visionCATS 4.2
POWERED BY AI

POWERFUL AI TOOLS FOR SIGNIFICANTLY ENHANCED HPTLC DATA INTERPRETATION

This option is designed to evolve over time and will be expanded with additional tools in future releases. It provides a suite of intelligence-driven analytical tools that extract deeper information from HPTLC data, and complement traditional chromatographic workflows with quantitative, statistical, and predictive capabilities. This first release introduces two functions, Peaks Acceptance Criteria and Classification, that transform the way HPTLC data are evaluated and interpreted.

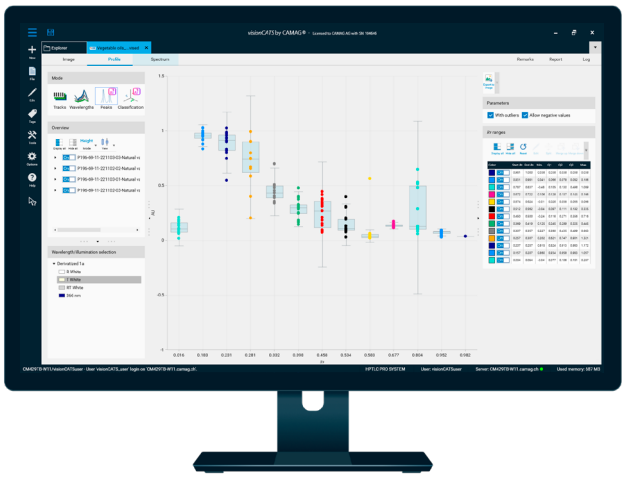
The AI Tools option combines artificial intelligence with CAMAG's analytical expertise to transform complex HPTLC data into actionable insights, making analysis faster, smarter, and more precise. With automated Peaks Acceptance Criteria and adaptive Classification, users gain a smart assistant for more confident decision-making.

APPLICATIONS

- Reliably detect dilution, substitution, and adulteration by visualizing and calculating the normal acceptance values for peak data.
- Explore the natural grouping of samples through clustering analysis of unlabeled data.
- Train models on authentic data to assess quality consistency, detect outliers, and perform species identification or origin mapping.

PEAKS ACCEPTANCE CRITERIA – SMARTER UNDERSTANDING OF PEAK DATA

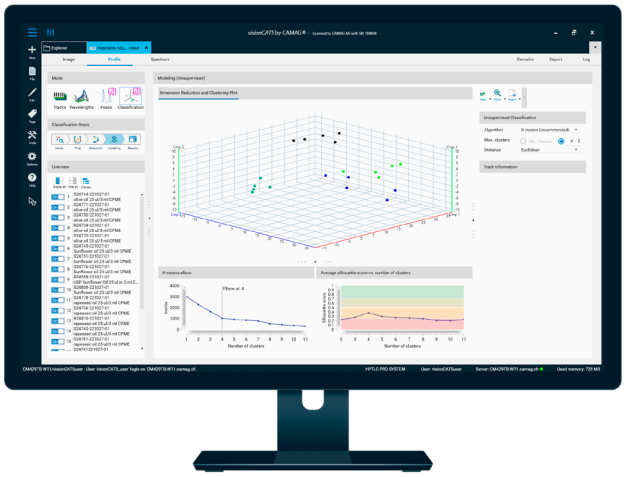
The Peaks Tool enables users to compare substances and define statistically reliable acceptance ranges.



- Show acceptance limits for peak data (area and height) using Min / Max or Confidence Interval algorithm, with the ability to exclude outliers for more robust criteria.
- Quickly assess signal patterns (R_F, peak height, and area) using interactive scatter plots or box plots.
- Automatically group peaks by track, analysis, and wavelength, while allowing adjustment of R_F ranges to maintain consistency across different plates.

CLASSIFICATION – TURNING DATA INTO KNOWLEDGE

The Classification tool brings AI-driven pattern recognition and grouping into *visionCATS*, removing subjective interpretation in data evaluation.



- Choose between predictive modeling using labeled references data (Supervised Classification) or exploratory clustering for unlabeled data (Unsupervised Classification).
- Utilize dimensionality reduction techniques such as PCA or t-SNE, combined with comprehensive preprocessing, to reduce noise and enhance algorithmic performance.
- Explore results through high-resolution 2D and 3D visualizations, revealing hidden patterns and relationships within the dataset.

CAMAG
Sonnenmattstrasse 11
4132 Muttenz
Switzerland
info@camag.com