

Exposure measurements and risk assessment of manufactured materials/nanoparticles (MMNPs)

Project A: Nanodustiness project

Project B: Nano Exposure & Contextual Information Database (NECID) project

Duration of the project

2010 - 2012

Background

The workplace air measurement data of the EU funded NANOSH project have been collected according to an agreed measurement strategy and during the course of the project an approach was developed to report and analyze the data, i.e. a 'preliminary decision logic'. The raw data were processed by each partner and the results of each measurement were transferred to a spreadsheet type of database.

The type of information and the format of the data have been selected in view of future use e.g. for exposure modelling. Therefore, many of the exposure modifying factors, as identified by the ART project had been adopted, e.g. the system of coding activity classes and risk management measures. The NANOSH dataset could be a nucleus of a database for exposure data. The foreseen steps to establish such a database with respect to contents and procedures will be discussed in the next sections.

Objectives

The aim is to **establish a database on occupational exposure to manufactured nanoparticles.**

The goal of the development of an exposure database on nano-objects is **to permit the systematic and uniform documentation of operating, exposure and measured data so that they are available for research, exposure modelling and exposure scenario building.** The database will contribute to improve and harmonize nano-objects exposure assessment and could be a source of information for risk management and development of occupational exposure limits.

Deliverables

The database will provide a **general overview of occupational exposure levels of nanomaterials in different exposure situations,** and will

- be a **key tool for building exposure scenarios and future exposure modeling.**
- provide an ideal **source of information for risk management, and development of occupational exposure benchmark levels/limits**
- contribute to an improved and harmonized quantification of exposures assessment and encourage new measurements.

Research methods

A harmonized strategy/consensus on data collection, analyses, and interpretation will be developed.

The contents of the database will be based on future modelling options, the consistency should be checked and adjustments or modifications will be necessary in the near future.

The structure of the database will depend both on the conditions related to the intended use, e.g. modeling, and the structure of existing (exposure) databases e.g. the IFA –database (MEGA), the INRS database (COLCHIC, the TNO database (STEAMbase), the NIOSH exposure data base etc.

The measurement strategy and database format will be commonly available to other organizations to encourage new measurements - e.g. through the PEROSH network

Compatibility with other initiatives/ existing databases, e.g. the NAPIRAhub database will be examined.

Scientific relevance

The database will contribute to improve and harmonize nano-objects exposure assessment and could be a source of information for risk management and development of occupational exposure limits.

It will be a tool for building exposure scenarios and future exposure modeling and an ideal source of information for risk management, and development of occupational exposure benchmark levels/limits. Moreover, it will contribute to an improved and harmonized quantification of exposures assessment and encourage new measurements.

Project leader

TNO, Netherlands Organisation for Applied Scientific Research, Dr Derk Brouwer, dick.brouwer@tno.nl

Institute for Occupational Safety and Health (IFA) of the German Social Accident Insurance, Dr Markus Berges, markus.berges@dguv.de

Project participants

Central Institute for Labour Protection - National Research Institute (CIOP-PIB, Poland)

Health and Safty Laboratory (HSL, UK)

Institut für Gefahrstoffforschung (IGF) /Institute for Occupational Safety and Health (IFA) of the German Social Accident Insurance (Germany)

National Research Centre for the Working Environment (NRCWE, Denmark)

TNO, Netherlands Organisation for Applied Scientific Research

More information

Nele Roskams, European Affairs Coordinator, nele.roskams@perosh.eu, T +32 2 643 44 62