

Article Overview

A spectrophotometer with an autosampler automates sample analysis, increasing throughput, precision, and efficiency for both liquid and solid samples.

Overview

Spectrophotometers equipped with autosamplers are designed to automate the measurement of multiple samples without manual intervention, significantly improving laboratory productivity and consistency. Autosamplers can handle liquids, solids, powders, and even gases, depending on the accessory configuration, and are compatible with UV-Vis and UV-Vis-NIR spectrophotometers .

Key Features and Benefits

- o High Throughput: Autosamplers can process dozens to over a hundred samples in a single run, reducing operator workload and minimizing errors . For example, some systems support up to 116 positions for liquid samples .
- o Automation and Software Integration: Modern spectrophotometers use software like AutoPro or VISIONlite to control sample handling, method execution, and data acquisition, enabling automated multi-sample analysis and mapping .
- o Versatile Sample Handling: Liquid samples are typically drawn through flow cells using sipper systems or peristaltic pumps, while solid samples can be measured using specialized holders or mapping stages . Sloping roof flow cells help prevent air bubbles from interfering with measurements .
- o Temperature and Environmental Control: Some autosamplers include temperature sensors, water bath trays, or conditioning sequences to maintain sample integrity during analysis .
- o Flexible Applications: These systems are used in research, QA/QC, and industrial applications, including thin films, coatings, optics, glass, solar materials, and biochemical assays such as protein or chlorophyll analysis .

Practical Considerations

- o Flow Cell Selection: Choosing the correct flow cell is critical for accurate measurements, especially for liquid samples. Sloping roof or specialized cuvettes reduce bubble interference .
- o Sample Preparation: Proper sample placement and cleaning routines are essential to maintain reproducibility and prevent cross-contamination .
- o Software Optimization: Method parameters, such as aspiration speed, dwell time, and measurement wavelength, should be optimized for each sample type to ensure high-quality data .

Examples of Systems

Spectrophotometer with autosampler

- o Agilent Cary 7000 UMS: Supports solid and liquid samples, multi-angle reflectance, and transmission measurements with AutoPro software for automated analysis .
- o Thermo Scientific CETAC ASX-260/520: Liquid autosamplers integrated with VISIONlite software for continuous solution analysis .
- o Analytik Jena SPECORD PLUS: Offers up to 116-position autosamplers, fiber-coupled immersion probes, and accessories for solid, liquid, and gaseous samples .
- o METTLER TOLEDO InMotion(TM): Modular autosampler system compatible with UV/Vis spectrophotometers, pH meters, and other analytical instruments, featuring robotic arms and environmental control .

Conclusion

Spectrophotometers with autosamplers provide efficient, high-throughput, and reproducible analysis for a wide range of sample types. By combining automated sample handling, advanced software, and flexible accessory options, these systems are ideal for laboratories aiming to maximize productivity, reduce human error, and maintain high-quality data across research, industrial, and QA/QC applications .

Shimadzu Scientific Instruments introduces the IRXcross(TM) Fourier Transform Infrared (FTIR)

In this technical note, we have explained the function and optimization of each of the parameters associated with autosampler,

Offering high stability and low stray light, the LAMBDA 365+ double-beam UV/Vis spectrometer delivers a

A high-end UV-Vis spectrophotometer (175-900 nm) regarded by many organizations as their main

Uv-Visible Spectrophotometer - Sippers And Autosamplers The auto sipper removes the need for cell handling. Used with a flow cell

While measuring multiple samples, the rinsing sequence can be started early by sending the autosampler

Application note for High volume optical component testing using an Agilent Cary 7000

The Solids Autosampler enhances the productivity and capabilities of your UMS and UMA. Measure up to

Discover spectroscopy with METTLER TOLEDO's Excellence UV/VIS cuvette and micro-volume spectrophotometers. Take your



Spectrophotometer with autosampler

Great Versatility - Trusted Compliance - Lambda 365+ UV/Vis Spectrophotometer Pharmaceutical laboratories require the flexibility

For routine, complex research and advanced applications, including current compliance, the Thermo Scientific(TM) Evolution(TM)

This video will go through the steps - from placing the samples and setting up a

Delivering a turn-key solution for research, development, and QA/QC in optics, thin films/coatings, solar,

Product Description The AA500 Atomic Absorption Spectrometer is available in THREE

ATS Xtend(TM) Double Offline | Dissolution Tester Double your capacity and collect samples from two dissolution baths in one single

"Choose between the Flex, Pro and Max InMotion Autosampler bases and the rack that fits your throughput

Web: <https://www.morwarreconst.co.za>

