lab-loving people

maximum precision
in UV/Vis.

SPECORD PLUS family

UV/Vis spectrophotometry

analytikjena
An Endress+Hauser Company

SPECORD PLUS series

SPECORD PLUS series of photometers represents reliability, user friendliness and flexibility in UV/Vis analysis.

SPECORD 50 PLUS
- Double-beam spectrophotometer with split-beam technology

SPECORD 200 PLUS
- Double-beam spectrophotometer for simultaneous measurement of sample and reference signal
- Fixed spectral bandwidth

SPECORD 210 PLUS
- Double-beam spectrophotometer for simultaneous measurement of sample and reference signal
- Largest measurement range (185–1200 nm)
- Five variable spectral bandwidths

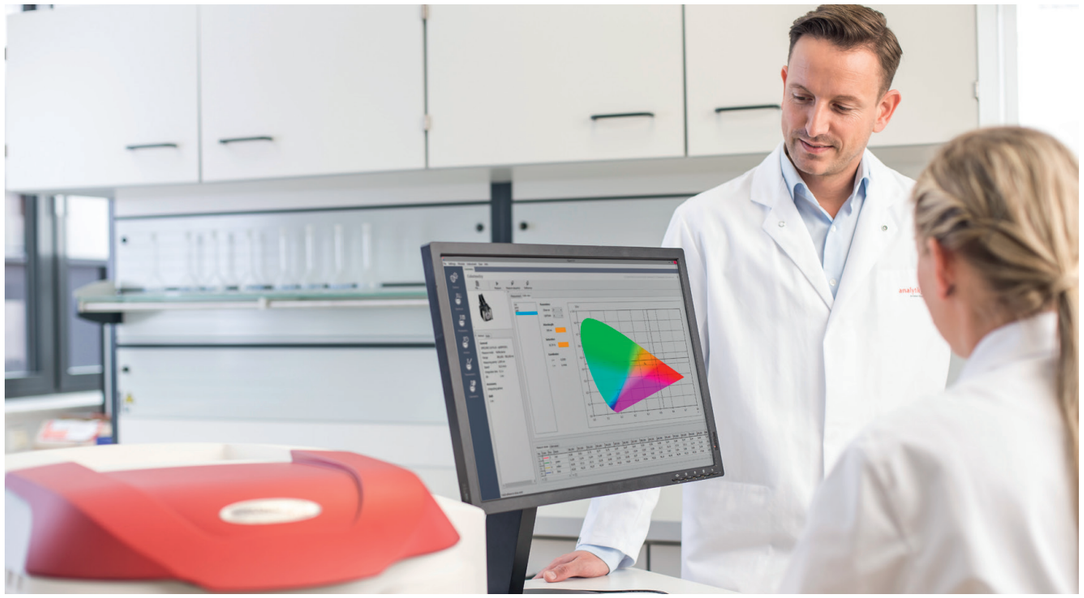
SPECORD 250 PLUS
- Double-beam spectrophotometer for simultaneous measurement of sample and reference signal
- Double monochromator
- Five variable spectral bandwidths
- Ideal for samples which produce a high amount of stray light

SPECORD PLUS

Maximum precision in UV/Vis

SPECORD PLUS – well equipped to fulfill all requirements

Innovative and intelligent engineering combined with decade-long experience to guarantee highest quality.



The package makes the difference

As the requirements for analytical testing become more demanding and complex, as regulations and standards become increasingly stringent, the SPECORD PLUS family of instruments for UV/Vis analysis offers the fitting solution.

The perfect combination of instrumentation, accessories and software

The SPECORD PLUS family includes UV/Vis instruments of outstanding precision and reliability, intuitive operation with a user-friendly and powerful software, and a very broad range of accessories tailored to a wide range of applications.

Consistent, cost-effective processes

Whether routine analysis or complex applications, both UV/Vis novices and experts can easily achieve consistent and reproducible measurement results of highest quality. The SPECORD PLUS family offers the flexibility and ease-of-use to meet current and future analytical challenges.

Precise and reliable

- A sophisticated and robust optical concept ensures outstanding measurement performance.
- Multiple internal tests ensure proper operation of the system.
- Quartz coated optical components guarantee extreme durability.

Flexible and customizable

- An extensive range of accessories provides flexibility and efficiency for all routine- or special applications.
- The modular concept of the accessories makes switching between applications fast and easy.
- The large sample compartment and dual beam design allow the simultaneous use of two accessories increasing efficiency and productivity.
- An additional cell position directly in front of the detector supports the measurement of turbid samples.

User-friendly

- An intelligent software design supports smooth workflows.
- A modular software package offers flexibility and helps to ensure that regulatory requirements are met.
- The clever instrument design impresses with ergonomics and optimal use of space, fast operational readiness and easy handling.

Benefits

- High-end quartz-coated optical components provide **extreme durability** even in harsh lab environments.
- Monochromator with imaging holographic grating **minimizes stray light**.
- Automatic self recalibration for **optimum wavelength accuracy and reproducibility**.
- Innovative detector technology with temperature controlled detectors for **outstanding long term stability**.
- Intelligent optical concept for excellent **signal-to-noise ratio**.
- Additional position **particularly suited for turbid samples.**
- **Easy and tool-free exchange of lamps** can be performed by user.
- Extensive accessory portfolio and large sample compartment support **wide range of applications.**

10-year WARRANTY
Optical Components
analytikjena

*Analytik Jena is the only manufacturer worldwide that offers a long-term warranty of 10 years for the optical components of the device.**

* according to our warranty conditions: www.analytik-jena.com

Accessories for optimal results

Across industries and applications, precise and reliable instruments combined with accessories tailored to the specific workflow ensure optimal results.

The SPECORD PLUS family offers a comprehensive selection of accessories for simple handling and reliable analysis of a wide variety of samples. Whether cell holder, cell changer, flow cell systems, reflectance accessories or fiber coupling – the right accessory for each application is available.

Food and agriculture

Fast quantitative analysis of numerous compounds and monitoring of reactions with time-dependent concentration changes.

Possible accessories:

- **8-cell changer:** temperature control, time-dependent measurements (e.g. enzyme kinetics)
- **Round cell holder:** quantitative analysis of calcium, phosphate and nitrate etc. with ready-to-use test kits
- **Integrating sphere:** transmittance and diffuse reflectance mesurements of scattering solid, liquid and powder samples

Environment

Monitoring of various compounds in water, from drinking to industrial waste water. A dedicated position for turbid samples simplifies the measurement of highly scattering waste water samples.

Possible accessories:

- **Sipper system:** quantitative analysis of numerous compounds such as nitrate, nitrite, sulfate and phosphate
- **APG:** autosampler with up to 116 sample positions for routine analysis with high sample throughput

Chemicals and materials

Measuring transmittance, absorbance and reflectance of solid, liquid or powder samples as well as color determination for quality and purity control.

Possible accessories:

- **Holder for solid samples**: transmission characterictics of foils and glasses
- **Variable angle reflectance attachment:** determination of refractive index

Pharma and Life Sciences

Quality testing from raw materials to finished products and monitoring of time-dependent processes, such as dissolution.

Possible accessories:

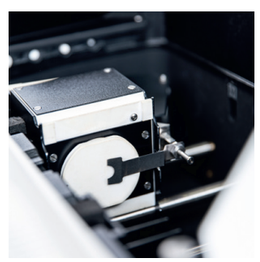
- **Ultra-micro cell holder:** DNA purity determination
- **Peltier temperature controlled accessories:** applications that demand high temperature accuracy
- **6-cell changer:** DNA melting point determination
- **2x8-cell changer:** dedicated for dissolution systems

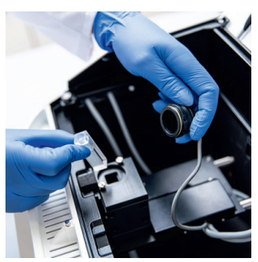
SPECORD PLUS in dissolution testing

The SPECORD 200 PLUS and SPECORD 210 PLUS are available as dissolution models, specifically tailored for this application. They can be easily connected with commercially available online dissolution systems (for example, SOTAX).

Both SPECORD PLUS models can be used as stand alone and on-line photometers. Switching between applications is quick and easy.
The unique Analytik Jena 2x8-cell changer further supports dissolution workflows.

SPECORD PLUS full accessory range
on www.analytik-jena.com





ASpect UV software – data evaluation made easy

A comprehensive basic software and specific modules provide the perfect solution for diverse applications.

The ASpect UV software is flexible, intuitive, and powerful. The Windows-based software includes the basic module for system control, result analysis and reporting, and additional modules which support compliance with regulatory requirements.

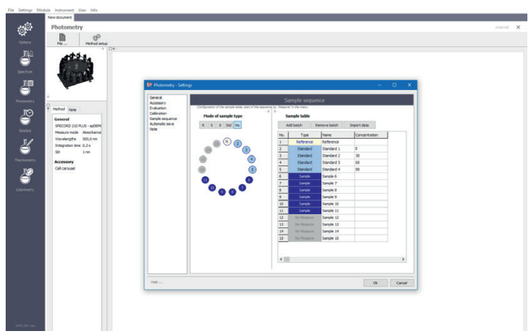
The ASpect UV basic module includes:
- Photometry
- Spectrum
- Kinetics
- Thermometry
- Colorimetry

Additional modules
- ASpect UV Validation Software module for device qualification according to Manufacturer Standards, Eur. Ph., and USP
- ASpect UV 21 CFR Part 11 module, including electronic signatures, audit trail functions, and user management

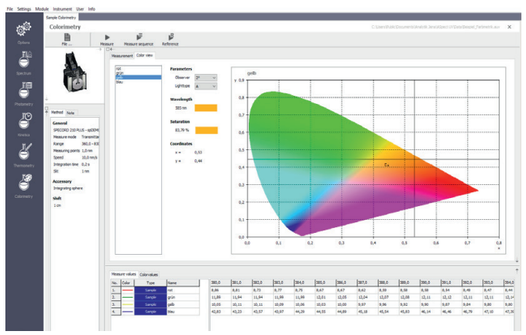
Ease-of-use and flexibility
ASpect UV is characterized by an intuitive interface and basic structure throughout all modules that allow straightforward operation and easy processing of measurement data.

Benefits
- Easy presetting of evaluation parameters and configuration of sample tables
- Automatic saving and export of data
- Extensive range of protocol templates and flexible configuration of print-outs
- Parallel operation in several windows for efficient workflows
- Multilingual software

Quantitative analysis with the photometry module



Color determination using the colorimetry module



Data integrity guaranteed

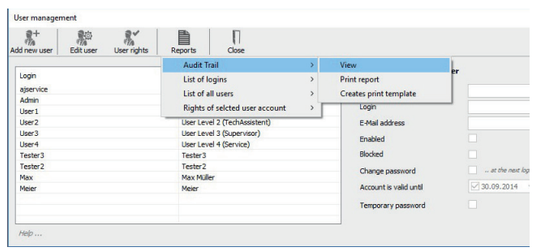
Conformity with 21 CFR part 11 is a must – the ASpect UV software modules support even the most stringent data integrity requirements.

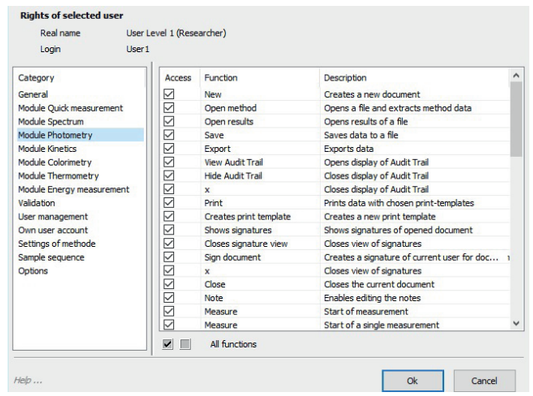
The modules of the ASpect UV software provide powerful tools for flexible and compliant analysis in highly regulated environments. A comprehensive user management ensures secure analysis and data processing. Together with the instrument qualification software module and additional file protection, data integrity is guaranteed.

ASpect UV 21 CFR Part 11 module
This module provides a comprehensive user management that allows the assignment of numerous specific rights to defined users and full traceability:
- Assignment of individual rights to each user and addition of new users as needed
- Audit Trail, documentation of all actions (measurement and user activity)
- Electronic signatures
- Reports for documentation
- Flexibility to set password complexity and history
- Automatic saving of methods and results as specified

Analytik Jena File Protection
The AJ File Protection is an extension of the ASpect UV 21 CFR Part 11 module and was developed to provide an additional level of data integrity:
- Protects files from intented and unintended manipulation such es renaming, deleting, and moving
- Digital signature from Microsoft®

User Management





Qualification package

Analytik Jena supports with the entire qualification process, providing the software tools for instrument qualification, the necessary documentation and qualification/validation services.

ASpect UV validation software module
To ensure that the spectrophotometer delivers precise and correct results, several significant instrument parameters, such as wavelength, absorption, stray light, and resolution must be tested according to stringent guidelines. The ASpect UV Validation Software leads step-by-step through the photometer qualification process, ensuring that all tests are performed and documented correctly.

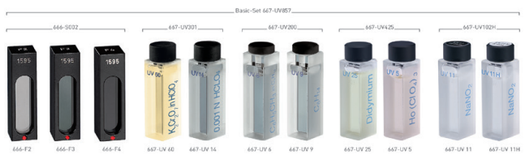
The qualification is performed according to:
- Eur. Ph.
- USP
- Analytik Jena performance specifications

The procedure is electronically recorded and also available as a print-protocol.

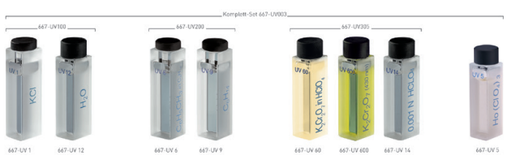
Installation qualification and operation qualification
An installation and operation qualification (IQ/OQ) of the SPECORD PLUS instruments with IQ/OQ documentation is available from Analytik Jena.
The OQ is performed according to European and United States Pharmacopoeia as well as Analytik Jena performance specifications using certified standards.

Services provided by Analytik Jena
- IQ/OQ performed by specially trained and qualified personnel
- Required certified standards provided by Analytik Jena
- Individual adaptation as required by the user's operational range

Hellma Set® according to USP



Hellma Set® according to Eur. Ph.



SPECORD PLUS series – specifications

SPECORD PLUS series	SPECORD 50 PLUS	SPECORD 200 PLUS	SPECORD 210 PLUS	SPECORD 250 PLUS
Optical design	Double beam spectrophotometer with Split Beam Technology	Double beam spectrophotometer with fixed spectral bandwidth	Double beam spectrophotometer with variable spectral bandwidth	Double beam spectrophotometer with variable spectral bandwidth and double monochromator
Wavelength range	190–1100 nm	190–1100 nm	185–1200 nm	190–1100 nm
Spectral bandwidth	1.4 nm	1.4 nm	variable 0.2/0.5/1/2/4 nm	variable 0.2/0.5/1/2/4 nm
Spectral resolution capability Toluene/Hexane at 20–25 °C	1.6–1.8	1.6–1.8	2.3–2.5	2.3–2.5
Stray light 198 nm (KCl Merck 1.08164.0001): 220 nm (NaI): 240 nm (NaI): 340 nm ($NaNO_2$):	 ≤0.3% T ≤0.03% T ≤0.03% T ≤0.02% T	 ≤0.3% T ≤0.03% T ≤0.03% T ≤0.02% T	 ≤0.3% T ≤0.03% T ≤0.03% T ≤0.01% T	 ≤0.03% T ≤0.005% T ≤0.005% T ≤0.005% T

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