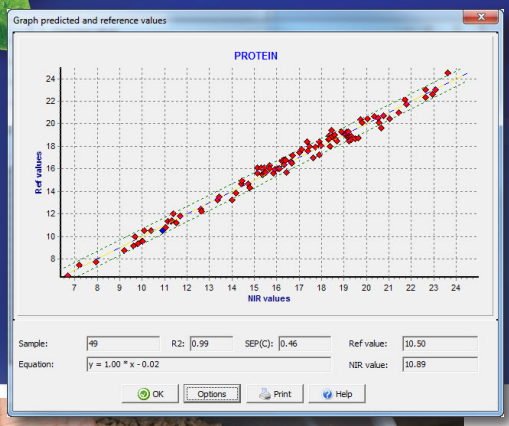
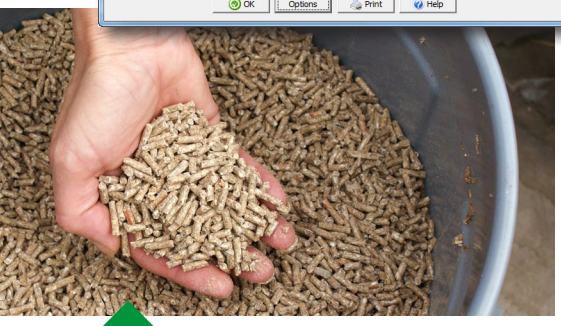
UCal™
Chemometric and Database Management Software

EQUIPMENT SERIES



- Sample Management Suite
- Calibration Transfer Tools
- Easy Calibration Development
- Comprehensive Evaluation, Validation and Maintenance Tools



The UCal software is a powerful software suite created and designed specifically for supporting NIR calibrations for natural products including food and agricultural applications. UCal is designed to provide state of the art chemometric and statistical algorithms in an intuitive and easy to use package.

BENEFITS:

- Easy to use
- Single screen calibration interface
- Compact file structure - single calibration equation file for all constituents
- Powerful calibration tools
  - PLS algorithm using neighborhood distance principle
  - Patented Condense Algorithm for database optimization
  - Patented Minimization (MIN) file to remove unwanted variation from spectra
- ISO 12099 Compliant

Sample Management Suite

At the heart of UCal is a comprehensive sample management system based on a logical data file structure that allows for sets of data to be reviewed and combined with ease. Spectra files can easily be imported and exported along with constituent information to simplify the file management process. A graphical interface allows for quick and easy viewing of spectral data. Spectral graphs, calibration graphs, and text data can all be exported to other Windows™ programs for use in building reports and presentations.

The UCal software contains a powerful file conversion section that converts spectral data from multiple vendor instruments into the UCal format. This means that UCal can be used on multiple vendor platforms. Data can be imported to and exported from UCal using Unity (.svf format), Jcamp (.dx, .jdx), Grams (.spc), NIRSYSTEMS® ISI (.nir and .cal), and other formats. Spectral data can be truncated and interpolated to match wavelength ranges when transferring a database.

Calibration Transfer Tools

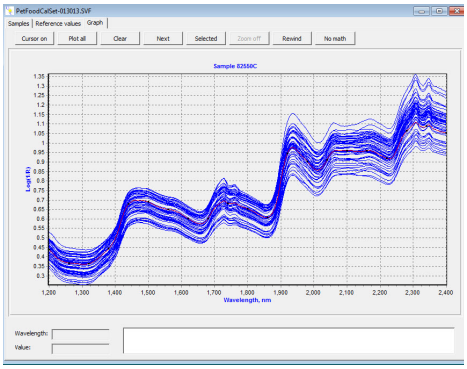
UCal provides standardization to match a network of instruments to a “Master” instrument. This standardization feature can even accommodate instruments from different vendors. UCal also provides features to transfer an existing calibration database to the SpectraStar™, while then be able to add new samples to the transferred database.

UCal™ Chemometric Software

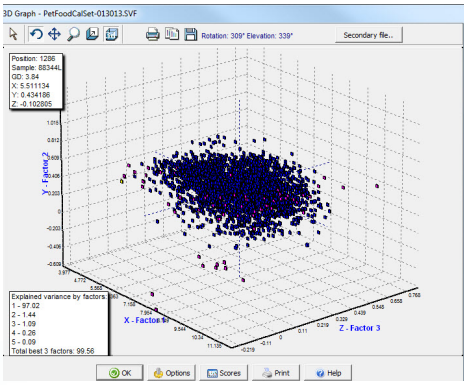
Easy Calibration Development

UCal provides a powerful, yet easy calibration development process for building the most accurate calibrations. With a single screen calibration interface, a compact file structure where a single calibration equation file is used for all constituents, and single push button operation, UCal makes creating calibrations easy.

For quantitative calibrations, UCal supports optimized PLS (Partial Least Squares) chemometric models. Optimized PLS uses the Neighborhood Distance (ND) Principle to optimize and build databases using PLS instead of PCA (Principal Component Analysis) to organize and structure the database. With this principle, UCal includes a patented Condensing algorithm to remove unwanted redundancy from large databases. The patented Minimization (MIN) file helps to minimize unwanted variation in the data due to sampling effects or instrument differences.



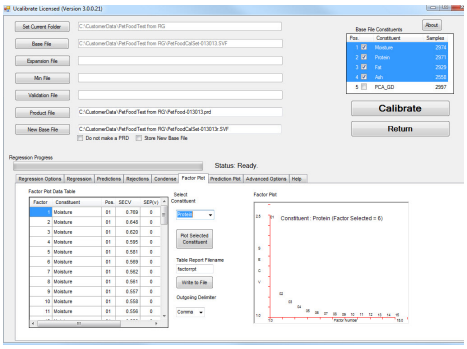
Properly structuring a database in this way will greatly improve the calibration's accuracy. Because the Neighborhood Distance Principle relies on PLS mathematics, databases are optimized per constituent as opposed to other software packages that only focus on PCA, which doesn't factor in constituent variation. As a result, each constituent will have its own sample distribution, leading to the best possible accuracy.



Comprehensive Evaluation, Validation and Maintenance Tools

UCal includes a complete suite of routines for the evaluation and validation of calibration models including statistical summaries and outlier identification. Calibrations can be easily monitored for accuracy during the development process as well as on-going validation protocols.

UCal also provides the best tool to identify new samples for a calibration database. Because the software is focusing on individual constituents, wet chemistry data is only necessary for specific constituents as opposed to analyzing for all constituents in a PCA structure. This can save thousands of dollars in wet chemistry costs for building and maintaining calibrations.



UCal Training

Unity Scientific offers training for UCal in the Brookfield, CT, USA headquarters, less than one hour from New York City. The class is 2.5 days and covers all aspects of NIR calibration development with UCal. The training is highly recommended so that users can fully utilize the features and capabilities of UCal and thus realize the full value from their NIR investment. Custom on-site training is also available. Please ask your Unity sales professional for further details.

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