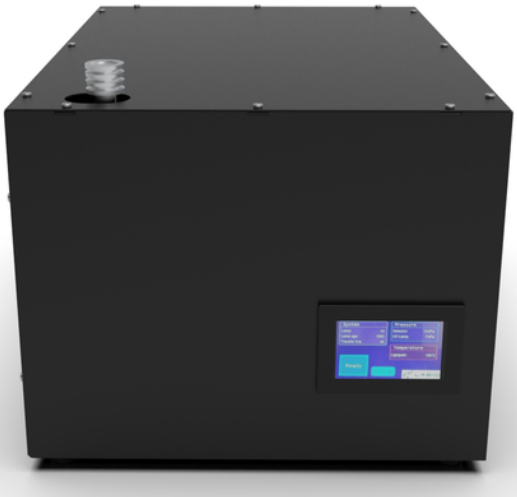
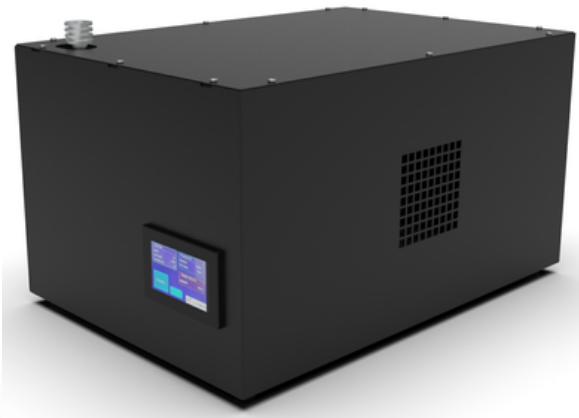
Information on GC-UV INSCAN 176 Analytical Injector System

Labio GC-UV INSCAN Series





Perform chemical analysis within a few minutes of liquid samples with GC-UV INSCAN 176

The GC-UV INSCAN 176 is a cutting-edge device that revolutionizes chemical analysis by providing rapid results for liquid samples within minutes. Its advanced technology combines gas chromatography (GC) with ultraviolet (UV) detection, ensuring accurate and precise measurements of various chemical components.

Labio GC-UV INSCAN 176

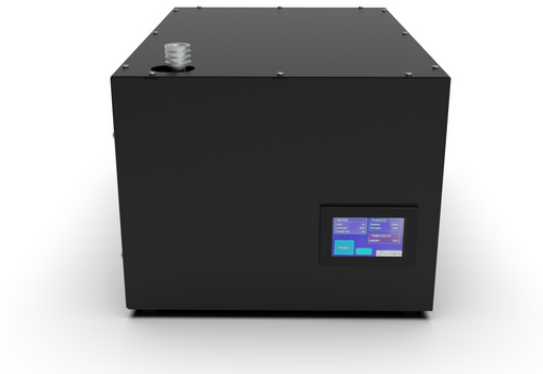
Precision detection and identification with high sensitivity of liquid samples

In today's fast-paced laboratory environment, turnaround times play a pivotal role in establishing and maintaining your lab's reputation. However, productivity challenges, such as instrument downtime, sample reruns, and data reviews, can hinder efficiency. The GC-UV is a general method of analysis and can be applied within numerous application areas. The results obtained are both qualitative and quantitative. The qualitative results give both identification of individual compounds.

With the GC-UV INSCAN 176, scientists and researchers can expedite their analysis process, saving valuable time and enabling quicker decision-making based on reliable data.

The gas chromatograph has a high heating rate enabling fast analysis when there are few compounds in the sample. The spectrometer supports this method by having a fast acquisition rate. If the requirement is to be very precise and time is not a constraint, a method with a slow temperature and pressure ramps can be employed in order to achieve good separation. The software is easy to use and flexible. A calibration curve is applied to find the amount of the substances in the sample. The spectral library ensures positive identification of the individual substances.

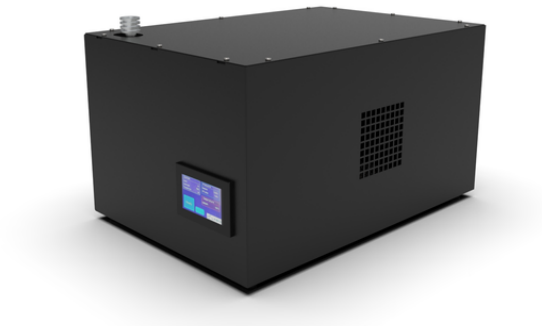
Full-scan analytical method for chemical compounds not limited to a few substances.



Proven sensitivity

Comprehensive qualitative information concerning the identity and chemical class of unknowns in a sample is gained. The method also gives reliable quantitative results.

Designed for routine labs across various industry applications for optimum operational efficiency.



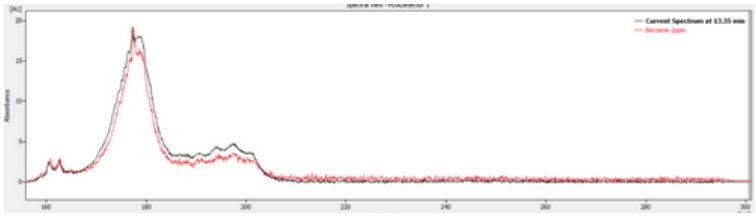
Easy sample Injection

Manual injection is a straightforward and commonly used method for introducing samples into a gas chromatography (GC) system. By using a syringe, analysts carefully draw a small volume of the sample and inject it directly into the GC inlet. This simple yet effective technique allows for quick and efficient analysis of a wide range of samples.

156-320 nm
Very high sensitivity
Very high selectivity
Very good ability to identify isomers
Very stable without required frequent major calibration
Easy to use
Mobile and compact

90% of the maximum absorptions are observed at wavelengths below 200nm..

Precision detection and identification with high sensitivity

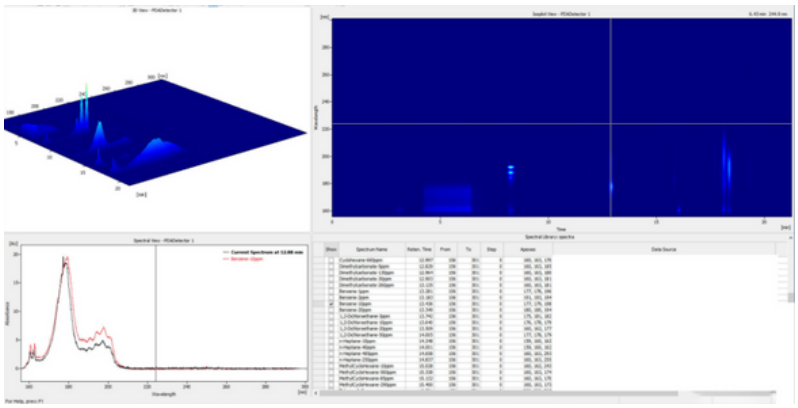


- Benzene, 2ppm
- Current Spectrum

Gas chromatography -UV spectrophotometry (GC-UV) is a full scan analytical method, where the compounds eluting from a gas chromatographic column are continuously monitored. The method belongs to the same categories as gas chromatography mass spectroscopy (GC-MS) and gas chromatography Fourier transform IR (GC-FTIR).

The sensitivities are very high both concerning detection limits, identification limits and classification limits. Selective analysis can be carried out for most of chemical classes like aliphatic aldehydes, pyridines, naphthalenes etc.

UV-spectra in the vapor phase are very well defined, which is the bases for the identification. Computer based search for unknowns against a reference library is very well suited for identification as well as for classification of unknowns. UV-spectra are also visually well suited for fast identification/classification.



Substance identification can be done both by retention time given by the chromatograph and by the characteristic absorption spectra given by the detector. UV-spectra in the vapor phase are very well defined, which is the bases for the identification. Computer based search for unknowns against a reference library is very well suited for identification as well as for classification of unknowns.

GC-UV's ability to detect a wide range of compounds, from volatile to semi-volatile, makes it an invaluable tool in diverse fields such as pharmaceuticals, environmental analysis, forensics, and more. The high selectivity and sensitivity of GC-UV empower scientists to uncover trace-level impurities, ensuring the utmost data integrity and quality in their analyses. With its versatility and robustness, GC-UV is a go-to technique for researchers and analysts who seek comprehensive and reliable compound analysis.

Quantitative and qualitative chemical analysis of liquid samples

Our system identifies and measures the quantity of each substance in a liquid sample.

Classic gas chromatographs with one-dimensional detectors such as Flame Ionization Detector (FID), Thermal Conductivity Detector (TCD), Electron Capture Detector (ECD), and Flame Photometric Detector (FPD) have traditionally relied on retention time alone for substance identification. The detector response provides a quantitative measure of the amount of substance present at each point in time.

However, our system takes a step further by combining the established chromatography technique with a powerful UV spectrometer. This unique combination allows the detector to provide the complete spectra of the eluting substance at every moment in time, facilitating positive identification through library searches.

This capability proves particularly valuable in untargeted analyses and when dealing with contaminants in the sample. In contrast to High Pressure Liquid Chromatography (HPLC) that employs a liquid solvent, our device employs nitrogen gas as the carrier, which is transparent in the UV range where many substances exhibit high absorption. As a result, our system enables higher sensitivity and reduces the shadowing effect caused by the carrier liquid in HPLC.

While Mass Spectrometers offer sensitive detection, they have longer start-up times and can be prone to contamination, especially with high sample volumes. Additionally, Mass Spectrometers are unable to differentiate between structural or optical isomers. However, in UV detection, different isomers exhibit distinct absorption spectra, allowing for differentiation.

On the other hand, FTIR detectors, although not as sensitive as UV detectors, are usually not integrated within the same device as gas chromatographs. Utilizing an FTIR detector without a chromatograph requires manual identification by an experienced user. Moreover, the number of simultaneous detectable substances is limited compared to other systems.

Our system stands out by utilizing 4.6 purity nitrogen as the carrier gas, which is safe, cost-effective, and easily obtainable. This sets it apart from other systems that rely on more expensive gases like helium or high-purity nitrogen. Furthermore, our approach eliminates the potential hazards associated with using hydrogen gas, especially in the presence of leaks.

Perform chemical analysis within a few minutes of liquid samples with GC-UV INSCAN 176

The GC-UV INSCAN 176 is a cutting-edge device that revolutionizes chemical analysis by providing rapid results for liquid samples within minutes. Its advanced technology combines gas chromatography (GC) with ultraviolet (UV) detection, ensuring accurate and precise measurements of various chemical components.

Advantages of the GC-UV Method

Labio introduces its new generation of GC/UV instruments that revolutionize analytical lab operations with intelligent technology. Designed to streamline workflows and enhance efficiency, these cutting-edge instruments significantly reduce instrument downtime and optimize run times, enabling maximum productivity in analytical labs.

The new Gold Standard

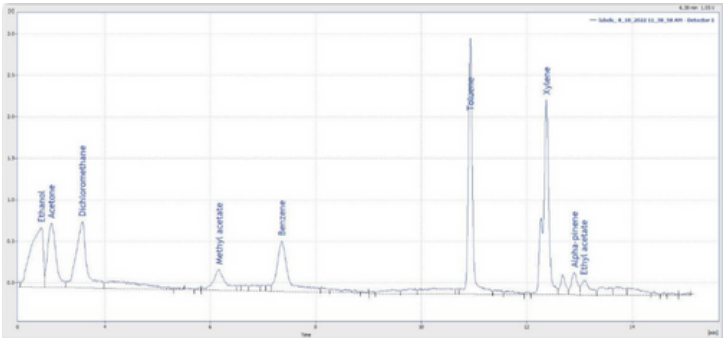
The Labio GC/UV instruments incorporate state-of-the-art intelligent features that minimize downtime and ensure uninterrupted operation. With advanced diagnostics and self-monitoring capabilities, the instruments proactively detect and resolve issues, minimizing the need for manual intervention and reducing the risk of unexpected breakdowns. This intelligent technology not only saves valuable time but also enhances instrument reliability and extends the lifespan of the system.

Use outside laboratory environment

The instrumental construction is relatively simple and compact giving possibilities for making analysis in close connection with the sampling site. This possibility is simplified by the low demand for a laboratory infrastructure. The simplicity also gives short start up time as well as relatively low instrumental cost.

Worlds fastest GC measurement

the Labio GC/UV instruments offer optimized run times, allowing for faster analysis without compromising data quality. The intelligent algorithms and efficient sample handling mechanisms enable swift sample injection, precise separation, and rapid detection, resulting in shorter analytical cycles. By accelerating analysis times, labs can increase throughput, process more samples, and deliver results in a timely manner, thereby improving overall productivity.



This information is subject to change without notice.

© Labio Scientific 2023
Labio a.s.
Namesti 14. Rijna 1307/2 Praha 5 –
Smichov 150 00 Czech Republic
DIČ: CZ00549428 IČO: 005 49 428