US-EU
Bridging Nano-EHS research Efforts

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The OECD Working Party of Manufactured Nanomaterials: Latest Developments and Outlook for the Future
Nanotechnologies

- Nanotechnologies are likely to have a major impact across a range of economic sectors
  - energy production, health industry, cosmetics, information technologies, textiles

- Global market has increased over time
Safety information is needed on

- effects of nanomaterials
- Exposure measurement (occupational, Consumers and environment)
- hazard assessment
- Risk assessment
OECD Working Party on Manufactured Nanomaterials (WPMN)

• Background
  – safety of Nanotechnologies first addressed at OECD (Nov. 2004, Chemicals Committee)
  – special session on the potential implications of manufactured nanomaterials for human health and environmental safety (June 2005)
  – Workshop on the Safety of manufactured Nanomaterials (Dec 2005)
• Establishment of the WPMN in Sept.2006
• 1st Meeting in Oct 2006
Participants to the WPMN

• OECD Member Countries
  – Australia; Austria, Belgium, Canada, Czech republic, Denmark, Finland, France, Germany, Ireland, Israel, Italy, Japan, Korea, Mexico, Netherlands, New Zealand, Norway, Poland, Slovak Republic, Spain, Slovenia, Sweden, Switzerland, Turkey, UK, US, EC

• Observers
  – China; Singapore, South Africa, Thailand, Russian Federation
  – Inter-governmental Organisations: IOMC (FAO, UNEP, UNITAR and WHO
  – other Organisations: BIAC, ICAPO, ISO (TC 229), TUAC and environmental NGOs
WPMN Projects

- OECD database on Manufactured Nanomaterials to Inform and Analyse EHS Research Activities;
- Safety Testing of a Representative Set of Manufactured Nanomaterials;
- Manufactured Nanomaterials and Test Guidelines;
- Co-operation on Voluntary Schemes and Regulatory Programmes;
- Co-operation on Risk Assessment;
- The Role of Alternative Methods in Nano Toxicology;
- Exposure Measurement and Exposure Mitigation; and
- Environmentally Sustainable Use of Nanotechnology
OECD Database on Manufactured Nanomaterials to Inform and Analyse EHS Research Activities

• Objective
  – To develop a global resource (Database), which details research projects and identifies research needs
  – To provide opportunities to identify the similar fields, and lead to create new collaboration and networks

• Status
  – The database was publicly launched (April 2009), and includes more than 750 research data (Sep 2010)
  – A comprehensive compilation document “EHS Research Strategies on MNs” was published (May 2009)

• Next Step
  – Promotion for further data population
  – Evaluation for identification of research priorities and gaps
Sponsorship Programme for Testing Manufactured Nanomaterials

• International effort to share the testing of an agreed set of manufactured nanomaterials selected by WPMN

• Objective
  – To test a representative set of Manufactured Nanomaterials (13)

• Two phases:
  – Phase 1: to test selected MNs for the selected endpoints (launched Nov 2007-continuing)
  – Phase 2: consideration of those cross-cutting issues or tests that identified by phase 1 (2011)
Safety Testing of a Representative Set of Manufactured Nanomaterials: Sponsorship Programme

• **Objective**
  – To test a representative set of Manufactured Nanomaterials (13)

• **Status/Next steps**
  – **Stage 1 (completed)**
    A list of MNs (based on materials which are now or soon to enter, commerce) and a list of endpoints
  – **Stage 2 (July 2009~)**
    Implementation of the Sponsorship Programmes for the Testing of Manufactured Nanomaterials
List of Endpoints for phase 1

• Nanomaterial Information/Identification (9 endpoints)
  – (e.g.) substance name, chemical identity, uses, coating
• Physical-Chemical Properties and Material Characterization (17 endpoints)
  – (e.g.) water solubility, particle size, agglomeration/aggregation
• Environmental Fate (15 endpoints)
  – (e.g.) biodegradability, adsorption, accumulation
• Environmental Toxicology (6 endpoints)
  – (e.g.) effects on aquatic and terrestrial organisms
• Mammalian Toxicology (9 endpoints)
  – (e.g.) inhalative toxicity, reproductive toxicity, genotoxicity
• Material Safety (3 endpoints)
  – (e.g.) flammability
Manufactured Nanomaterials and Test Guidelines

- **Objective**
  - To review existing OECD Test Guidelines (TGs) for adequacy in addressing MNs
  - To identify need for new or revised test guidelines

- **Status/Next steps**
  - Consideration of OECD TGs for their applicability to MNs
    - Preliminary conclusions published in 2009: Most TGs are applicable (some need adjustment)
    - Review of the preliminary conclusion (2010~)
  - Guidance Notes on Sample Preparation and Dosimetry for Safety Testing of MNs (published in 2010)
Cooperation on Voluntary Schemes and Regulatory Programmes

• Status
  – Analysis of Information Gathering Initiatives of MNs (Nov 2009)
  – Report of the Questionnaire on Regulatory Regimes for MNs (May 2010)
  – Questionnaire on Regulated Nanomaterials: 2006-2009 (underway)

• Next steps
  – To share information on national voluntary/regulatory programmes a Collaborative Workspace as well as Information Sharing Database will be established (Late 2010)
  – Draft report on Information Gathering Schemes (early 2011)
Cooperation on Risk Assessment

- **Objective**
  - To evaluate risk assessment approach for MNs

- **Next Step**
  - Workshop on Risk Assessment of Manufactured Nanomaterials in a Regulatory Context (Sep 2009)
    - published in 2010
    - Report on Risk Assessment of Manufactured Nanomaterials
    - *Critical issues* (2011) Key Issues: current practices, challenges on risk assessment and strategies; the necessity of direct research towards Risk Assessment
**The Role of Alternative Methods in Nanotoxicology**

- **Objective**
  - To address the use of alternative test methods and testing strategies (in parallel with the Sponsorship Programme)

- **Status**
  - 1st Expert Consultation Meeting on Alternative Test Methods was held in April 2010
  - 2nd Expert Consultation Meeting (incl. a special session on *in-vitro* dispersion protocols) was held in January 2011

- **Next Steps**
  - Prepare a case study on one of Sponsored substances (2010~)
Cooperation on Exposure Measurement and Exposure Mitigation

• Objective
  – To exchange information on guidance for exposure measurement and exposure mitigation for Manufactured Nanomaterials

• Current Projects
  – Comparing exposure mitigation guidance for laboratories (to be published in 2010)
  - Evaluating data and provide recommendation on measurement technologies and sampling protocols for determining concentrations of manufactured nanomaterials in air

Next Step
- Developing Case Studies for exposure assessment on MNs (late 2009~)
- Updating of documents
Environmentally Sustainable Use of Nanotechnology

• Background

• Next Step
  – Preparing an interim report on national activities related to life cycle assessment and nanotechnology (2010~)
Recent Publications on Manufactured Nanomaterials (published in 2010)

- Current Developments/Activities on the Safety of Manufactured Nanomaterials, Tour de Table at the 7th Meeting of the WPMN
- Guidance Manual for the Testing of Manufactured Nanomaterials: OECD Sponsorship Programme: First Revision
- Preliminary Guidance Notes on Sample Preparation and Dosimetry for the Safety Testing of Manufactured Nanomaterials
- Report of the Questionnaire on Regulatory Regimes for Manufactured Nanomaterials
- OECD Programme on the Safety of Manufactured Nanomaterials 2009-2012: Operational Plans of the Projects
- Report of the Workshop on Risk Assessment of Manufactured Nanomaterials in a regulatory context
Upcoming Publications

• List of Manufactured Nanomaterials and List of Endpoints for Phase one of the Sponsorship Programme for the Testing of Manufactured Nanomaterials: Revised
• Compilation of Nanomaterial Exposure Mitigation Guidelines Relating to Laboratories
• Critical Issues in the Risk Assessment of Manufactured Nanomaterials
More information

Safety of Manufactured Nanomaterials
www.oecd.org/env/nanosafety

Contact OECD Secretariat
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