

A critica and in-depth analysis of the environmental aspect of the OECD SP dossiers

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The dossiers represent an enormous chemical testing effort. However, the data provided is mostly insufficient to make statements regarding the nanospecificity of observed hazard data, and to what nano-scale properties they may be linked. The dossiers also do not allow conclusions on the appropriateness of current Testing Guidelines for assessing ENM hazards. Finally, the possibility of artefacts and thus the potential for false negative toxicity results cannot be assessed on basis of reported data.

The first version of the software was realised and has been tested by PEROSH members and three external partners. It is planned to offer the software to organisations, which perform exposure measurements for nanomaterials, and companies that produce or use nanomaterials. Aim is to enlarge the number of users and datasets and thus enhance the benefit for the users. Participating companies e.g. can benchmark themselves amongst their peer group. Scientific users can enlarge data pools to strengthen statistical conclusions or validate their measurement results with reference data. Finally public access shall be enabled to publish consolidated and anonymised information.

Conclusion:

Due to the limited amount of data in the field of exposure to nanomaterials, a harmonised exposure database linked to other databases, e. g. on material or toxicological properties, is able to accelerate the improvement in occupational safety.

A critical and in-depth analysis of the environmental aspect of the OECD SP dossiers

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In 2015, the OECD finally published the findings of its seven-year testing programme for manufactured nanomaterials. Here, we present the first in-depth analysis of the published OECD dossiers with regards to data on physical and chemical properties, environmental fate and ecotoxicology. Each individual study in the dossiers was reviewed with regard to, among other, which OECD Test Guidelines (TG) were used, and the reliability assigned to the study. We furthermore analyzed in detail the suspension methods used, how media quality was quantified and physical and chemical characterization performed prior, during and/or at the end of the study. We find that the information in the dossiers present an incomplete portfolio of nanomaterial ecotoxicological evaluations that are difficult to draw substantive conclusions from and that most of the studies were not designed to investigate the validity of the OECD test guidelines. We acknowledge the effort of the OECD WPMN and recommend that a follow-on program is established with well-defined goals, end-points and direct funding to qualified research laboratories to ensure valid, rigorous, reproducible and efficient research.