



The software platform for chemometric applications in spectroscopy

Intelligent Spectroscopy...

Spectroscopy with chemometric data evaluation is an established technology that offers cost-saving methods for replacing conventional chemical analysis with much easier measurements with optical instruments.

This becomes possible by using sophisticated statistical methods to model the interrelation between spectra and analysis results. By these means, properties of unknown samples can be calculated quickly, efficiently and without destroying the sample. In other words: these methods save time and resources and - above all - costs in daily routine analysis.

...with *SL*-Software Products

The combination of the various carefully balanced *SL* Modules and a standardized project database structure ensures that you meet the requirements of many fields of application. For example the *SL*-modules can be used:

- for analyzing crop samples in agriculture,
- for analyzing meat products in food production,
- for determining the acid value of substances in the chemical industry or the octane number of gasoline in petrochemical,
- for identifying substances in the pharmaceutical industry.

From the process of collecting the spectra and reference analysis values, to the subsequent development of individual calibration models and complete applications, and to their employment in daily measuring routines - the entire workflow is supported practically. This is ensured by optimal adaptation to the demands of different working environments, independently of the type of instrument that is used.

Due to its modular concept, the *SL* product range is well adapted to customer-specific or task-specific applications wherever special requirements must be met, but where the development of specific individual software products is not economically justified.

The following *SL* Modules are available:

***SL* Calibration Workshop:**

allows you to develop and validate spectroscopic analysis methods for practical analysis of quantitative and qualitative sample properties

***SL* Predictor:**

for versatile routine application in daily analytical measurements, at-line or in the laboratory

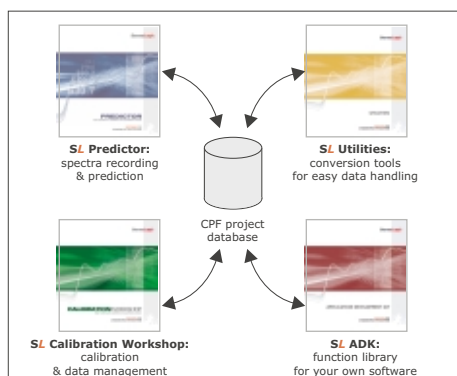
- routine qualitative and quantitative analysis
- data collection for method development

***SL* Application Development Kit**

to adapt the *SL* platform to additional specific software applications for OEM partners

***SL* Utilities:**

a collection of helpful tools, e.g. database viewer, editing spectra, format conversion, batch import and input utility for touchscreens



SL-Modules

Partners

In order to ensure frictionless performance of all *SL* products for our customers, we cooperate closely with the manufacturers of spectral photometers, who provide original instrument drivers and/or use the *SL* Application Development Kit.

In our *SL* Partner List you will find the manufacturers and distributors who support the *SL* platform in combination with their products.

Training Courses

We offer training courses for groups or companies to introduce you to efficient working methods with *SL* products and the spectroscopic and chemometric principles on which there are based. For further details please see our Brochure *SL* Training + Calibration.

Calibration Development

To our customers, we offer calibration services ranging from the development of a single calibration to long-term support for particular analytical methods, and to full-service calibration development and maintenance. For further details, please see our Brochure *SL* Training + Calibration.

SL Price List

Please request our *SL* Price List by E-Mail: info@sensologic.com (Subject: *SL*-Price List).

SL Calibration Workshop Vs. 2.03

Easy modelling for quantitative and qualitative analysis



Content:

Software SL Calibration Workshop
Language: English
1 CD-ROM
1 Software Manual (English)

PC System Requirements:

Intel- or AMD-processor (recommended > 1 GHz)
at least 256 MB RAM
at least 20 MB free space on hard disk
CD-drive
Printer port
MS Windows 98/2000/NT/XP

A powerful selection of well-established statistical techniques is available for each analytical purpose.

It is possible to combine MLR and factor models including the appropriate outlier diagnostics makes it possible to obtain the best analytical performance.

Finished Applications are ready for use to predict qualitative and quantitative properties of unknown samples with the SL Predictor.

Features of SL Calibration Workshop

Established statistical techniques

Quantitative factor analysis methods: Principal Component Regression (PCR)
Partial Least Squares Regression (PLSR)

Multiple Linear Regression (MLR): with full combination search,
mostly provides the best possible fit

Free combination of MLR and factor models with their respective outlier diagnostics in order to obtain the *best possible analytical performance* !

PCA Library and Cluster models: safe identification and qualification

Various import formats

- JCAMP (*.dx, *.jdx)
convert other source formats to *.dx or *.jdx with SL Utilities
- GRAMS Multifiles (*.spc)
convert other source formats to *.spc with SL Utilities
- Unscrambler (*.una, *.uns)
- Sesame Project Files (*.spf)
- Binary (*.dat)

Pretreatment of data and spectra selection

- Standardization
- Smoothing
- Derivatives
- Standard Normal Variate (SNV)
- Combinations of all transformation algorithms
- Filter tools for selecting spectra, for example by absorbance values at a freely selectable wavelength, by outliers or by property values

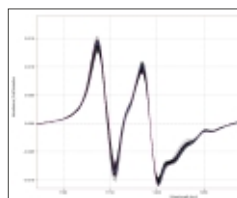


Fig. 2:
Section of Hydrocarbon spectra which was transformed with Absorbance/First Derivative

Graphics utilities

- For evaluation of primary and derived data
- User-friendly tools for easy handling of factor analysis techniques

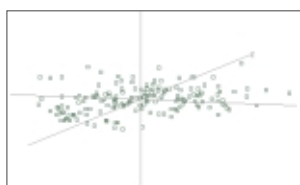


Fig. 3:
Score plot representation of a spectra series to identify possible sub-species, outliers or other interesting features of the data set

SL Predictor Vs. 1.3

Prediction of qualitative and quantitative properties of unknown samples



Content:
 Software SL Predictor
 Languages: English, German
 1 CD-ROM
 1 Software Manual (English, German)

PC System Requirements:
 Intel- or AMD-processor (recommended > 1 GHz)
 at least 256 MB RAM
 at least 20 MB free space on hard disk
 CD-drive
 Printer port
 MS Windows 98/2000/NT/XP

Various configuration settings in SL Predictor help you to carry out spectroscopic routine-analysis in the laboratory and production:

- User-friendly interface makes spectra collection very easy
- Properties of unknown samples are calculated using time-saving and efficient methods
- Available calibration models can be easily adapted and updated with new data

Features of SL Predictor

Customizing of Predictor workstation

- Fully integrated instrument drivers for spectrometers of different manufacturers (See Partner List)
- Various instrument settings including configuration management tools to support spectrometers with stand-alone capability
- Configurable result outputs via screen, printer, ASCII-file formats

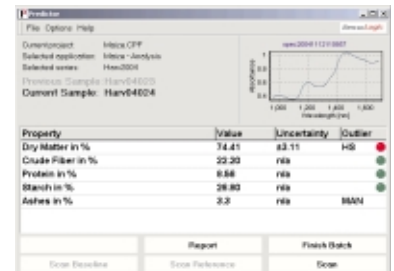


Fig. 4: Screen SL Predictor

Ease of operation

- Versatile data collection and/or prediction modes
- Measurement of spectra and optionally input of reference values
- Measurement of spectra optionally without /with saving in series
- Measurement of spectra and optionally without/with prediction
- Measurement of spectra with defined scan options

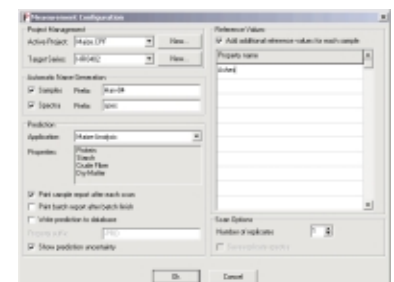


Fig. 5: Measurement configuration SL Predictor

Operating safety

- User-administration with two user levels
- Multilingual operator guidance (German and English)

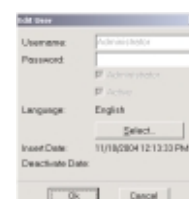


Fig. 6: Edit User

SL Application Development Kit Vs. 2.21

Versatile function libraries for your own software



The prediction functions of the SL Application Development Kit Vs. 2.21 allow for direct quantitative predictions with MLR and factor regression models including outlier diagnostics as configured in the SL Calibration Workshop.

For qualitative applications, PCA library and cluster models are available. In addition, there is a full set of functions for write and read access to database entries.

SL Utilities Vs. 2.0

A set of conversion tools to simplify data handling



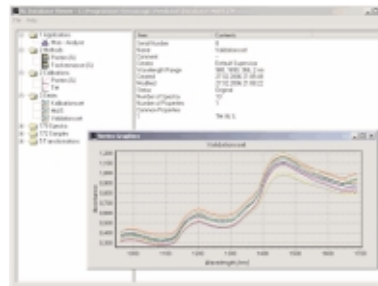
In addition to the import routines of the SL Calibration Workshop SL Utilities offer various import routines as well as tools for conversion into CPF-importable format. By using the *Wavelength Range Conversion* and *Subset Selection*, spectral data can be handled.

The *Database Viewer* gives you an fast overview of information regarding a *Chemometric Project File (*.CPF)*.

Database Viewer

Fast overview of the content of the CPF database:

- Samples and reference data
- Spectra, series and libraries
- Transformations
- Calibrations, methods and applications



Wavelength Range Conversion

Adaptation of spectra series for use in other data series, so that an existing, proven calibration spectra model can be used in an instrument with different wavelength ranges and/or increments.

Subset Selection

Selection of a set of representative spectra of a series by using the Gauss-Jordan-algorithm or by randomly generated distribution of spectra.

SPC File Import and ISI ASCII File Import

- Batch import of a set of SPC singlefiles (optionally with or without reference values, i.e. Excel sheet) or import of SPC Multifiles
- *SPC File Info* offers additional information about the SPC file
- *ISI ASCII File Import* for import of ASCII data generated by ISI software.

JCAMP Single-, CSV Single- and JCM Multifiles

are converted into JCAMP Multifile Format which can be imported by SL Calibration Workshop.

SL Mini Soft Keyboard

For use in operation of instruments with touchscreen.

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