

Invitation:

PFAS suspect HRMS lists and lists of PFAS-containing products

(NORMAN Joint Programme of Activities 2022)

Background

Per- and polyfluoroalkyl substances (PFAS) are a group of synthetic chemicals that have been manufactured since the late 1940s. Due to their unique surfactant properties and chemical stability, PFAS has been used in various consumer and industrial products. These consumer and industrial products have actively contributed to the widespread release of PFAS into the environment. However, current PFAS analysis and identification methods are limited despite their complex chemistry and sources. Suspect screening and non-target analysis (NTA) employing high-resolution mass spectrometry (HRMS) are emerging as essential tools to characterise PFAS, but informative suspect lists and curated HRMS spectra are still minimal, as is knowledge of their occurrence in products.

Objectives

The main objectives of this JPA are to foster knowledge exchange of PFAS suspect screening and NTA on PFAS-containing products and consolidate and harmonise suspect lists to facilitate screening of consumer and industrial products for PFAS. A curated PFAS suspect list generated via this joint effort will be used to investigate their occurrence in a wide range of products through joint analysis, data processing and reporting exchanges.

This activity will be carried out in two main steps.

Task 01: Consolidate available PFAS suspect lists, curated data including PFAS MS/MS libraries and information on PFAS-containing products.

Task 02: Use the information and knowledge generated in task 01 to analyse, identify and report different PFASs in products and contaminated matrices

The knowledge and expertise of PFAS identification and reporting will be shared among participating laboratories and is expected to contribute to shaping and consolidating the reporting of PFAS using HRMS methods for better harmonisation and confidence.

Setup

Task 01 will begin with a comprehensive search of the scientific literature on PFAS containing products, suspect lists and HRMS libraries. In parallel, an excel template will be shared among interested research groups to collect information on current activity related to PFAS-containing products, in-house suspect lists and HRMS libraries. The consolidated suspect list of PFAS in NORMAN SLE will be used as a starting point and will expand the information and resources in that list to improve the identification confidence of PFAS in suspect screening.

A workshop/meeting on consolidated suspect list results and PFAS-in-products literature results will be organised in March 2023. We will invite submissions from laboratories and agree on;

- The analytical methods and workflows for screening PFAS in products
- The products that will be screened
- The data repository to share HRMS data
- The reporting template

Task 02 activity will be based on the agreement and consolidation in the March 2023 workshop. Based on the agreement, participating laboratories will submit their results from suspect screening workflows and HRMS data to a repository. A subset of selected products will be shared (June 2023) among participating laboratories to perform an interlaboratory suspect screening analysis.

The submitted data will be (i) assessed for compatibility between laboratories' identifications and reporting and (ii) used to investigate the identification and occurrence of PFAS in selected consumer products.

A final workshop on communicating the outcome will be organised, and the findings will be communicated through joint publications.

Samples

Based on the literature search and the agreement on 1st workshop/meeting, participants will be asked to analyse representative products available to them. A reporting template will be available to share the results and HRMS data.

Timing

The activity was initiated in March/April 2022, and the literature search is in progress. The first participants' meeting will be held in early December.

Reporting result

Participants should follow the agreed reporting template, submit the results electronically, and share the raw data through an HRMS data repository.

Time schedule

4 December 2022: Deadline for registration

December 2022 (date to be confirmed): First participants' meeting – Virtual

March 2023 (date to be confirmed): Workshop/meeting with all participants to summarise the task 01 progress - Virtual (consolidation of suspect lists and literature review performed by co-leads only)

May 2023: Deadline for submission of the suspect screening HRMS data for PFAS in products that laboratories would like to contribute (All participants)

June 2023: Distribution of the selected products to participants for the Interlaboratory study

September 2023: Deadline for submission of the results for selected PFAS products in the interlaboratory study

March 2024: Distribution of draft report to the participants

May 2024: Final report and workshop

Participants

Any laboratory working on suspect screening and non-target analysis of PFAS is invited to participate in this activity. Any non-NORMAN members are also very much welcome to join this activity.

If you wish to participate, please contact Dr Sarit Kaserzon (k.sarit@uq.edu.au) or Dr Pradeep Dewapriya (p.dewapriya@uq.edu.au) via email before **December 4th, 2022**.

We appreciate all who expressed their interest in participating in this activity. We will be in touch with you all soon.

Activity Co-leads

This activity is organised as a part of the NORMAN Joint Programme of Activities for the year 2022 and will be co-led by QAEHS – the Queensland Alliance for Environmental Health Science, The University of Queensland, Australia; IRSA-CNR - Water Research Institute of the National Research Council of Italy and University of Amsterdam, The Netherland.

QAEHS will be responsible for the scientific and technical preparation of the exercise, and the collection, evaluation, and dissemination of the data.

Co-leads:

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