Project partners

- Natural Environment Reseach Council (NERC), UK
- University of Birmingham (UoB), UK
- Acondicionamiento Tarrasense (LEITAT), ES
- Eidgenössische Anstalt für Wasserversorgung, Abwasserreinigung und Gewässerschutz (EAWAG), CH
- Institut für Energie- und Umwelttechnik e.V. (IUTA), DE
- Swedish University of Agricultural Sciences (SLU), SE
- University of Vienna (UNIVIE), AT
- Wageningen University (WU), NL
- Oxford University (UOXF.DJ), UK
- European Virtual Institute For Integrated Risk Management (EU-VRi), DE
- HEMPEL, ES
- Promethean Particles (PP), UK
- FCC Construcción S.A. (FCCCO), ES
- AMEPOX (AXME), PL
- Inotex (ITEX), CZ
- Applied Nanoparticles (AppNano), ES
- Eidgenössische Materialprüfungs- und Forschungsanstalt (EMPA), CH
- Technical University of Liberec (TUL), CZ
- Institut National de l'Environment Industriel et des Risques (INERIS), FR
- Environmental, technical and scientific services (ETSS), CH
- Gothenburg University (UGOT), SE
- TNO Netherlands Organisation for Applied Scientific Research (TNO), NL
- Rijksinstituut voor Volksgezondheid en Milieu, Ministerie van Volksgezondheid, Welzijn en Sport (RIVM), NL
- University of Geneva (UoGEN), CH
- Malvern Instruments Limited (MIL), UK
- Perkin Elmer (PE), SE & CAN
- University of Plymouth (UoP), UK
- University of Ljubljana (UNI-Lj), SLV
- VU University Amsterdam (VU-Vumc), NL
- University of Aveiro (UAVR), PT
- Stichting Dienst Landbouwkundig Onderzoek (RIKILT), NL
- Universita Ca' Foscari di Venezia (UniVE), IT
- Pensoft Publishers Ltd (PENSOFT), BG
- SYMLOG France (SYMLOG), FR
- GBP consulting (GBP), UK

Non European Collaborative Partners with own funding

- McGill university, Montreal, (McGill), CAN
- Commonwealth Scientific and Industrial Research Organisation (CSIRO), AUS
- Duke University (DUKE), USA
- Carnegie Mellon University (CMU), USA
- University of Kentucky (UK), USA
- Montreal University (MU), CAN
- University of South Australia (UniSA), AUS

Design by PENSOFT

NanoFASE

NanoFASE

Consortium
42 partners (incl. 4 Swiss partners and 7 Non European Collaborative Partners), 11 work packages, 17 countries

Budget
11,3 M€ – EC contribution: 10 M€

Duration
Sept. 2015 – Aug. 2019

Website
www.nanofase.eu

Project coordinator
Dr. Claus Svendsen, NERC, Wallingford, UK.
Email: nanofase@ceh.ac.uk
Tel: +44 (0)1491 692676

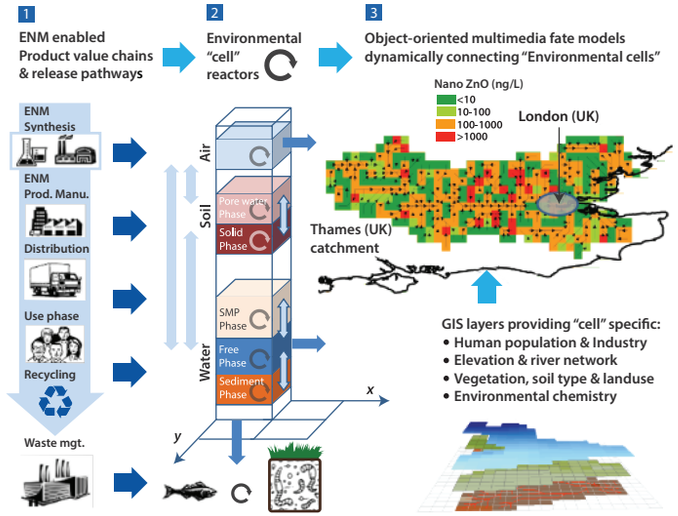
WP Research work packages

- **WP1** Exposure Assessment Framework for Engineered Nano Materials (ENMs)
- **WP2** Multimedia modelling of fate and biouptake
- **WP3** ENM supply, characterisation & transformation
- **WP4** ENM releases from nano-enabled products
- **WP5** Fate of ENM in managed waste facilities
- **WP6** Effect of ENM form on environmental fate in air
- **WP7** Effect of ENM form on environmental fate in soils
- **WP8** Environmental behaviour of ENM in waters and sediments
- **WP9** Biota uptake of ENMs

Stakeholder engagement WP

- **WP10** Dissemination and exploitation

Nanomaterial Fate and Speciation in the Environment



This project receives funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 646002.

Background

Progress is needed in the prediction of environmental distribution, concentration and form (speciation) of nanomaterials, to allow early assessment of potential environmental and human exposure and risks, to facilitate safe product design and to include these aspects in nano regulation.

NanoFASE is a progression of the FP7 project NanoFATE. It is part of the EU NanoSafety Cluster initiative (www.nanosafetycluster.eu) which works at maximising the synergies between the EU research projects addressing all aspects of nanosafety including toxicology, ecotoxicology, exposure assessment, mechanisms of interaction, risk assessment and standardisation.

General aim

The overarching objective of NanoFASE is to deliver an integrated **Exposure Assessment Framework** (protocols, models, parameter values, guidance...) that:

- Allows all stakeholders to assess the environmental fate of nano releases from industrial nano-enabled products,
- Is acceptable in regulatory registrations and can be integrated into the EUSES model for REACH assessment,
- Allows industry a cost-effective product-to-market process, and
- Delivers the understanding at all levels to support dialogue with public and consumers.

NanoFASE will develop a set of novel concepts and approaches to underpin the Exposure Assessment Framework and strongly link research, exploitation and dissemination.

NanoFASE will

- Enable form-specific release modelling, by development of detailed understanding of i) product-type and product-use based release forms; and ii) release pathways of engineered nanomaterials (ENMs) across ENM-enabled product chains.
- Optimise current, routine clean media methods for ENM characterisation to deliver repeatable and reproducible results in environmentally relevant complex matrices.
- Develop a catalogue of process-informed compartment models, to describe the transformation across time of distributions and populations of ENM forms entering all key waste management or environmental compartments.
- Work closely with research, industry and policy stakeholders to develop a fate and exposure assessment framework comprising validated standard operating procedures (SOPs), product value chain and waste management release modules, parameterised transformation algorithms and multimedia fate/exposure models, along with guidance for stakeholder use.
- Ensure that the method and model developments have the widest and highest possible impact, by working with relevant communities (ECHA, OECD...) to enable uptake of NanoFASE methods and protocols into standards, into existing exposure prediction tools, and into mainstream chemical assessment tools, policy and regulation (e.g. EUSES & REACH, Industrial Emissions Directive, Waste Framework Directive).

Main outcomes

- A fit-for-purpose, road-tested and future-proofed exposure assessment framework for ENMs, comprising models, experimental methods, standardised operating procedures and detection/quantification in environmental media.
- A state-of-the-art, flexible and future-proof NanoFASE modelling Framework, employing Functional Fate Groups, environmental reactors and dynamic multimedia modelling.
- A fully operationalised version of the existing screening model SimpleBox4Nano, incorporating the latest algorithms and parameterisations of ENM transformation processes developed inside and outside NanoFASE.
- A novel, practical and future-proofed approach to classification of ENMs for fate assessment purposes.
- Methods, parameter values and model catalogues supporting the derivation of individual process models, describing transformation and transport processes in waste streams, air, soil and water/sediment and uptake and accumulation in biota.

Open for collaboration

The NanoFASE project and its individual partners welcome collaborations and offer several ways of engaging in this:

- Hosting of research visits from self-funded PhD students and Post Doc Fellows in the project's many subject areas.
- The "NanoFASE interactive model and method catalogue", allowing people to comment on and critique the NanoFASE models and methods, as well as propose new or other ones.
- Organization of joint workshops on specific science topics.

Please contact us at nanofase@ceh.ac.uk to discuss