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A. Baun, Technical University of Denmark - Department of Environmental Engineering. There is an urgent need for reliable and reproducible results of ecotoxicological experiments in order to identify, rank, and classify the environmental hazards of nanomaterials. Standardized methods and guideline tests traditionally used for chemicals are today recommended for the testing of nanomaterials. While the database of results from these tests is rapidly expanding, problems with controlling the exposure are often reported, *e.g.* due to the particle behavior in the test media used. Problems encountered include uncontrollable aggregation, agglomeration, sedimentation, or dissolution. The interpretation of the test results may further be complicated by the fact that these processes are ongoing during the testing period and may be affected by the organisms themselves. Therefore, the total concentration reported in concentration-response relationships in these tests encompass a range of possible alterations of the bioavailable part of the nanomaterial added. These alterations, which may be determining for the biological effects found, are difficult, if not impossible, to control in a standard test setting. This raises the question whether the results generated in standardized test systems are fulfilling the purpose they originally were intended for (ranking and classification). The validity of extrapolations made from these data (*e.g.* predicted no-effect concentrations for environmental risk assessments) is therefore further questionable. Based on own experiences these fundamental problems for testing of engineered nanoparticles in aquatic toxicity tests and their implications for risk assessment will be addressed in this presentation.