

NANOREG HIGHLIGHTS: CURRENT ACHIEVEMENTS AND FURTHER CHALLENGES IN RISK ASSESSMENT AND RISK MANAGEMENT OF MANUFACTURED NANOMATERIALS

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Abstract

The immense beneficial potential of manufactured nanomaterials (MNM) may be threatened by limits of MNM environmental, health and safety (EHS) aspects understanding. Despite the extensive research in the field of nanotoxicology and exposure to MNM, comprehensive knowledge for regulation is still missing. NANoREG is the first FP7 project looking for answers needed by authorities on EHS by linking them to a scientific evaluation of data and test methods. It aims to provide a tool box of relevant instruments for reasonable risk assessment and management of MNM.

There is already number of achievements behind NANoREG project. The questions and needs of regulatory relevance have been identified and grouped within three knowledge gaps: hazard related characteristics of MNM, standardized methods to determine them, nano-specific risk assessment approaches. Nevertheless, standard operation procedures for some MNM characterization, toxicity testing and exposure measurements were developed. Critical exposure scenarios for MNM within the key value chains were identified. Toxicity testing focused on long-term inhalation toxicity, genotoxicity and immunotoxicity have been carried out. The Czech Republic actively participates at in vitro screening methodology development to evaluate toxicity by inhalation, at harmonization of genotoxicity protocols, exposure measurements and modelling and development of decision tree for risk assessment.

Despite the progress achieved since now, there are still many challenges regarding safety aspects of NMs which have to be addressed in further research.

Keywords: Manufactured nanomaterials, risk assessment, risk management, regulation

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