Proposals for NORMAN Joint Programme of Activities 2026

Title	**Plastic associated chemicals**
Type of activity	Research & Workshop
Leader	Nikiforos Alygizakis (EI/NKUA), Andrea Brunner (TNO)
Topic / activities	***Background / Justification for the proposed activity:*** Plastic pollution is a growing environmental concern, with (micro)plastics and their associated chemicals presenting complex challenges for monitoring and risk assessment. Conventional methods often fail to detect emerging contaminants, especially plastic additives and non-intentionally added substances (NIAS). To address these gaps, advanced analytical techniques such as high-resolution mass spectrometry (HRMS) are essential for comprehensive screening. In the previous JPA **(Micro)plastics – additives and leaching of non-intentionally added substances (NIAS),** we conducted such HRMS based nontarget screening of (micro)plastic leachates. To continue with these efforts, we plan to 1. Perform a retrospective screening for plastic associated chemicals in the environment, 2. Finalize a scientific publication including retrospective screening results and 3. Organize a stakeholder workshop to discuss challenges and future research. ***Description of the proposed activity and expected outcomes for 2026:*** 1. <u>Retrospective Screening with EMPODAT Suspect:</u> Utilizing the NORMAN EMPODAT Suspect functionality, we will perform retrospective screening of 500 environmental samples for the ~1000 plastic associated chemicals identified in the 2024 JPA. This approach will help establish the prevalence of plastic associated chemicals in the environment, historical trends and direct links between plastic leachates and environmental contamination. 2. <u>Scientific publication on Non-Target Screening Analyses of (Micro)Plastic Leachates (2024 JPA):</u> We plan to finalize and submit a publication detailing the non-target HRMS screening and HPTLC bioassay results from (micro)plastic leachates studied in the 2024 JPA. A broad spectrum of compounds released from plastics was identified and characterized, going beyond the predefined suspect lists. In addition, HPTLC bioassay screening was performed as a step toward hazard identification. These results together with the retrospective screening data will be submitted for publication. 3. <u>Stakeholder Workshop on Plastic Associated Chemicals:</u> We will organize a multi-stakeholder workshop to bring together experts from regulatory agencies, industry, NGOs, academia, and international initiatives. The workshop will focus on sharing knowledge, discussing analytical strategies, regulatory frameworks, and fostering collaboration to address the challenges of plastic-associated chemicals. The dual focus on scientific output and stakeholder engagement ensures that the activity not only contributes to academic discourse but also informs policy and practice. ***Added value / Link with other NORMAN activities and / or other projects*** <u>Digital Sample Freezing Platform Integration:</u> The proposed activity seamlessly integrates with the DSFP, leveraging its wealth of high-resolution mass spectrometry data to conduct retrospective screening. This integration enhances the platform's capabilities by adding a focused investigation into plastic-related compounds. <u>Databases Utilization:</u> Our work will contribute valuable data to the NORMAN Database System, enriching the collective knowledge on plastic additives and leachates. This shared resource will be helpful for future research and policy development. <u>NORMAN WG4 'Nano-and micro scale particulate contaminants'</u> Our work gives further insights and useful information to NORMAN WG4. <u>Cross-Working Group Nontarget Screening:</u> Collaboration with the CWG NTS within NORMAN facilitates to achieve a holistic approach of pollution originating from plastics use. By sharing methodologies, expertise, and findings, we aim to advance the field collectively. This proposal aligns with NORMAN's mission to enhance environmental monitoring, providing crucial insights into the historical presence of plastic additives and their leachates. The outcomes of this activity will contribute to informed decision-making and policy development in addressing the challenges posed by microplastics and associated small molecules in the environment.
Participants	All NORMAN NIAS collaborative trial and any interested entity.
Proposed in-kind contribution	EI: EMPODAT Suspect retrospective screening TNO: Hosting of workshop All: Co-author scientific publication

Contribution needed from NORMAN Association[1]	4500 EUR for covering open-access publication fees, 2000 EUR for workshop organisation

[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.)