

Summary of Workshop 4 at the 5th International workshop on Emerging policy challenges on New SOil contaminants (ENSO_r 2024)

Title: *Going beyond the tip of the iceberg? Exploring how non-target analysis can support environmental monitoring of diffuse pollution*

Date: 2024-03-14

Number of participants: ± 60 (2 sessions of ± 30 participants)

Organizers: Stefan Voorspoels¹, Luc De Ren², Laetitia Six³

¹: Flemish Institute for Technological Research (VITO)

²: SGS Belgium NV

³: Public Waste Agency of Flanders (OVAM)

This workshop was organized by 3 parties:

- VITO as reference laboratory for OVAM, in charge for developing standardized analytical methods
- SGS as commercial laboratory, implementing analytical methods for clients,
- OVAM as agency in charge of monitoring and remediating soil contamination

The aim of this workshop was twofold: (1) introduce innovative measurement techniques for the monitoring of diffuse contamination of emerging contaminants and (2) engage in discussions on measurement uncertainty, the way forward with analytics etc.

To ensure a common understanding, an elaborated introduction was given on the different analytical techniques that have a lot of potential to increase our knowledge on emerging contaminants (see slides for detailed information). The presentation was concluded with some pro's and con's of non-target analysis and suspect screening in environmental monitoring:

Pro's	Con's
Detection and identification of new emerging compounds, transformation and break-down products	Not routine at analytical labs, harmonization needed
Retrospective analysis and trend analysis of NTA data when kept in digital platform	Get grip on accuracy, margin of error – how to deal with uncertainty?
First screening to identify contaminants of interest, prior target analysis	Reduce costs if used as routing – role of models, big data and Artificial Intelligence?
Quicker and potential to be cost-efficient	Legal implications?

After the presentation, 4 statements were put forward to which the participants could agree/not agree. The responses were used to further discuss the topic:

- **Only zero tolerance can save our future:** There was a general agreement that zero is not the ultimate goal where we should aim for.
- **A measurement uncertainty of 50% is unacceptable:** There was a mix of “agree” and “do not agree”. Those not agreeing stated that even with a large measurement uncertainty it can be demonstrated that a substance is present and potentially an issue. Those agreeing approached it more from a legalistic perspective: how to comply with standards or limits if

the measurement uncertainty is not considered in such standard/limit. The discussion resulted in an agreement that “it depends” is probably the most suitable answer.

- **Analytical methods are the limiting factor for reliable assessment:** There was a general agreement that the analytical methods are not the limiting factor, knowledge on toxicity, fate and exposure routes are probably more limiting.
- **We need to characterize all substances of concern to make assessment possible:** There was a balance of participants agreeing and not agreeing. There is however a sense of realism that we’ll never be able to catch “all” substances, but a good share of the most relevant ones should be achievable.