

Proposals for NORMAN Joint Programme of Activities 2024

Title	ILC study using the upcoming ISO standard
Type of activity	Validation and harmonisation of common measurement methods and monitoring tools
Leader	NIVA /EAWAG/ IDEA-CSIC / UBA
Topic / activities	<p>Background / Justification for the proposed activity:</p> <p>Working group 4 has accomplished 2 JPAs (2022 and 2023) contributing towards NORMANS general objective to enhance harmonisation approaches for measuring microplastic particles (MP). These efforts have been part of implementations in EUs Green Deal, the Plastic Strategy supported by EUs directives and risk assessment. The JPA in 2022 included an interlaboratory study (ILS) to detect MP in complex matrices and was organised by a collaboration between QUASIMEME and the EU project EUROqCHARM. The results reported by the different laboratories showed a high variation, even for simple matrices. These variations were a combination between the uncertainties related to the sample preparation, and the uncertainties related to data processing pipelines. However, the experimental design of the ILS did not allow to separate between the impact of the sample preparation and the data processing on the results. Within the last JPA (2023), WG 4 developed a sandwich filter to specifically address the uncertainty related to the data processing pipelines, and the robustness of the filters were tested by selected NORMAN members.</p> <p>At the Annual WG4 meeting in June 2022 the need for further QA/QC studies was discussed. Harmonised methods are getting more mature and reference materials are under development to enhance the analysis of MPs. Based on the experiences of the JPAs from 2022 and 2023, and considering the feedback from the NORMAN members, we propose a new ILS based on the upcoming ISO standard method for water samples. This method comes with a firm description of the sample preparation. For the study soda tablets containing known amounts of different MP types (Polypropylene (PP), polyethylene (PE), polystyrene (PS), polyvinyl chloride (PVC), polyethylene terephthalate (PET) and polycarbonate (PC)) will be fabricated between NIVA and Chiron. In addition, a limited number of 'sandwich filters' assembled at Eawag will be sent to expert laboratories taking part in the ILS. The ILS will be organised in collaboration with ISO TG 147/SC2 /JWG1, and the PlasticTrace project in connection with the validation of the ISO method (ISO/NP 16094-2 *MP in water – Vibrational spectroscopy).</p> <p>Description of the proposed activity and expected outcomes for 2024:</p> <p><u>Fourth round of microplastic ILS</u></p> <p>The fourth round of ILS for the analysis of MP in environmental matrices will be organised in a collaboration with the ISO/CEN organisation and the PlasticTrace project. The ILS will include triplicate analysis of soda tablets spiked with MP (PP, PE, PS, PVC, PET, and PC), in addition to blank tablets produced by NIVA and Chiron. The participating laboratories will be required to use the ISO standard for water samples which will be released January 2024.</p> <p><u>Comparison of different data processing pipelines</u></p> <p>'Sandwich' filters, spiked with different types of MP (PE and PS) of different sizes (50 – 100 µm) and of different colours will be sent to 10 expert laboratories, including NORMAN WG4 members, participating in the ILS. The laboratories will be provided with the filters and will be asked to analyse the particles on the a given faction on the filters, in addition to process the data. The laboratories will be asked report the key instrumental and software parameters, in addition to the number, size, and type of identified MPs.</p> <p>Workshop evaluation ILS</p> <p>A workshop will be held to evaluate the results of the ILS, in connection with WG4 annual meeting. In addition to this, a special webinar will be organised to reach a larger group of stakeholders (autumn 2024).</p> <p>Added value / Link with other NORMAN activities and / or other projects.</p> <p>Our proposed ILS represents a continuation of a very successful ILS series to assure the analytical quality of MP measurements. Established analytical methods are expected to be included in several EU directives currently under revision, such as MSFD, WFD and the DWD. This JPA is in line with several on-going activities, both nationally and internationally.</p>
Participants	NIVA / VU University / Wageningen University/ IDEA-CSIC / UBA / EAWAG / IFREMER / NILU and several NORMAN labs participating in the ILS
Proposed in-kind contribution	10'000 PlasticTrace / ISO (NIVA)
Contribution needed from NORMAN Association¹	10'000 Coordination, Preparation Samples, Shipment of Samples, Data evaluation (NIVA), Production 'sandwich filters' EAWAG.

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.)

