

Proposals for NORMAN Joint Programme of Activities 2026

Title	Harmonizing and extending knowledge of polymer-chemical interactions to benefit both the passive sampling and plastic communities
Type of activity	Organization of workshop and support in writing of a collaborative critical review
Leader	NGI and UFZ
Topic / activities	<p>Background / Justification for the proposed activity:</p> <p>Over the past two decades, passive sampling (PS) has become a robust technique for monitoring legacy, regulated and emerging hydrophobic organic contaminants in aquatic environments. Its ability to provide time-integrated measurements and yield freely dissolved concentrations makes it compatible with regulatory monitoring and risk assessment objectives. The robustness of passive sampling for these compounds is the result of a focus of the PS community to understand the interaction and exchange of chemicals between environmental matrices and well-defined polymers used for PS. In parallel, a rapidly growing body of research has demonstrated that plastic/polymeric materials in the environment (micro and nanoplastics) can act as sorbents for organic chemicals. Plastics also routinely contain (from production) a range of additives to obtain desired mechanical, thermal or optical properties. The same fundamental parameters that govern chemical uptake into passive samplers (partition coefficients, diffusion coefficients, polymer-chemical interactions) also govern the interaction of chemicals and plastic additives with environmental plastics. Yet, these two research communities have developed largely in parallel, using overlapping but not harmonised methodologies. This creates a unique opportunity to contribute to both fields through a JPA for 2026. Passive sampling polymers (e.g., silicone, PE, POM) have been extensively characterised and used to predict chemical partitioning in the environment. However, micro and nanoplastics, however, are far more diverse (e.g., PET, PP, PU, PVC, tyres/elastomers) and display a wider range of sorption behaviours due to differences in crystallinity, additives, weathering, and ageing. Because of this, there is now strong scientific and regulatory interest in harmonising the understanding of polymer-chemical interactions across both fields. Integrating these perspectives would allow (i) more realistic modelling of contaminant distribution and transport in environments with high plastic loads, (ii) improved interpretation of data from microplastic surveys and passive sampler campaigns, and (iii) better predictions for fulfilling the Environmental Quality Standards (EQS).</p> <p>Objectives of this JPA for 2026:</p> <ol style="list-style-type: none"> 1. Organising a satellite half-a-day session on "Plastic-associated chemicals and equilibrium partitioning science" during the International Passive Sampling Workshop (IPSW), 13-15th May, 2026 in Prague. 2. Supporting the writing of a critical review with recommendations on how key parameters (diffusion coefficients, partitioning coefficients, ...) should be acquired, compiled, and assessed to best serve both communities. 3. Extending partition coefficients from well-studied polymers (silicone, PE, POM) to less-studied polymers is a key aspect of this approach. Car tire rubber is also a particularly relevant matrix. Experimental designs to determine polymer-polymer partition coefficients will be discussed jointly by the communities during the JPA. <p>Added value / Link with other NORMAN activities and / or other projects</p> <ul style="list-style-type: none"> - May be a joint activity with the Microplastic group - Higher visibility (NORMAN website) for this theme
Participants	RECETOX, NIVA, INRAE...
Proposed in-kind contribution	
Contribution needed from NORMAN Association¹	<ul style="list-style-type: none"> - Budget for organizing the satellite halfa day session in the context of IPSW (invited presenters, room booking and refreshments) (Eu 5k) - Online workshop to discuss and agree way forward for the drafting of a critical review and establishing experiment designs for partition coefficient measurements

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.)