

Assessment of PBT and vPvB chemicals: Requirements, challenges and policy implications

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Substances with persistent, bioaccumulating and toxic (PBT) or very persistent and very bioaccumulating (vPvB) properties can accumulate in environmental media with unpredictable long-term effects. PBT and vPvB chemicals are, therefore, of primary regulatory concern. Several European legislations, for example REACH (EC No 1907/2006) and the regulations on plant protection products (EC No 1107/2009), biocidal products (EC No 528/2012) or medicinal products (EC No 726/2004) aim to identify PBT and vPvB chemicals and to adopt effective regulatory measures for minimal use of such substances. The need for harmonizing and improving existing approaches for identifying PBT and vPvB chemicals has been recognized. Generally, the identification of PBT and vPvB chemicals is based on defined (screening) criteria using more or less conservative thresholds. Evidence-based approaches to PBT/vPvB assessments may include, for example, the use of monitoring data, environmental exposure modelling or computational methods such as quantitative structure-activity relationships (QSARs) and read-across (RAX). Recent recommendations refine in particular the persistence and bioaccumulation assessments. Further important properties are the long-range transport potential (LRTP) and the long-term damage (stock pollution) potential. Adequate consideration is needed for substances with potentially similar concern such as pseudo-persistent (continuously present) chemicals or substances that are persistent, mobile and toxic (PMT). Closely related to the challenges of the identification of PBT/vPvB chemicals is the question how to translate PBT/vPvB properties into effective, concern-based regulatory strategies. In particular, REACH links regulatory decisions on the authorisation and restriction of PBT/vPvB chemicals with a socio-economic analysis (SEA), which requires balancing all positive against negative impacts from chemicals' use and non-use. So far, it is unclear how to adequately translate information, and the absence of information, about the properties of PBT/vPvB chemicals into an SEA. The aim of this session is to offer a platform to scientists, regulators and stakeholders for presenting and discussing the diverse issues related to the improvement of PBT/vPvB identification and regulation. Contributions comparing existing concepts for PBT-identification are of interest as well as presentations addressing challenges in the determination of the individual properties, for example novel and integrated testing and assessment strategies for persistence, bioaccumulation and toxicity. We also invite conceptual and applied research addressing the implications of improving PBT/vPvB assessment for regulatory decision-making, including approaches for socio-economic assessment, impact assessment and impact valuation. Interdisciplinary research projects, illustrating the nexus between natural and social sciences, are also explicitly encouraged.