Development of a Tool for Systematic Integration of Traditional and New Approach Methods for Prioritizing Chemical Lists

R Judson, T Williams, G Grulke, R Thomas
US EPA NCCT

Multiple chemical regulatory bodies (US EPA, ECHA, OECD, Health Canada) are currently tasked with prioritizing chemicals for in-depth risk assessments. These prioritization efforts are driven by the fact that there are many chemicals in commerce, or in the environment for which detailed risk assessments have never been performed. Ideally, the incompletely assessed chemicals posing the highest risk would be given the highest priority to go into a time-consuming and expensive high-level risk assessment process. In order to assist these efforts, we have developed an online application that enables an automated, rapid, flexible and transparent prioritization process. The tool includes data on human and ecological hazard and exposure, plus physico-chemical properties such as persistence and bioaccumulation (PB). Quantitative human hazard points of departure (PODs) are compiled from multiple sources such as EPA ToxRefDB, ECHA, COSMOS, and are supplemented by predicted PODs using in vitro to in vivo extrapolation (IVIVE) and QSAR models. Ecological hazard PODs is taken from the EPA ECOTOX database. Exposure information includes quantitative predictions using the EPA ExpoCast and SHEDS models, plus biomonitoring data and qualitative information such as use profiles and likelihood of consumer exposures. The tool will allow users to select a chemical list, as well as to specify input data types, weights, and overall prioritization scoring schemes. The use of the tool will be illustrated by prioritizing chemicals in the TSCA step 2 and Safer Choice Ingredient List. T*his abstract does not necessarily represent U.S. EPA policy.*