

SCR-PRA-030

SCREENING

The special case of POPs

• Context

The analysis of dioxins, furans and dioxin-like polychlorobiphenyls as per the reference method (isotopic dilution for the sample preparation and GC-HRMS measurement) is time-consuming and costly. A strong demand for the use of alternative screening methods is emerging, in order to face crisis situations or extensive routine control plans. Several approaches have been developed for a few years, such as immunoassays or bioassays. Some of them are already implemented for specific matrices. They are all using a step of the toxicity pathway of dioxin-like compounds and give a unique information relative to a toxicity or a TEQ.

• General objective(s)

To give some information about the expected advantages of using a screening method and the different existing approaches, including immunoassays, DNA-binding and cell-based bioassays. Their principles and performances will be compared and discussed.

• Main items

Screening method / Dioxins / Bioassay / DNA-binding

• Pedagogical objectives

- ✓ To point out the benefits of a screening method in the field of dioxins monitoring
- ✓ To explain the different existing approaches
- ✓ To point out their respective performances

• Pedagogical tools

- ✓ PowerPoint slide show
- ✓ Procept kit (DNA-binding) presentation
- ✓ Q-PCR equipment presentation

• Duration

- ✓ 30 min

• Pre-requisite

- ✓ Theoretical lectures on sample preparation (SAM-THE-010, SAM-THE-020, SAM-THE-030)
- ✓ Theoretical lecture on sample preparation for POPs (SAM-THE-045)
- ✓ Practical presentation on confirmatory methods for POPs (CON-PRA-045, CON-PRA-053)