

## **Persistence & Biodegradation Assessment**

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The ability of certain chemical substances to persist in the environment requires careful consideration for the regulatory evaluation of environmental risk and hazards (e.g. classification, labelling and PBT/vPvB assessment). Indeed degradation of organic chemicals in the environment influences exposure and hence, is a key parameter for estimating their potential long-term adverse effects on biota. Assessing biodegradation [as "the biologically mediated degradation or transformation of chemicals usually carried out by microorganisms" (ECHA, 2012)] is among the first steps to evaluate chemicals persistence. Biodegradation is a natural but still poorly understood process which outcome strongly depends on the various environmental conditions and the microbial diversity. Higher tier testing requires more complex and expensive simulation tests (e.g. OECD TG 303, 307, 308, 309 and 314) which are selected upon the environmental compartments of concern (wastewater treatment plants, surface water, sediment or soil). Assessing chemicals persistence in the environment is still a challenging domain and there are different ways of addressing the issue depending on the regulatory context: Chemicals, Agrochemicals, Biocides, or Pharmaceuticals which may sometimes lead to conflicting results. For example the new temperature of 12°C for degradation tests under REACH Regulation may lead to consider some substances as being persistent although they were not considered as such. In addition, the PBT Guidance document within REACH Regulation has just started a formal revision process where the latest developments in the area should be considered. The characterization of the microbial diversity, the bioavailability of test substances in standard screening assays, the test design in water-sediment degradation tests, the way to combine field tests, abiotic degradation processes, simulation tests in waste water treatment plants are all examples of topics where recent results need to be taken into account for Regulatory purposes. Beside these regulatory considerations, the session will give the opportunity to present technical and scientific developments in the different fields associated with persistence and biodegradation assessment (e.g. investigating the value of characterizing microbial biomass diversity through genetic sequencing, chemical mixtures degradation assessment, evaluation of non-extractable residues, new testing and measurement instrumentation, interpreting data to improve the relevance of testing strategies and Weight of Evidence approaches for persistence assessment).