

Proposals for NORMAN Joint Programme of Activities 2022

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| Title | PFAS TOP Assay Method Comparison |
| Type of activity | Desk based laboratory questionnaire and report |
| Leader | UK - Environment Agency |
| Topic / activities | <p>Background / Justification for the proposed activity:</p> <p>Total Organic Fluorine is an analysis technique which generally entails pre-treatment of water samples or sample extracts and is designed to expose underlying PFAS not amenable to standard analysis. The principals of the analysis involve the chemical oxidation of PFAS into the more stable perfluoroalkyl acids, these can then be quantified by conventional LC/MS/MS analytical techniques. This analysis, in combination with conventional analysis builds a more complete understanding of PFAS risks.</p> <p>Due to the additional sample processing steps, TOP assay analysing is unlikely to become part of all monitoring programmes, however its use for screening and further understanding the true PFAS burden in different environmental compartments and media (wastewater, contaminated land, biota etc.) can provide an important insight useful in PFAS management.</p> <p>Although the TOP assay is now an established technique offered by a range of accredited commercial laboratories, the methods used by laboratories can vary and the oxidative reaction mechanism and pathway are not fully understood. Given that the analysis commonly involves a number of treatment steps, there is opportunity for divergence in methods. This may introduce inconsistencies and hinder interlaboratory working. Interest spans international, national and local regulatory, academic, NGOs and industrial organisations. The value in this activity is to maximise best practice to in turn increase our understanding of PFAS exposure via the environment.</p> <p>Results from the NORMAN PFAS analytical exchange questionnaire (2021) indicates that ~23% (cohort of 57) of laboratories routinely undertake TOP assay analysis with a further 14% outlining this as a future development priority. Understanding the current methods being employed and the reasoning / barriers for selecting the method is important and the outcomes of this can be used to shape future method adoption and encourage consistency.</p> <p>Description of the proposed activity and expected outcomes for 2022:</p> <p>The aim of this activity is to further the work undertaken in JPA2021 by the PFAS Analytical Exchange Activity and foster knowledge exchange on TOP assay methods other Countries are using to detect and measure PFAS in the environment:</p> <ul style="list-style-type: none"> - Targeted questionnaire on TOP assays across the network and beyond (May-Sep 2022) - Data analysis (Oct-Nov 2022) - Virtual workshop (Nov-Dec/GA 2022) - Report (Jan 2023) <p>Specific issues for exchange:</p> <ul style="list-style-type: none"> - What TOP assay methods are being used including matrix/media specific methods - If significant deviation is found, then the workshop will seek to identify the reasoning and barriers - What TOP assay analytical techniques are currently being developed? Which environmental media are they suitable for? - Any limitations and advantages of different techniques and methodology? Detection limits? - Where are the gaps in capabilities? <p>Expected outcomes to inform organisations' own PFAS method development:</p> <ul style="list-style-type: none"> - Understanding the work of others' and their interest or focus in this area - Identification of TOP assay methods and an understanding of the variation within the community - Advice and guidance, knowledge sharing - Better informed analytical development and identification of best practice - Identification of potential opportunities for collaboration <p>Subsequent research could focus on recovery rate and the impact of different methods and procedures on final analysis.</p> <p>Added value / Link with other NORMAN activities and / or other projects</p> <ul style="list-style-type: none"> - Links identified with activities promoted under the NORMAN JPA 2021, plans for JPA 2022 and others - Proposal for a NORMAN Workshop on PFAS, state of play and way forward in support of the Green Deal (Martin Schlabach, NILU) - ILS of PFAS in soils organised by WEPAL/Quasimeme, Wageningen Environmental Research (covered during workshop in April 2021) within the new WG on CECs in the terrestrial environment – considerations of soil matrix on this topic could be relevant to future work for this WG. - Potential relevance to new Working Group- marine - On-going work at the level of EC DG ENV WG Chemicals for the review of Priority Substances under the WFD - Of relevance to Task 4.2 of Partnership for Assessment of Risk from Chemicals (PARC)- Pilot study to establish the overall process of environmental and multisource monitoring addressing PFAS and |



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| | endocrine disruptors |
| Participants | PFAS Analytical Exchange participating laboratories, as well as any further laboratories wishing to participate. |
| Proposed in-kind contribution | Task to be led by UK Environment Agency, organise questionnaire, gather participants, collate results. Support will be sought from a Steering Group of NORMAN network members as for the PFAS Analytical Exchange in JPA 2021. |
| Contribution needed from NORMAN Association¹ | Access to mailing lists and support when contacting laboratories Online Workshop support |

¹ Please, provide here a transparent justification of the requested resources and of the in-kind contribution, thereby distinguishing between the costs associated with “person-months” for the organisation, the “travelling costs” for invited speakers and the costs for the logistics (e.g. meals, room rental etc.)