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**Intitulé de l'exposé**

Systèmes d'analyse en continu de composés organiques polycycliques dans l'air ambiant.

**Title of the presentation**

Continuous monitoring systems for polycyclic aromatic hydrocarbons in ambient air.

**Key-words**

Gas Chromatography, Flame Ionization Detection, Volatile Organic Compounds, Ozone precursor, sVOC, PAH

**Issues**

Polycyclic Aromatic Hydrocarbons (PAHs) are a group of over 100 different chemicals that are known to be formed typically during incomplete combustion of organic matter at high temperature. Their major sources in the atmosphere include industrial processes, vehicle exhausts, waste incinerations, and domestic heating emissions. Due to their carcinogenic/mutagenic effects, 16 PAHs are currently listed as priority air pollutants. Actual analytical methods dedicated to monitor PAHs require multistep manual sampling preparations and are not suited for continuous monitoring. Automatic Thermal Desorption-Gas chromatography equipped with flame ionization detector and Mass Spectrometer (AUTO-TD-GC-MS/FID) is the standard method for the monitoring of volatile and semi-volatile hydrocarbons. This technique allows for identifying and quantifying continuously hydrocarbons from benzene to benzo(a)pyrene. The main goal of this work was to provide an online monitoring solution for sampling and determination of PAHs in ambient air. A detailed study was carried out to optimize the experimental method in each of its phases, including sampling, thermal desorption, analytical separation, and detection. First, the limits of use of the analytical system were determined during the laboratory phase using liquid standards of the 16 PAHs. The results were compared with a transportable HPLC-UV system. Then the applicability of the novel methodology was tested in real environment, namely, at 200 meters from a highway. In this study, we report the automatic identification and quantification of VOCs and sVOCs from C6 to C20+. Any compounds from C6 to C20 are automatically identified thanks to the internal NIST library in the internal computer of the GC-MS/FID system.