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ABSTRACT

MAIN LOSSES OF SAMPLED VOLATILE COMPOUNDS IN NALOPHAN BAGS: FOCUS ON SULPHUR COMPOUNDS

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Summary

Nalophan bags are commonly used for air sampling and especially for odour analysis. Even if olfactometric measurement must be carried out within maximum 30 hours after sampling, the question of potential sample evolution is always present. This study illustrates the behaviour of selected sulphur compounds in Nalophan bags from filling to analysis (over a period up to 100 hours). Select compounds were hydrogen sulphide, carbon disulphide, methyl mercaptan, ethyl mercaptan, dimethyl sulphide, diethyl sulphide and dimethyl disulphide and tested at high concentration level (in a range of 3900 to 1800 ppb each) to facilitate their direct and quick measurement by gas chromatography with flame photometric detector. The chemical analysis shows losses by adsorption and by diffusion depending on time and other conditions. Even if the variation seems limited during the first hours, the evolution shows that the need for a better film is real. Nalophan is a very nice material, stable polymer without VOC emissions itself, cheap and easy to find but it's not perfectly gastight so it presents limitations. Losses are observed just few hours after filling the bag and can reach 10% after 30 hours for the smaller compounds such as hydrogen sulphide, methyl mercaptan or even carbon disulphide. This limited variation combined to olfactometry uncertainty cannot reject the sampling protocol but for a precise chemical analysis and mainly, if the sample must be stored for few days, it is important to consider that the result can be very different comparatively to collected atmosphere.

Indicate preference of kind of presentation

- ¤ Oral Communication
- ☐ Poster

Indicate topic of your work for the conference:

- ☐ Policy and associated regulations for odour and air quality.
- ¤ Odour/VOC measurement, monitoring&sensor technologies.
- ☐ Odour/VOC perception, impact, formation and dispersion.
- ☐ GHG emissions particulate matter and industrial emissions.
- ☐ Source characterization and odour/VOC mapping.
- ☐ Odour/VOC abatement, mitigation and neutralization.

☐ Odour/VOC from waste water, sewer systems and livestock.
☐ Air emissions and sustainable solutions for waste handling
☐ Community engagement, social media and citizen action.
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