



Trends and advancements in the sampling and preservation of samples for the identification of contaminants of emerging concern

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e progrès, une peusion à pertager



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maîtriser le risque pour un développement durable

Why this type of studies?

• 5 overseas territories in France -> WFD monitoring programmes have to be applied also there -> surveillance monitoring together with screening studies (substances of emerging concern)



Impossible to deliver samples to analytical laboratories in France in less than 48 hours!

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Knowledge of substance stability : a critical issue for emerging compounds



 -Is the fulfillment of standard preservation requirements sufficient to guarantee the stability of the compounds?
 -Can we establish a robust list of stable and unstable compounds?

Objectives

 recommendations about the reasonable period before analysis (RPBA) and the preservation conditions of water samples.

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- To establish a list of parameters that are critical in terms of monitoring feasibility as well as exploitability of measurements.
- to build a guidance to harmonize stability studies (providing guidelines for experimental plan, statistical treatment of the data, etc...)

Methodology

 Documentary research on 450 substances (some of them are already part of the French regulation). Stability tests performed during previous ILS were also included in the result of this study.

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 Following to this first step, stability studies were performed at BRGM and INERIS in different conditions for a limited number of substances.
 Information to build the guidance.



Results & conclusions

- Compiling available data, it was possible to evaluate stability data for 140 substances but some results are not consistent!
 Data are missing, totally or partially for 310 substances.
- Laboratory stability tests were performed on 2 surface water samples to obtain further information for problematic substances.

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 Similar studies show that <u>captan</u>, folpel and <u>chlorothalonil</u> are instable, even when stored at 5°C during transport. **A-RFF**

Results & conclusions

Other laboratory tests were performed when literature studies were not consistent -> Ex. methylparaben



Stable during 48h of transportation

NOT Stable during 48h of transportation

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- Importance of the methodology applied for the stability tests: choice of the matrix (e.g. drinking or raw river water) in laboratory and temperature.
- Evidence of methylparaben degradation during 48h transportation even when good storage conditions are fulfilled -> on site acidification is recommended

Final list of stable/instable compounds

A final list of substances that could/could NOT travel more than 72 hours will be established, based on a ranking system.

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For each study:

- A "stability" score is given : +1 if the substance is stable / -1 if the substance is unstable
- A "confidence" score is given depending on the protocol used
 (0.5 / 1 / 2): higher score allocated to studies where the protocol is well detailed and complete
- => A minimum of 3 points for "confidence" and "stability" is necessary to conclude to stability or unstability for a substance





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