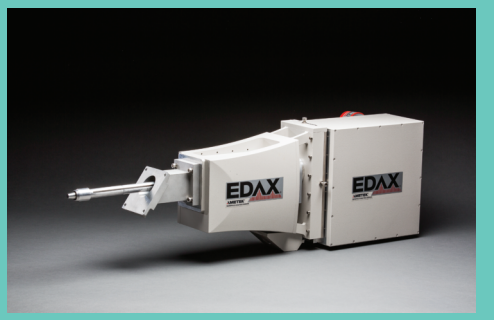
EDAX Smart Insight

AMETEK® MATERIALS ANALYSIS DIVISION

Product Bulletin - WDS

TEXS HP: Transition Element X-ray Spectrometer



- Intuitive and easy to use TEAM™ software
- Compact spectrometer design for easy installation on standard EDS ports
- Lightweight
- Standard with five diffractors optimized for any application
- Fitted with capillary optics to produce an intense parallel X-ray beam
- Optimized to cover low energy and transition element energies from 150 eV up to 10 keV
- Resolves most α/ß overlaps of the transition elements

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The Transition Element X-ray Spectrometer (TEXS) is a wavelength dispersive X-ray spectrometer (WDS), which features X-ray optics designed for parallel beam operation. The capillary optics provide maximum efficiency for low energy and transition element energies from 150 eV to 10 keV (B Kα to Cu Kα). The compact design means that the TEXS can be easily installed on any standard EDS port and provides a perfect complementary tool to EDS analysis. Utilizing intuitive TEAM™ WDS software, the TEXS ensures improved accuracy and precision, which guarantee the best results for your materials analysis.

Scanning Modes

The TEXS can perform a scan over the entire energy range of the spectrometer (150 eV to 10 keV). This energy range covers at least one X-ray energy for all elements in the periodic table.

Scanning mode options include:

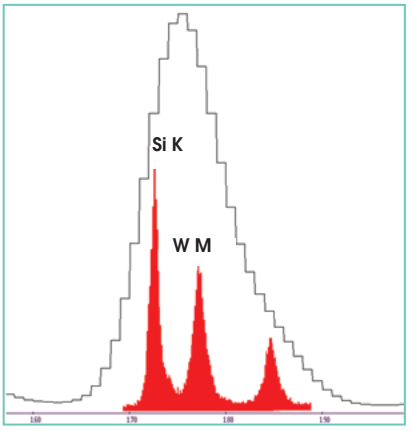
- Choose target energy range from the EDS spectrum and start the WDS scan
- Select an energy range to suit the application
- Step size and speed per step are user selectable
- Peak and background modes for a selection of elements
  - Selected from a periodic table interface
  - Software suggests diffractor, peak and background positions

Qualitative and Quantitative Analysis

TEAM™ WDS provides Smart Quant for 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.

Smart Focus

The Smart Focus routine is a unique feature of TEAM™ WDS. The automated routine adjusts the sample height to focus the WDS signal and thereby enable the optimum performance of the spectrometer.



Overlap of Silicon K and Tungsten M lines are easily resolved using WDS instead of EDS.

TEXS HP: Transition Element X-ray Spectrometer

Specifications

- Compact spectrometer design 250 mm x 250 mm x 250 mm
- Lightweight: 45 lbs (20.5 kg)
- Optimized for low energy and transition element energies from 150 eV to 10 keV (B K to Cu K)
- Automatically positions the optic to within +/- 1 µm for accurate quantification measurements
- Standard with TEAM™ WDS Software Suite
  - Smart Focus
  - Smart Quant
  - Smart Standards

Features and Benefits

Compact Design

- Fits all SEM chambers with available high angle port
- Installs on standard EDS port - no special chamber or port required

High Count Rates and Peak-to-Background Ratios

- Rapid X-ray analysis at the best resolution available
- Superior low energy resolution - <40 eV for X-ray energies below 10 keV
- Excellent resolution of K lines of the transition elements
- Able to resolve most of the α/ß overlaps of the transition elements

Ease of Alignment

- Improves operation, performance, and accuracy of data

Seamless Integration with EDS and Easy to Use Software

- EDS users can easily operate WDS
- Improved X-ray microanalysis
- Covers the whole periodic table

Conclusion

TEAM™ WDS Analysis System with the TEXS enables the capture of the highest spectral resolutions available, improving quantification and detection limits and resolving most α/ß overlaps of transition elements. The easy to use TEAM™ software interface ensures reliable results for all users and provides smart insight into high precision microanalysis.

Available Diffractors for TEXS

2d=120	Primarily useful for C, extremely high count rates.
2d=100	Optimized for C, also works for N.
2d=80 Sc	Optimized for N; also works well for C.
2d=80 Cr	Optimized for Ti (L) line; suitable for N and C. For the Ti (L) line it provides four to five times the count rate of the 2d=80 Sc.
2d=60	Well suited for O and F; 2d=80 Cr/Sc works better for N. Works for energies from about 400 eV up to 1000 eV. Very useful for transition metals L lines.
2d=30	Useful for energies above 1000 eV to approximately 2700 eV. Particularly useful for Mg and Al, and works for higher energies giving about two times the count rate of PET.
PET	Useful for energies from 1.4 keV to 3 keV. Higher spectral resolution than '2d=30'.
LiF220	Covers Ti to Zn. Widest element range and highest intensity.
LiF200	Covers Cr to Zn – lower count rates than LiF220 but better resolution.