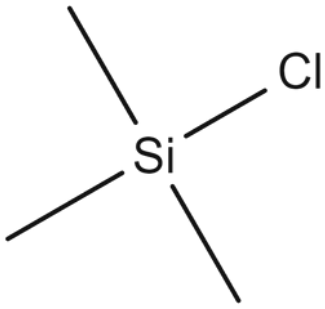
Mobile Sampling and Fast Gas Analysis

Air quality has emerged as a critical concern across various sectors, prompting the need for reliable and advanced analytical techniques. Air chemical analysis plays a pivotal role in environmental monitoring, industrial emissions control, occupational health and safety, indoor air quality assessment, air pollution research, and mobile source emissions evaluation. In this article, we delve into the in-depth applications and benefits of air chemical analysis, with a particular focus on the utilization of Gas Chromatography with Ultraviolet Detection (GC-UV) for comprehensive air sample analysis.

Monitoring air quality is vital for identifying pollutants and assessing their concentrations to safeguard ecosystems and human health. Air chemical analysis provides valuable insights into pollution trends, aids in studying air quality improvement measures, and enables the development of targeted mitigation strategies. By employing GC-UV, environmental agencies, research institutions, and regulatory bodies can accurately detect and quantify various chemical substances, including volatile organic compounds (VOCs), nitrogen oxides (NOx), particulate matter (PM), sulfur dioxide (SO2), and more.



Solvent in the fields of microelectronics, semiconductors, and laboratory glassware.

GC-UV INSCAN 178

Overcoming challenges and ensuring efficient and reliable air analysis

Air chemical analysis is a critical process in various industries and sectors, ranging from environmental monitoring to industrial emissions control and occupational health and safety. Accurate and timely analysis of air samples is essential for identifying pollutants, assessing their concentrations, and evaluating their impact on human health and the environment. However, this process comes with its own set of challenges. Labio, through GC-UV INSCAN 178, addresses these challenges and enables efficient sampling and fast chemical analysis of air samples, revolutionizing the field of air chemical analysis.

1. Challenges in air chemical analysis

Traditional air chemical analysis methods can be time-consuming, leading to delays in obtaining results. This can hinder prompt decision-making and hinder the ability to take immediate action to mitigate potential risks.

Air samples are often collected in the field and need to be preserved properly to prevent degradation or loss of target compounds. Failure to handle and preserve samples correctly can compromise the accuracy and reliability of the analysis.

Air samples may contain a complex matrix of chemical compounds, including volatile organic compounds (VOCs), inorganic gases, and particulate matter. Analyzing these diverse components requires advanced techniques and instrumentation to ensure accurate and comprehensive results.

Labio offers advanced automated sampling systems that streamline the collection of air samples. These systems provide precise control over sampling parameters, ensuring representative samples are obtained consistently and efficiently.

1.2 Sample preservation and handling

Labio's innovative solutions incorporate state-of-the-art preservation techniques to maintain the integrity of air samples during transport and storage. This helps prevent degradation and ensures that target compounds are preserved for accurate analysis.

Labio utilizes cutting-edge analytical techniques, such as gas chromatography with UV detection (GC-UV), to enable fast chemical analysis of air samples. GC-UV combines the separation power of gas chromatography with the sensitive detection capabilities of UV spectroscopy, allowing for rapid identification and quantification of target compounds.

Labio's advanced systems provide the capability to analyze a wide range of chemical compounds, including VOCs, inorganic gases among others.

The comprehensive analysis allows for a holistic understanding of air quality and pollutant profiles, aiding in effective decision-making and implementation of appropriate control measures.

GC-UV INSCAN 178

Benefits of GC-UV INSCAN 178 for Air Chemical Analysis

2. Time and cost savings

Labio's efficient sampling and fast chemical analysis capabilities significantly reduce analysis time, enabling prompt decision-making and timely implementation of corrective measures. This saves valuable time and resources for industries and regulatory bodies.

2.1 Enhanced accuracy and reliability

By automating sampling processes and utilizing advanced analytical techniques, Labio ensures consistent and accurate results. This reliability is crucial for meeting regulatory requirements, assessing compliance, and making informed decisions based on reliable data.

2.2 User-friendly interface

Labio's GC-UV INSCAN 178 user-friendly interface and intuitive software make it accessible to both experienced analysts and non-experts. This promotes wider adoption of efficient air chemical analysis practices across industries and simplifies data interpretation.

2.3 Making non-targeted analysis targeted

Non-targeted analysis is a powerful approach used in air chemical analysis to identify and quantify a wide range of substances present in air samples. However, the vast amount of data generated through non-targeted analysis can be overwhelming and time-consuming to process. To overcome these challenges, advanced techniques and strategies are employed to make non-targeted analysis more targeted, allowing for improved precision, efficiency, and meaningful interpretation of results.

Targeted analysis allows for the specific identification and quantification of predetermined chemical compounds of interest. By focusing on specific targets, analysts can ensure higher precision and accuracy in their analysis, reducing the risk of false positives or false negatives.

Spectral libraries and databases containing reference spectra of known compounds are invaluable resources for targeted analysis. These resources allow analysts to compare the spectra obtained from their samples with those in the library, facilitating the identification and quantification of targeted compounds.

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