Effects of flow velocity and calibration conditions on a passive sampler for perfluorinated alkyl carboxylates and sulfonates in water

S.L. Kaserzon¹, E.L.M. Vermeirssen², D.W. Hawker¹, K. Kennedy¹, J. Thompson¹, K. Booij³, J.M. Mueller¹

¹The University of Queensland, Brisbane, Australia
²Eawag, Dubendorf, Switzerland
³Griffith University, Nathan, qld, Australia
⁴NIOZ Royal Netherlands Institute for Sea Research, Texel, Nederland

Perfluorinated chemicals (PFCs) are emerging environmental contaminants with a global distribution. Due to the moderate water solubility of some PFCs, the majority of the environmental burden is in the water phase. Passive sampling provides a low cost and time integrative sampling approach that has already proven useful for a broad range of environmental contaminants. A newly developed and validated Polar Organic Chemical Integrative Sampler (POCIS) with a weak anion exchange sorbent has shown potential as a passive sampler for PFCs in water. However more work was required to further validate the sampler. The aim of this work was to evaluate the influence of water flow rate and calibration conditions on the uptake of PFCs into POCIS sampler. Uptake kinetics and sampling rates for PFCs did not vary significantly with flow velocity. Sampling rates derived (0.08 - 0.28 L day⁻¹) are comparable to sampling rates determined in a previous study under different conditions. A passive sampler for PFC and similar compounds could help elucidate potential aquatic exposure routes to PFCs.