

Knowledge transfer from EU NanoSafety Cluster project towards OECD WPMN projects

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COORDINATION TEAM NANOSAFETY CLUSTER

The Nanosafety Cluster (NSC)

- Initiative of the EC DG for Research and Innovation, which sponsors research in nanosafety.

- ▶ Aims to maximise synergies between European-level projects addressing the safety of NMs and technologies.
- ▶ Material sciences, toxicology, ecotoxicology, exposure assessment, mechanisms of interaction, risk assessment and standardization
- ▶ More recently risk governance, safer and sustainable nanomaterials.



The Nanosafety Cluster (NSC)

Overall, Europe targets safe and sustainable nanomaterials and nanotechnology.

Cluster projects contribute to assuring environmental health and safety (EHS) of this Key Enabling Technology.

NanoSafety Cluster

Number	Project	Coordinator	E-mail address	Start date	End date
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5	HISENTS	Andrew Nelson	a.l.nelson@leeds.ac.uk	apr-16	mrt-19
6	NanoFASE	Claus Svendsen	csv@ceh.ac.uk	sep-15	sep-19
7	SKHINCAP	Carla Silva	csilva@centi.pt	okt-15	sep-19
8	Calibrate	Keld Alstrup Jensen	kaj@nrcwe.dk	mei-16	okt-19
9	EC4SafeNano	Jacques BOUILLARD	Jacques.BOUILLARD@ineris.fr	nov-16	okt-19
10	OpenRiskNet	Thomas Exner	thomas.exner@douglasconnect.com	dec-16	nov-19
11	NanoGenTools	Juan Antonio Tamayo Ramos Santiago Cuesta Lo	scuesta@ubu.es, jatramos@ubu.es	jan-16	dec-19
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36	NanoFABNet	Steffi Friedrichs	Steffi@AcumenIST.com	mrt-20	feb-22

NSC supporting OECD

EU via Georgios Katalagarianakis offered to OECD that NSC RTD projects will provide input and organizational contribution to the 9 TGs projects

- ▶ share knowledge developed by NSC
- ▶ host or organize workshops
- ▶ Dedicated knowledge transfer in NSC projects
- ▶ Coordination



To speed up the update or development OECD test guidelines

Generally, Test Guidelines (TG) and Guidance Documents (GD) for the testing of 'traditional' chemical substances are also applicable to nanomaterials.



For a number of endpoints, however, TGs/GDs do not address specific information requirements when dealing with nanomaterials, or are considered not applicable for the testing of nanomaterials.

Guidance document for the testing of dissolution and dispersion stability of nanomaterials and the use of the data for further environmental testing and assessment strategies
New TG on dissolution rate of nanomaterials in aquatic environment
TG MNS Removal in Wastewater Treatment Plants: Activated Sludge Sorption Isotherm
New GD on assessing the apparent accumulation potential for nanomaterials TG 305 - SPSF approved 2013
Draft GD Behaviour in Soils Using TG 312 for NMs
Aquatic (Environmental) Transformation of Nanomaterials ENV/CHEM/NANO(2018)4/ADD5
Assessment of the durability of NMs and their surface ligands in env. surroundings (biodegradable/ biodegradable)
Scoping review to consider how to trigger or waiver the TG 305 bioaccumulation in fish test for MNs

Environmental Fate & Behaviour

Health Effects

In vitro genotoxicity - SPSF approved in 2014
Applicability of the TG 442D in vitro skin sensitisation for nanomaterials ENV/CHEM/NANO(2018)4/ADD4
Development of new Test Guideline on toxicokinetics to accommodate testing of nanoparticles - SPSF approved in April 2020
Integrated In Vitro Approach for Intestinal Fate of Orally Ingested Nanomaterials
Guidance document on the determination of concentrations of nano-particles in biological samples for (eco)toxicity studies
Technical recommendations for conducting the In Vitro Mammalian Cell Gene Mutation Test (OECD TG 476) with ENMs
Colony forming efficiency (CFE)
New in vitro guideline for comet assay to detect strand breaks and specific deoxyribonucleic acid (DNA) lesions
Cell transformation assays
Impedance-based label-free assessment of nanotoxicity.

Guidance Document on Aquatic (and Sediment) Toxicity Testing of Nanomaterials
Technical recommendations for conducting assays with ENMs according to OECD Test Guidelines 201, 202 and 203
New Comet assay to detect strand breaks and specific DNA lesions of Daphnia magna (or other species) exposed in vivo
Daphnia magna reproduction test (with male induction)

Effects on Biotic Systems

Physical Chemical Properties

New TG on Determination of the (Volume) Specific Surface Area of Manufactured Nanomaterials
New Test Guideline on particle size and size distribution of Manufactured Nanomaterials
Determination of solubility and dissolution rate of nanomaterials in water and relevant synthetic biologically mediums ENV/CHEM/NANO(2018)4/ADD1
Identification and quantification of the surface chemistry and coatings on nano- and microscale materials ENV/CHEM/NANO(2018)4/ADD2
New TG on Determination of the Dustiness of Manufactured Nanomaterials ENV/CHEM/NANO(2018)4/ADD3
New TG on Determination of Surface Hydrophobicity of MNs
Particle counting
Endotoxins
Zeta potential

Malta Initiative

1

Research supporting regulatory needs

2

Aim: to revise current OED Technical Guidelines to make these suitable for nanomaterials (or develop new TGs)

3

Strong focus on the need from REACH

- Initiative by Anke Jesse, Federal Ministry, Nature Conservation and Nuclear Safety, DE
- Coordinated by Thomas Kuhlbusch, Federal Institute for Occupational Safety and Health (BAuA), DE

- ▶ Towards harmonized test methods for nanomaterials
- ▶ Dedicated task to
 - ▶ Collect and integrate information for a selected number of test guidelines
 - ▶ Identify parties that can provide information, expertise or test capacity
 - ▶ Develop quality criteria for the selection of information
 - ▶ Engage stakeholders

NanoHarmony



nanoharmony.eu

How to get involved

- ▶ Afternoon workshop
- ▶ Read more: tinyurl.com/MI-NSC2019
- ▶ Please join NanoSafety Cluster via:
<https://www.nanosafetycluster.eu/home/mailling-lists.html>
- ▶ Contact flemming.cassee@rivm.nl or
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