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Experts Workshop on the Ecotoxicological Risk Assessment of Ionizable Organic Chemicals: Bioaccumulation/ADME

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The bioaccumulation potential of neutral organic chemicals (e.g., PCBs, DDT, brominated flame retardants) has received a great deal of attention from scientists in the field of environment toxicology and chemistry over the past four decades. Regulations based on our understanding of the behaviour of such compounds have also been established (e.g., PBT criteria). Beginning with the detection of perfluoroalkylated acids (e.g., PFOA, PFOS) and various pharmaceuticals in the environment and biota in the past decade, there has been a growing recognition of the need to better understand and characterize the bioaccumulation potential of ionizable organic chemicals (IOCs), i.e., compounds that can exist in neutral and charged form in the environment. The bioaccumulation potential of IOCs was the focus of one of the work groups assembled as part of the "Experts Workshop on the Ecotoxicological Risk Assessment of Ionizable Organic Chemicals: Towards a Science-Based Framework for Chemical Assessment" (November 5th-7th, 2014). The main objective of the work group was to address questions on the foundation issues that influence the uptake, distribution, metabolism and elimination of IOCs within organisms. The purpose of this presentation is to communicate the main findings, discussion points and data gaps pertaining to these topics identified by the work group. Key issues include the limitations of current testing strategies for IOCs, the applicability of available modeling tools and the utility of current regulatory schemes for assessing and prioritizing the multitude of chemicals which have ionizable functional groups.

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CSS Project Area 11.02: Integrated Modeling for Ecological Risk Assessment; Sandy Raimondo, Project Lead
Task Area 1: Integration of Modeling and Biomarkers for Verifying Internal Dose; Adam Biales, Task Lead
Sub-Task 1.2: Predictive Models for Biotransformation of MCCs across species