



Spectra Insight

Spectral Intelligence Platform

Spectral Intelligence Platform & Software

Spectra Insight helps you acquire, process, search, classify, visualize, and compare hyperspectral data from images, instruments, and spectral databases—turning complex spectral information into confident decisions.



Search & Classify



Visualize & Compare



Database-Ready Workflows



Spectral Search

Find materials fast with powerful spectral signature search.



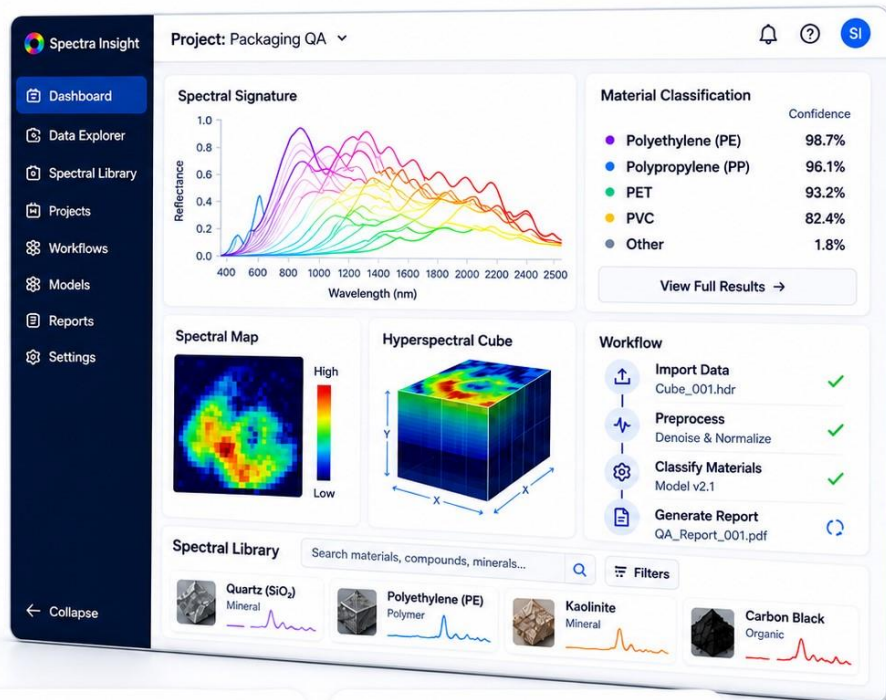
AI Classification

Machine learning models deliver accurate, explainable results.



Visual Analytics

Explore data with interactive maps, plots, and 3D visualizations.



Spectra Explorer™

Acquire, process, search, classify, compare, and visualize hyperspectral data in one integrated software environment.



Search & Identify

Find matching spectra across images and local or third-party spectral databases using multiple similarity algorithms.



Classify & Segment

Discover unknown regions with clustering, then build labeled AI classifications directly from image spectra.



Visualize & Report

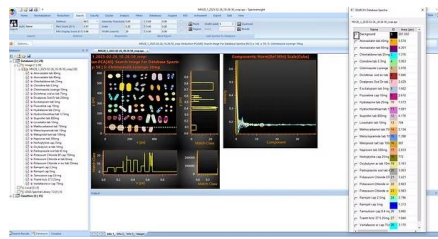
Create RGB composites, spectral maps, PCA views, cube renderings, animations, and customer-ready analytical outputs.

Built for real hyperspectral workflows

Spectra Explorer combines instrument-independent data handling, real-time spectral analysis, database search, machine learning, and advanced visualization. It helps scientists, engineers, and quality teams move from raw hyperspectral cubes to confident material insight without stitching together multiple tools.

Core Features in Detail

Powerful tools for finding, visualizing, and understanding hyperspectral information.



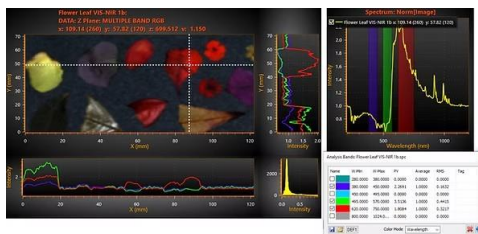
1 Spectral Search

Click or select any spectrum and instantly search images or spectral databases using multiple similarity algorithms. Supports image-to-image, image-to-database, and database-to-database workflows for fast, accurate matches.



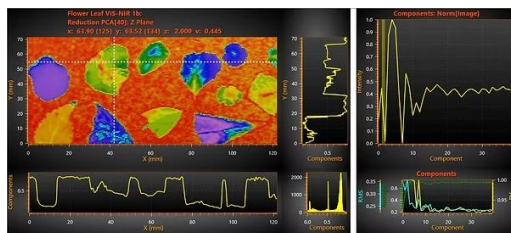
2 Clustering & AI Classification

Perform unsupervised clustering to discover natural groupings in your data using K-Means, DBSCAN, and other algorithms. Leverage AI-assisted classification with model-based methods such as SVM to identify and label materials with high accuracy.



3 Multiple-Band Visualization

Create custom RGB and multi-band displays to highlight subtle spectral differences invisible to the naked eye. Explore spectral maps, band combinations, and component views to uncover hidden material characteristics.



4 Data Reduction (PCA)

Reduce complex hyperspectral data to a few principal components, preserving the most important variance. Speed up analysis, simplify visualization, and retain essential information for confident decision-making.

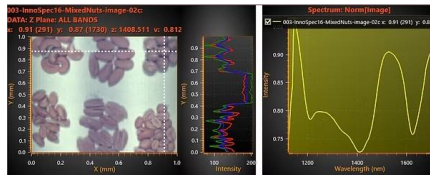


5 Spectral Databases

Browse and search local and third-party spectral libraries with ease. Compare spectra, view metadata, and organize reference materials to build a trusted knowledge base for identification and validation.

Advanced Analysis & Applications

From enhanced spectral processing to real-world decision support.



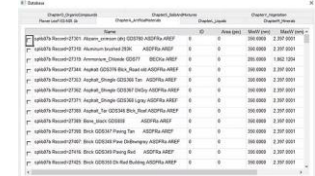
1 Image Rendering

Render RGB and false-color images from selected spectral bands to reveal structures and contrast not visible in standard images.



2 Spectral Band Math

Combine bands with equations to enhance features, support vegetation studies, mineral mapping, atmospheric correction, and material discrimination.



3 Database Comparison & Validation

Compare spectra against trusted local and third-party references, review metadata, and validate material identity with confidence.

Common Applications



Food Quality & Contamination Detection

Detect adulteration, contaminants, and quality variations in food and ingredients.



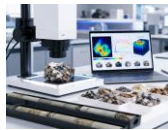
Pharmaceuticals & Chemicals

Identify raw materials, monitor processes, and ensure product quality and compliance.



Agriculture & Vegetation Analysis

Monitor crop health, nutrient status, stress, and disease with spectral precision.



Geology, Mining & Minerals

Map mineralogy, explore deposits, and support exploration and process optimization.



Recycling & Polymer Identification

Identify polymers, sort materials, and improve recycling efficiency and purity.



Research, Remote Sensing & Industrial QA

Advance scientific research, analyze remote sensing data, and support industrial quality assurance.

Typical Workflow

- 1 Import hyperspectral data**
Support for industry-standard formats and instruments.
- 2 Preprocess & normalize**
Apply denoise, baseline correction, and normalization.
- 3 Search, cluster & classify**
Find matches, discover groups, and build AI classifications.
- 4 Compare against databases**
Match spectra to trusted libraries and review metadata.
- 5 Visualize, validate & report**
Create maps, plots, and reports for confident decision-making.

Why Spectra Explorer?

- Device-independent analysis workflows
- Integrated spectral search, visualization, and classification
- Flexible support for custom and third-party databases

Ask for a demo info@spectra-insight.com