

OFFRE DE STAGE

Development of sample preparation method for the analysis of secondary organic aerosol molecular markers using pressurized solvent extractor .

Nos réf. : Ineris - [CGR] - ID 2726173

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Lieu : Verneuil-en-Halatte (60) - accessible en transports en commun, à 40 mn au Nord de Paris

Type de contrat : stage

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Impact of particulate matter (PM) (aerosols) on air quality and health is now well recognized. If aerosols are formed of a complex mixture, organic matter (organic aerosol, OA) represents a large fraction of the total mass of the fine particles in the atmosphere. OA sources, formation processes and chemical composition remain quite unknown. Organic compounds directly emitted in particulate phase in ambient air are defined as primary organic aerosol (POA). Besides, a large fraction of organic aerosol, secondary organic aerosol (SOA, 80 to 90 % of total OA in some locations) is produced by homogenous and heterogeneous reactions of volatile organic compounds (VOCs) as well as aging of organic aerosol. Unlike primary particles, directly emitted into the atmosphere from characterized sources, secondary aerosols cannot be regulated. In this context, the discrimination of POA and SOA sources is fundamental.

SOA molecular markers from specific VOCs (e.g. SOA-biogenic: pinic acid, pinonic acid, 2-methylthreitol, 2-methylerythritol, β -caryophyllinic acid, MBTCA; SOA-anthropogenic: DHOPA, phthalic acid, SOA-Biomass Burning: methyl-nitrocatechols...) can provide insights into the processes and sources influencing SOA formation and spatiotemporal distribution. Their analysis is currently performed by GC-MS after sample derivatization. If the application of such analytical method has been successful so far, some issues related to the background level, limits of detection and quantification obtained, etc., have raised.

The aim of this internship is to develop an extraction method for samples collected of Polyurethane Foam (PUF) using Pressurized fluid extractor. The work will include the optimization of extraction parameter (solvent, temperature, time ...) and the evaluation of the method performances.

A standard operating procedure of the developed method will have to be provided by the end of this work.

PROFIL

- Bachelor in Chemistry.
- Laboratory and research work interests.
- Knowledge in analytical chemistry (GC-MS, GC-MS/MS, derivatization).
- Knowledge in atmospheric chemistry/air quality is a plus.
- Autonomy, adaptability, communication and writing abilities.
- Good English level.

DIVERS

Durée : 6 weeks – up to 2 month

Ce poste est ouvert aux personnes en situation de handicap.