EDAX

APEX

- Easy-to-use software interface

- Customizable color schemes and layouts

- Simultaneous Live and Review modes

- Spectral Collection, Linescan, and Mapping Collection modes

- Graphical representation of quantification results

- Smart Phase Mapping

- Dynamic reporting mode

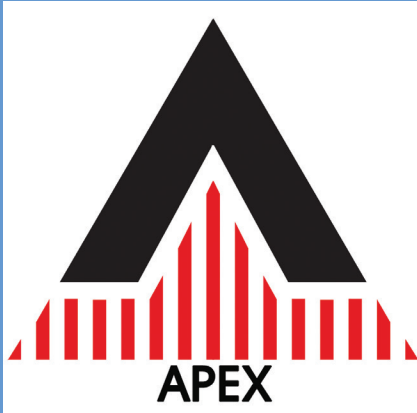- Fast quantification routine

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APEX Software for EDS

Product Bulletin – EDS

APEX™ is EDAX's premier software program for collecting and analyzing Energy Dispersive Spectroscopy (EDS) data and the compositional characterization of materials. APEX ensures high-quality, accurate results and increased productivity with its easy-to-use interface, live-time graphical display, and simultaneous review mode analysis.
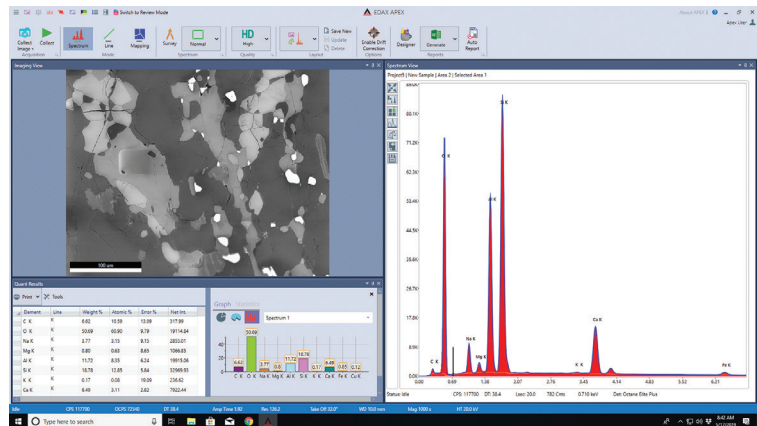

Figure 1. APEX user interface.

Ease of Use

- Intuitive operation for novice and expert users

- Acquire and report data with as little as one mouse click

- Automate routine tasks for quick and easy analysis

- Ensure everyone has the right level of access with profile-based logins; from individual users to administrators

Customization

- Selectable color scheme to match the Scanning Electron Microscope (SEM) interface or user preferences

- Display configuration options to show data according to user preferences

- Resize and arrange data windows according to your requirements

Simultaneous Live and Review Mode

Improve the efficiency of your experiment by simultaneously collecting a spectrum, linescan, or map while you evaluate data and generate reports.

AMETEK®

Real-Time Results

- Immediately identify and display elements using Element ID

- Dynamically edit elements for the most accurate and efficient analysis

- Easily understand your sample's composition using the live quantification statistics and graphical results
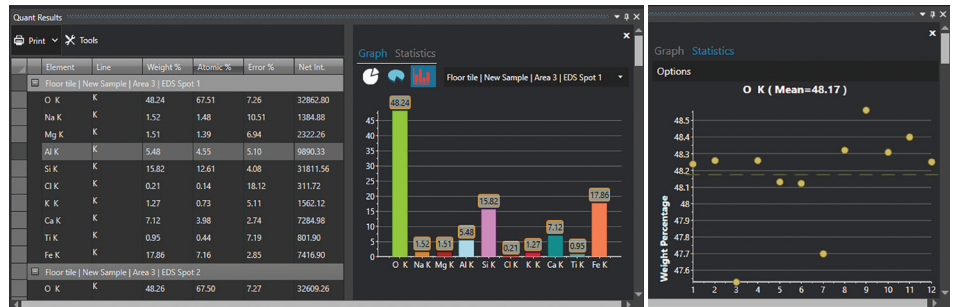

Figure 2. Graphical representation and statistical analysis of quantification results.

Smart Quant

- Use ZAF-corrected spectral analysis for quantitative compositional information

- Simultaneously perform quantitative analysis during spectral data collection with no delay in the acquisition

Full Standards Quant

- Flexibility to search, select, and combine standards

- SmartStandards mode for intelligent selection of best fitting standards for accurate quantification results
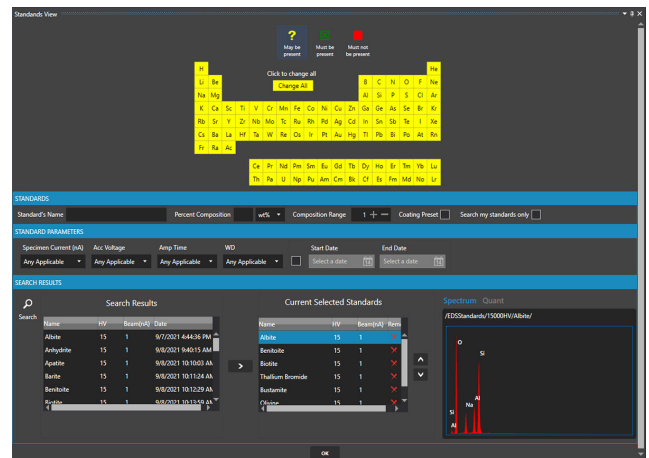

Figure 3. Standards View Window.

Multipoint Analysis

- Utilize Survey mode to perform point sampling quickly

- Mark and analyze several locations on a sample to improve your data collection efficiency

- Save and recall Multipoint scan lists to automate data collection and analysis

Data Management and Reporting

- Project tree storage for seamless management of all data

- Project exports to *.hdf file format

- Save windows with one-click as *.bmp, *.jpg, *.png, or *.tif images

Advanced Reporting

- Directly generate reports from the APEX Live mode to shorten your time to results

- Use Report Designer to customize presentation templates for images, spectra, quantification results, text, logos, and sample information

- Easily compare data from multiple areas or samples in the same report

- Combines multiple templates to display results easily

- Automatically create reports immediately after data collection is complete

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EDS Mapping

- Counts per second (CPS) map displays count rate quality at every pixel to provide a CPS distribution and highlights variations caused by surface features

- CompoMaps separate contributions from overlapping peaks to individual elemental maps for more accurate representations of EDS maps

- Quickly activate and add elements while mapping to simplify operation and inspection

- Select from 40 color options to effortlessly create vibrant images during elemental mapping

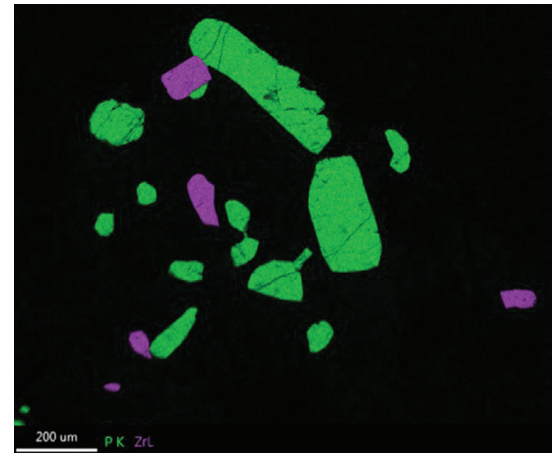- Simultaneously map multiple-element lines (K, L, M)

Figure 4. CompoMap shows separated phosphorus K and zirconium L overlapping peaks.

Dynamic Element Mapping

- Interact in real-time to show only the elements of interest while in Mapping and Linescan modes

- Edit elements, element lines, and user-selected regions of interest during map collection

Montage Large Area Mapping

- Scan large areas using stage movements to collect multiple fields of analysis

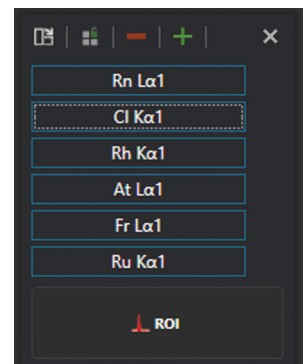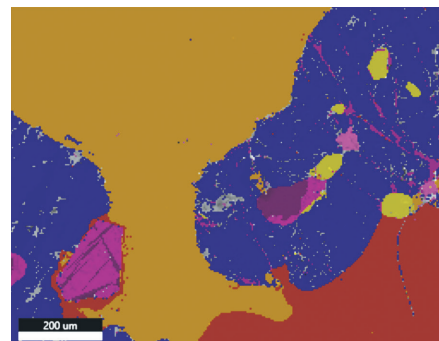- Automatically stitch data into a single file for comprehensive analysis

Figure 5. Dynamic Element Mapping window.

Smart Phase Mapping

- No user setup required

- Automatically collect spectra, elemental, and phase maps

- Customize the name and color selection of phases

- Predefine or reanalyze phases based on spectra

Figure 6. Smart Phase Mapping.

Dual Detectors

- Mitigates shadowing and topographic artifacts

- Option to merge spectra/compositional maps from both detectors

- Doubles throughput count rate while maintaining single detector energy resolution

- Better resolution stability versus systems with one detector with a large sensor

- Averages quantitative analysis from two detectors to build more accurate results

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Enhanced Linescan Acquisition

- Configure spectra collection for efficient analysis of compositional gradients

- Real-time overlay and scaling of the Linescan chart enables easy correlation of compositional data with image features

- Avoid sample errors when you use Linescan with drift correction in the APEX Advanced software package
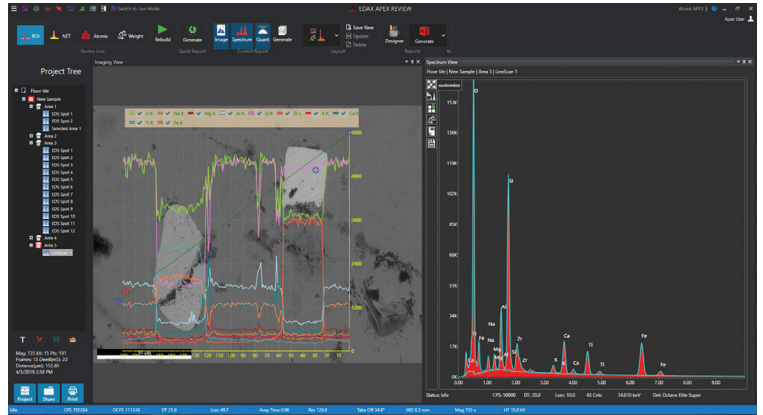

Figure 7. Advanced Linescan function.

Figure 8. Drift Correction view panel.

Live Drift Correction

- Automatically set drift parameters for easy operation

- Dynamically adjusts the correction frequency based on the drift magnitude for robust correction performance

- Advanced correction options available to save drift images and define manual reference area

- Available in Spectrum, Linescan, and Mapping modes for quality data in all collection modes
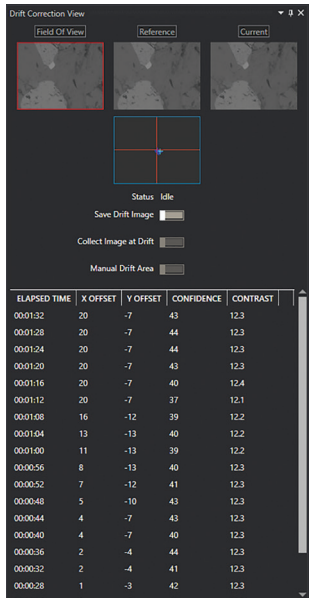
Spectrum Match

- Use the optional feature to allow users to search through a spectrum library to find similar spectra

- Simplify identification of unknowns by comparing them to potential candidates and reduce the complexity of finding discrepancies and similarities between spectra

- Create and use your unique spectrum library for Spectrum Match

- Match a collected "unknown" spectrum to a library of reference spectra using the Smart Materials and Minerals Library option

Conclusion

The APEX software platform for EDS Systems provides ease of use, flexibility, and customization. APEX gives users all the tools they need to increase efficiency and produce fast and accurate results from their analysis.

APEX EDS Software Options

Feature	Standard	Advanced
APEX Suite	X	X
Data Management & Reporting	X	X
Smart Quant	X	X
Linescan Acquisition	X	X
Multipoint Analysis	X	X
Smart Touch w/Monitor	X	X
Spectra Survey	X	X
EDS CPS Mapping	X	X
Net Quant Mapping	X	X
Maps Auto Enhance Processing	X	X
Spectra Auto Processing	X	X
Drift Correction	X	X
Remote Licensing		X
Multi-user Capability		X
Slide Control for Motorized Slides		X
Dynamic Element Mapping		X
CompoMaps		X
EDS Advanced Linescan	Option	X
Quant Mapping	Option	X
Advanced Reporting	Option	X
Spectrum Match	Option	Option
Smart Materials and Minerals Library	Option	Option
Montage Large Area Mapping		Option

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