

Personal care products in the environment: strengthening science to support regulation

CHAIRS: Silvia Diaz-Cruz



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Last decade, ingredients in personal care products (PCPs) have been described as chemicals of increasing environmental concern because of their toxicity, persistence, bioaccumulation, and ubiquity. PCPs are produced and used in extremely large quantities worldwide, thousands of tons per year, and comprise a diverse array of substances with a wide range of physicochemical properties. PCPs make their way into the environment directly (swimming, disposal and wastage from external application) and indirectly (excretion, washing) via wastewater treatment plants. As a consequence, PCPs have been very frequently found in water bodies (including drinking water), sediment and aquatic biota. The toxicological significance of PCPs in the environment with regard to either humans or wildlife is poorly understood for most of them. Lack for comprehensive exposure data constitutes a critical limitation to the advancement of environmental risk assessment. In particular exposure risks for aquatic organisms are large because of they have continual and life-long multi-generational exposures. Despite that, the full extent, magnitude and ramifications of their presence in the environment are largely unknown; the scarce current knowledge reveals that PCPs (and their metabolites) cycling in the environment, particularly the transfer between the aquatic environmental compartments and bioaccumulation profiles, appear to be similar to that of classical POPs. Some PCPs, such as musk fragrances occur widely, persist and bioaccumulate, but many display one or two of these qualities. Under the current legal framework in the European Union, the assessment of environmental safety of PCPs must be considered in a cross-sectorial manner through the application of Regulation No 1907/2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) and supervised by the European Chemicals Agency. As a consequence, several activities, including methods development, occurrence and fate studies and toxicity data are required to assess the potential environmental risk posed by PCPs. By compiling and integrating the resulting data the scientific community may provide the foundation for sound decisions in support to regulation. This session is devoted to deepen into the understanding of what personal care products are and behave in the environment, especially the safety of the ingredients which are used to formulate them such as surfactants, fragrances, parabens, phthalates, and UV filters. We will explore the most advanced analytical methods for their determination, as well as the new aquatic toxicity tests to better identify subtle effects ("silent toxicity") on wildlife and humans. Data on occurrence, fate, transport, degradation and effects will help characterizing the ramifications of PCPs in the environment for a proper regulation.

Keywords: Personal care products, toxicity, environmental analysis, regulation.

SESSION TYPE: Platform and Poster

COMMENTS: This session can be considered as the continuation of the 23th SETAC Europe 2013 Session, "Environmental fate and bioaccumulation of toxicologically significant personal care products and their transformation products". The new regulatory framework for these compounds requires more research in PCPs environmental related issues.