



Welcome to the Autumn NSC Newsletter and thank you everyone as always for your valuable contributions.

NanoSafety

Cluster

As you may know, for the past four years the NSC Newsletter has been compiled and produced under the steadfast aegis of **the NanoDefine project**, which ends on **31st October 2017**. On behalf of the NSC WG7, I would like to thank the NanoDefine Project Coordinators, Hans Marvin and Wim Beek, RIKILT (NL), and Rudolf Reuther, NORDMILJÖ AB (NOMI, SE), for their continued support of the newsletter since 2013.

The Newsletter brings together not only the NSC Projects and Working Groups, but also a large number of research and industry stakeholders. A great deal of work has been carried out to build up its **readership**, which is currently approaching **3,000 subscribers**. The Newsletter and back issues are also hosted on the NSC Website, **sent to over 400 members of the NSC LinkedIn group** and disseminated via the NSC and affiliated projects. We are hoping to have established a new home for it in the not too distant future.

Meanwhile, in an exciting new development, the EU NanoSafety Cluster is delighted to announce the first in **a** series of webinars that will introduce its work and the key outcomes from its projects. These webinars, held every 4 months, are open to all interested participants and will start on November 20, at 1500 CET. The first webinar presents the NanoSafety Cluster, with future webinars on important project outcomes and their impact on the safe development of nanomaterials to the consumer across all sectors. If you would like to attend the kick off webinar, please sign up below and we look forward to welcoming you on November 20th.

https://www.nanosafetycluster.eu/news/233/66/EU-NanoSafetyCluster-open-webinar.html

In the Job Opportunities section, a not-to-be-missed opportunity for a Section Head of Nanotechnology and Chemical Safety at the IOM Edinburgh is announced

Finally, on behalf of WG7 Dissemination, we hope you enjoy this latest edition of the newsletter.

Kind regards Lesley Tobin



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NewsLette

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Have your say:

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Accidents will happen....

WP1 leader Alison Crossley (U.OXFD-DJ, UK) reports:

Our NanoFASE International Advisory Board members close to industry have emphasised the importance (as with all chemicals) of considering the impacts of accidental release or illegal dumping of nano particles.

In particular they have tasked us to determine whether current material safety data sheets could or should be adjusted if the material is in a nanoform.

We won't know the answer to this until the NanoFASE experimental work packages complete their scientific studies; however a road traffic accident in northern England at the start of 2017 has focussed our minds on such potential events.

On this occasion 1000s of litres of white paint entered the river system (Fig. 1). We are investigating this spillage with a view notably to learning more about current procedures which are followed by the UK emergency services and Environment Agency.

In this case the discharge was a water soluble resin with an inorganic fraction of, we assume, white pigment grade Titania – making it easy for regulators to follow the flow and dilution of the spilled paint.

NanoFASE WP2 leader Dr Stephen Lofts from the NERC Centre for Ecology and Hydrology is also leading a field campaign.

Sediment and biota samples were taken along the course of the river shortly after the spill and again in July 2017, about six months after the spill, in order to assess background levels and whether there has been any longer term accumulation of titanium oxide.

We hope what we learn from this study will supplement our evidence based outputs on related material in the nanoform.

NewsLetter

NanoFASE: Nanomaterial fate and speciation in the environment (H2020 grant n°646002 – 2015-2019 – Coordinator Claus Svendsen, NERC-CEH, UK) is developing a new state-ofthe-art framework for evaluating environmental release, fate and exposure for ENMs. The NanoFASE integrated framework will account for spatial and temporal variability of ENM release and include effects of transformations on fate.



Figure 1. Photographs taken (A) near to spill site approximately 12 hours after the accident occurred, and (B) at confluence with larger river, 9 kilometres downstream, 36 hours after the spill. Photographs reproduced with permission from Peter Kirton, Environment Agency, UK; ©Environment Agency, January 2017.



Distinct particles and horn-shaped silver sulphide: Challenges of nanoparticle synthesis for fate studies

News from WP3 leaders Iseult Lynch, University of Birmingham and Marianne Matzke, NERC CEH (UK):

Our work package centres on ENM supply, transformation and metrology for NanoFASE experimental studies. Acting as providers of nanomaterials, both industrial ones for real world relevance and bespoke synthesized NMs to allow more controlled experiments suitable for parameterization of the models, we are in a great position to gain an overview of the project activities. As we approach the mid-point of the NanoFASE project, it seems appropriate to reflect on which materials are being utilized in the different aspects of the project, and where the major synthesis challenges have arisen. These challenges include (i) developing Titanium dioxide (TiO2) nanomaterials that can be experimentally distinguished from background TiO2 particles and (ii) producing spherical sulfidised silver whereas this has a tendency to form horn-shaped particles.

To find out more about the particles synthesized and used in the NanoFASE project, please enjoy reading the WP3 news release on our website: NanoFASE uses bespoke particles to address critical questions on fate of nanoparticles.

Spiked wastewater and airborne ENM

A NanoFASE innovation is the conceptual treatment of different release processes (weathering, direct release), waste streams (incinerators, wastewater treatment, landfill) and environmental compartments (air, soil, water/ sediment, biota) as "reactors" able to transform ENMs from the highly engineered high energy states achieved during fabrication, to environmentally transformed lower energy forms. Here comes news from our WP5 (Managed Waste Streams) and WP6 (Air).

Deputy Alexander Gogos and WP5 leader Ralf Kägi (EAWAG, Switzerland) report:

In summer 2017 we set up an experiment to run for 2 months, to collect about 1000L of sludge from our <u>model</u> <u>wastewater treatment plant</u> (WWTP). This sludge will be dewatered using our newly acquired decanter and incinerated in a pilot scale fluidized bed reactor. This experiment will serve to determine transfer coefficients for the different NanoFASE case study nanoparticles that we spike into the WWTP (Ag NP, CeO2 NP).

Read about some of our work in Gogos, A., Thalmann, B., Voegelin, A., & Kägi, R. (2017). Sulfidation kinetics of copper oxide nanoparticles. Environmental Science: Nano. DOI: 10.1039/C7EN00309A. Abstract: <u>http://pubs.rsc.org/en/Content/ArticleLanding/2017/EN/C7EN00309A#!divAbstract</u>

WP6 leader Carmen Nickel (IUTA Germany) reports:

As the number of NM in applications continues to increase, a release into the environment during their life cycle is possible. However, large knowledge gaps exist with respect to their environmental fate especially after release into air. Our first deliverable in WP6 sought out and summarized current knowledge on emissions and behavior of airborne engineered nanomaterials. Production process and some use cases (such as spray) are of importance regarding accidental and continuous emissions into air. We looked into implications of NM releases for the atmosphere regarding e.g. photo-catalytic properties or the production of reactive oxygen species, as well as the influence of physical processes and chemical reactions on the NMs.

Experimental studies and different modeling approaches regarding atmospheric transformation and removal were surveyed. Under the leadership of Astrid C. John, who has recently moved on from IUTA, this work was published as a Review Paper in Atmosphere:

John, A.C., Küpper, M., Manders-Groot, A.M.M, Debray, B., Lacome J.M. & Kuhlbusch, T.A.J. (2017). Emissions and Possible Environmental Implication of Engineered Nanomaterials (ENMs) in the Atmosphere. Atmosphere 2017, 8, 84. DOI: 10.3390/atmos8050084. <u>http://www.mdpi.com/2073-4433/8/5/84/pdf</u>

Meet Carmen Nickel, the new NanoFASE WP6 leader, in the NanoFASE Newsletter this fall. We wish former WPL Astrid John all the best in her new position!



NanoDefine at ENF 2017

NanoDefine took a significant role in the **EuroNanoForum 2017** on 21-23 June 2017 in Valletta, Malta, a biannual international conference and one of the most relevant European fora for scientists, industrialists and policy makers focusing on various nanotechnology fields and associated industrial sectors <u>http://euronanoforum2017.eu</u>

A more general overview poster was given on main objectives, tasks and the outcome of the NanoDefine project, while two more technical posters were presented on the "Evaluation of particle sizing with analytical centrifugation methods" by Christian Ullmann from Dresden University of Technology, and on "A flexible and extensible Knowledge Base for Mapping of Measurement Technique Performances and Material Properties in the NanoDefiner" by Raphael Brüngel from the Technical University of Dortmund and are available at the partner intranet of the project website.

Active contribution by experts of the NanoDefine team to the 2nd CEN Open Meeting "European Conference on Standardization for Nanotechnologies and Nanomaterials"

On 20 June 2017, the day before the ENF2017, experts of the NanoDefine team actively contributed to the 2nd CEN Open Meeting "European Conference on Standardization for Nanotechnologies and Nanomaterials" held in Valletta, Malta (http://international-events.afnor.org/nanotechnologies_openmeeting_2017/), and organized by CEN/TC 352 "Nanotechnologies" in cooperation with CEN-CENELEC Management Centre, the EU Commission and EFTA.

At the event, a poster was shown by Michael Stintz from Dresden University of Technology on "Guidance on detection and identification of nano-objects in complex matrices", and an oral presentation was given by Philipp Müller, BASF, on "Methods to support the identification of nanomaterials (size, surface area, surface composition)".

In addition, Michael Stintz (TUD), Philipp Müller (BASF) and Rudolf Reuther (NOMI) participated as panel members in two round table discussions addressing requirements of reliable data for the effective management of nanomaterials and the question of how European research projects impact standardization.

All documents presented during this 2nd Open CEN Meeting on Standardization for Nanotechnologies and Nanomaterials are available via the following links:

http://international-events.afnor.org/nanotechnologies_openmeeting_2017/files/2017/08/Holding-and-slidescompleted-version-CPAO-2017-06-302.pdf

http://international-events.afnor.org/nanotechnologies_openmeeting_2017/files/2017/08/8.o-Posters-completed-securited.pdf.



ProSafe White Paper published

On 11 September the ProSafe White Paper has been published. The subtitle of this document: 'towards a more effective and efficient governance and regulation of nanomaterials', summarises in a nutshell the aim of the document.

The White Paper integrates and analyses the results of the EU funded projects NANOREG, ProSafe and numerous other nanosafety projects, and translates the findings into 15 recommendations for policy makers and regulators. Amongst others, the recommendations include proposals for what is called "no regret measures" such as further harmonisation of test methods by the OECD and proposals for a more efficient use of the results of nanosafety projects by improving the infra structure for data management. Other recommendations are aimed at making REACH more applicable for nanomaterials. For the long term, some possibilities for innovation in risk assessment are presented. They are aimed at speeding up the process of risk assessment, reducing costs and reducing animal testing. Finally, the White Paper introduces a recommendation to start thinking and working on more future proof approaches to secure the safety of materials. Approaches that would also fit next generation (nano)materials.

The publication of the White Paper completes the ProSafe project. It is now up to the policymakers and regulators to decide on the follow up of the recommendations. An international policy conference to discuss the White Paper would be a logical step in this context. Such a conference should ideally result in a set of agreed measures, the assignment of a responsible party for each specific measure, and arrangements on the funding of the specific measures.

The Dutch government will take the initiative to organise such a conference in March 2018.

ProSafe Results Repository "in the air"

Opening up the results of Nanosafety projects is a basic condition for making progress on the field of nanosafety research and for an efficient use of public money. With this in mind, the partners in the ProSafe project have –just like the NANoREG partners- decided to make all ProSafe Deliverables publicly available via the <u>ProSafe Results</u> <u>Repository</u>.

It is to be hoped for that this example will be followed up by all other nanosafety projects. In this context the following recommendation of the ProSafe White Paper is relevant:

The European Commission and Member States should introduce and enforce an obligation to share the results of nanosafety research as a condition for funding project partners. Such an obligation goes beyond the rules on Open Access to Scientific Publications and Open Access to Research Data in Horizon 2020. The obligation should include uploading experimental nanoEHS data in a standardised (ISA-TAB-Nano logic) way. A valid exemption to this rule would be nanosafety information generated for or by industry with a clearly competitive character. The EC Standard Grant Agreement and the Consortium Agreement should be modified with respect to Intellectual Property Rights (IPR) and confidentiality.

It is one of the recommendations that will be discussed during the planned policy conference on the White Paper recommendations in March 2018.









ProSafe Joint Document

The ProSafe Joint Document summarises the results of an evaluation of the regulatory relevance of methods for testing and assessing nanomaterials. This evaluation was carried out by a group of experts that covered the most relevant scientific fields of nanosafety on the basis of the "ProSafe roadmap for reviewing data, protocols, report and guidance notes for regulatory relevance". The draft Joint Document was discussed during a three-day scientific conference co-organised by ProSafe and the OECD. The conference was attended by about 180 experts and policy makers from all over the world. It was concluded that there is a need to continue to work towards the further harmonisation of test methods in order to create a solid base for testing nanomaterials and to fulfil the conditions for mutual acceptance of data.

The Joint Document was finalised in March 2017. It gives an impressive overview of the state of the art of methods and strategies to test and assess the risk of nanomaterials and their regulatory relevance. It is one of the building blocks for the ProSafe White Paper. A summary of the Joint Document has been published in NanoImpact. A number of papers related to the areas of concern mentioned above will be published in a special issue of this journal. The Joint Document itself can be downloaded from the ProSafe Results Repository.

ProSafe Results Repository

In ProSafe, twelve organisations from nine EU member states and associated states collaborated to evaluate the results of a wide range of EU projects on Environment, Health and Safety research in the field of nanotechnology.

They aimed to translate the evaluation results into building blocks and recommendations for regulatory actions thus adding considerable added value to the individual projects ("the whole is greater than the sum of its parts"). Additional activities focussed on:

- the examination and development of joint activities with global networks;
- exploiting synergies between NANoREG and other projects
- streamlining data acquisition, collection and data management
- widening the liaisons between member states and associated states across the EU.

The duration of the project was 27 months; the end date was 30 April 2017. The budget was approximately 2.5 million euros.

Following the example of the KP7 NANoREG project, all the information and knowledge generated under the umbrella of the H2020-ProSafe project is made available for other parties after the end of the project. The ProSafe Results Repository serves as a central point of access to all the results of the project by providing links to all relevant documents and information of interest.

Find out more about the Results Repository here: http://rivm.nl/en/About_RIVM/ Mission_and_strategy/International_Affairs/International_Projects/Completed/ProSafe

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NANoREG project - Final report published

By Aart Dijkzeul



A common European approach to the regulatory testing of nanomaterials

The NANoREG project, recently published the results of their work aimed at developing more efficient methods and strategies to test the effects of nanomaterials and assess their risks on human health and the environment.

Numerous Standard Operation Protocols (SOPs) for testing nanomaterials have been developed and evaluated regarding their reliability, reproducibility and relevance.

New insights have been developed regarding the importance of a standardized way of preparing dispersions, the need to characterize test media before and during experiments, the applicability of in vitro tests, the use of high throughput screening (HTS) just to name a few.

The results and knowledge acquired has been integrated in the NANoREG Framework and accompanying NANoREG Toolbox providing, among others, a risk assessment (RA) scheme that supports a more cost-efficient RA of nanomaterials.

Partners produced a large set of well-defined experimental nanoEHS data. This dataset (over 20.000 data points related to about 6000 experiments), is of great value in- and outside the project since the data on exposure and effects are linked to accurate physical-chemical data of the tested nanomaterials.

The NANoREG partners have proven that it is feasible to come to a concerted action regarding the materials to be tested, test methods and cell lines to be applied, quality checks, etc. Such concerted action is an absolute must for generating meaningful data.

All deliverables and experimental data are publically available in the NANoREG results repository. This makes it possible for other projects to build on the results of NANoREG. EU projects NanoReg2 and caLIBRAte will further elaborate on the data generated in the project.

All NANOREG results are available in the NANOREG Results Repository The NANOREG Final Report comes forward with several recommendations for the European Commission and EU member states such as "opening up experimental data (without commercial value) and a standardized way of data logging" as a condition for funding nanosafety projects.

The results of the project are important building blocks for "the White Paper process" of the H2020 project ProSafe. This process aims at developing a White Paper with recommendations for regulators and innovators regarding cost efficient risk assessment of nanomaterials now and in the future.

In this context, a ProSafe Task Force of senior experts evaluated a great number of nanosafety projects, including NANoREG, concerning the regulatory relevance of their results and generated data sets.

The results of this evaluation are condensed in the "the Joint Document". A draft of this document was discussed during a scientific conference that was organized by ProSafe together with the OECD from 29 November - 1 December 2016. This conference also was the final meeting of the NANOREG project.

A draft version of the White Paper has been distributed for consultation; the final version will be available in September this year. For more information you can contact the Project Office NANOREG



EU-US CoRs meeting report

7th—8th September 2017 (Birmingham)

Building on the approach from the 2015 and 2016 CORs meetings in Venice and Washington DC, the 2017 meeting took place at the University of Birmingham on 7th and 8th September 2017, immediately following the <u>12th ICEENN</u> Environmental nanosciences conference.

The 2017 CoRs meeting provided updates from the 6 running CoRs and undertook some initial scoping work for possible new COR activities (e.g., nanomedicine, nanofabrication / nanomanufacturing). In addition, there was a round table event on future directions in nanosafety research, and a hands-on session looking at the robustness of current (and future) nanoEHS research data in terms of regulatory value in the 6 different sectors (Consumer, food, cosmetics, biocides, medicines and medical devices). The workshop utilised "clicker (polling) technology" to collect audience opinions in real-time. A workshop synthesis report will capture input from invited experts, participant remarks, and a summary of COR activities. Should you require any additional information about the event, please <u>contact Stacey Standridge</u>. The EU-US NanoEGS CoRs meeting 2017 was sponsored by the EU Horizon2020 projects <u>ACEnano, NanoFASE</u> and <u>HiSENTS</u>.



NanoSafety

HISENTS



ACEnano will introduce confidence, adaptability and clarity into nanomaterial risk assessment by developing a widely implementable and robust tiered approach to nanomaterials physicochemical characterisation that will simplify and facilitate contextual (hazard or exposure) description and its transcription into a reliable nanomaterials grouping framework.

This will be achieved by the creation of a "conceptual toolbox" including a tiered approach to cost efficient nanomaterials analysis that will facilitate decision-making in choice of techniques and SOPs, linked to a characterisation ontology framework for grouping and risk assessment. ACEnano will initiate activities to support data collection, management, interpretation and delivery to a data warehouse for safe use & storage. It will thus underpin the future of nanomaterial quality control, labelling and anti-counterfeiting.

The overarching objective of the **NanoFASE** project 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.

The ambition is to reach a level of ENM Fate and exposure assessment at least comparable with that for conventional chemicals.

HISENTS aims to deliver an advanced nanosafety platform capable of providing high-throughput toxicity screening for the risk assessment of novel nanomaterials. The platform will be made up of an integrated set of miniaturised modules each representing critical human physiological functions from molecular interactions, through to cell, organ and organism effects.

To achieve this, the project will take a multidisciplinary approach drawing on experts from industry and research in the fields of nanotechnology, chemistry, cell biology, toxicology, engineering, electronics, computer modelling and material science.



NSC Project News—BIONANONET News & Dissemination

The BioNanoNet platform for research and innovation has recently issued its latest newsletter containing essential information for the community

BioNanoNet is an Austrian scientific network that specializes in Key Enabling Technologies (KETs) on national and international level, with a strong focus on bio- and nanotechnologies. BioNanoNet has the clear aim of supporting innovative interdisciplinary research by forming cooperative networks and synergistic collaborations, with special emphasis on (i) nanotoxicology, (ii) health, safety and nano-/medicine, and (iii) sensor technologies.

The BioNanoNet Forschungsgesellschaft mbH is European key player in the field of nanosafety, specialised in developing nano-safety-by-design strategies together with researchers and industry, and coordinates the national technology platforms NanoMedicine-Austria and SusChem-AT. Additionally, the BioNanoNet GmbH supports national and international research projects in coordination, management, dissemination and communication.

Access the Newsletter here:

https://www.bionanonet.at/images/ BioNanoNet_News_2017_03.pdf

Cluster : NewsLetter .*

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This edition's articles:

Bionanonet Member Contributions

- Do you breathe freely? Air quality: our researchers are shifting the focus of the limelight (FELMI-ZFE)
- NAWI Graz researchers measure light fields in 3D (Graz University of Technology)
- Medical University of Graz is winner of the Fast Forward Award 2017 in the category "Institution and Research Centers" (Medical University of Graz)
- med360 On the Pulse of Research (Know-Center)
- World café "Digitalisation in the Healthcare Sector" (Know-Center and Human.technology.styria)
- i-KNOW Workshop "Technology Enhanced Learning in Health Professions Education" (Know-Center)

Retrospect

- Exchanging Knowledge within the NANOGENTOOLS Project
 - o Secondment of BioNanoNet to Nanothinx S.A. (May 2017)
 - o Secondment of Sitex45 to BioNanoNet
- (June 2017) 1 st SusChem-AT Meeting (13 September 2017, Laßnitzhöhe, Austria)
- BioNanoNet Strategy Workshop and Networking (14 September 2017, Laßnitzhöhe, Austria)



Assessment of personal exposure to airborne nanomaterials: sampling and/or monitoring?



Exposure to airborne nanomaterials needs to be assessed in view of worker protection. Exposure to airborne particles can best be determined by measuring directly in the personal breathing zone, i.e. within a 30cm hemisphere around mouth and nose, which necessitates the use of personal samplers and monitors.

Such nano-specific personal instruments have only become available in recent years. In the scope of the project nanoIndEx coordinated by Christof Asbach, the capabilities and limitations of the novel personal samplers and monitors were thoroughly studied both in laboratory and during field studies. While samplers are used to collect particles for subsequent gravimetric, chemical and/or morphological analysis, monitors provide information on the airborne lung deposited surface area (LDSA) concentration with high time resolution. Some monitors also provide the number concentration and the mean particle size.

The three-year project taught us numerous lessons on both the performance of the instruments as well as on field studies, which can have a significant impact on future personal exposure assessment.

Personal monitoring or sampling: Advantages?

Personal monitoring and sampling has proven capable of providing relevant and reliable data regarding the individual exposure of workers. In some cases the personal instruments have proven to be superior to stationary devices, e.g., in cases of high temporal and spatial variability of the workplace aerosol.

There might be a certain conflict, however, between monitoring and sampling if very short activities are to be investigated, as limits of detection of certain analytical methods may require longer sampling times than monitoring periods.

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On the contrary, samplers could provide more directly mass concentration shift averages with the advantage to enable the identification of specific morphological or chemical features.

Consequently, the need for either personal sampling or personal monitoring depends strongly on the task and the question to be tackled. In many practical applications, the combination of personal sampler and monitor will be the best choice.

For more details on measurement techniques, strategies and methods for assessing personal exposure to airborne nanomaterials in workplaces, please refer to C. Asbach et al. Science of the Total Environment 603–604 (2017) 793-806.

Consult online the nanoIndEx Guidance Document "Assessment of Personal Exposure to Airborne Nanomaterials" here:

http://www.nanoindex.eu/wp-content/uploads/2016/06/Nano_Brosch%C3%BCre.pdf



Other News—EC Consultation on Definition of Nanomaterial

EC begins consultation on revising recommendation on definition of nanomaterial

The European Commission (EC) has begun a public consultation on the revision of the 2011 EC Recommendation on the definition of nanomaterial. The EC intended the definition to achieve consistent application of the term "nanomaterial", avoiding confusion and easing implementation, across all legislation.

According to the <u>Roadmap</u>, the review generated the following interim findings:

• While the uptake of the Recommendation in European Union (EU) regulation to date has taken place, it has not been as comprehensive as anticipated. This is not due to the definition itself, however, but due to delays in the processes planned to include the definition, e.g., the possible amendment of Annexes of the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) regulation to address nanomaterials and the delay in the adoption of the novel food regulation, by which time the review was launched;

• There is general consensus on the adequacy of the main elements of the definition. These are notably the neutral scope in terms of the origin of the materials and the definition's focus on particles. It is generally accepted that the definition uses the size of particles as the only defining parameter, applying to a 1-100 nanometer particle size range and bases the threshold for being a nanomaterial on a number concentration instead of mass;

• There are currently difficulties in directly applying the Recommendation in legislation. For example, it includes a threshold that has a default value but is not fully defined in advance and might require an additional process to determine its value: "In specific cases and where warranted by concerns for the environment, health, safety or competitiveness the number size distribution threshold of 50 % may be replaced by a threshold between 1 and 50 %." Also, application of the additional criteria based on the specific surface area by volume is considered ambiguous by some stakeholders. These prevent the Recommendation from being referred to in full by different regulations and force individual selection of its elements during each regulatory uptake, which could eventually lead to inconsistencies;

• There is a need to clarify some terms in use and how the criteria are applied: e.g., the definition of "particle," the precise meaning of particle's "external dimension" and the use of the concept of the "constituent particle" in respect to agglomerates and aggregates;

• There are issues of scope: e.g., the present Recommendation in addition to the general criteria explicitly identifies three carbon-based materials (graphene flakes, single-wall carbon nanotubes, and fullerenes) as nanomaterials while very similar non-carbon materials are not included; and

• Implementation remains challenging; there is no single universally applicable measurement method, and refinement of existing measurement methods is still in progress. In particular, to quantify "constituent particles" in all cases still poses a challenge. No easy implementation routes are presently provided to determine quickly for certain when a material is or is not a nanomaterial.

According to the Roadmap, the intention now is to prepare a revised Recommendation to be adopted by the EC, accompanied by a Staff Working Document that will report on the review undertaken and the rationale for the modifications.

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The <u>feedback</u> period is open until 13th October 2017.

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Source: European Commission via Bergeson & Campbell P.C via SafeNano.org









JRC Nanobiotechnology Laboratory

The European Commission's Joint Research Centre (JRC) opens its scientific laboratories and facilities to people working in academia and research organisations, industry, small and medium enterprises (SMEs), and more in general to the public and private sector.

The JRC offers access to its facilities to researchers and scientists from EU Member States, candidate countries and countries associated to the EU Research Programme Horizon 2020.

The Nanobiotechnology Laboratory features state-of-the-art equipped facilities designed to foster interdisciplinary studies. A special emphasis lies on characterisation of nanomaterials, nanomedicines, advanced materials and their interactions with biological systems, as well as on the detection, identification and characterisation of nanomaterials in food and consumer products.



Find out more about the open call for access proposals:

- The Nanobiotechnology open laboratory: http://europa.eu/!kG86dN
- Open access to JRC Research Infrastructures: http://bit.ly/2sQEgKo

Priority topics of the Nanobiotechnology laboratory

- Nanomaterial characterisation including their interactions with biological systems (culture media, proteins, etc.).
- Detection of nanomaterials in complex matrices.
- Surface chemical analysis of macro and nanomaterials.Surface modification and nano-fabrication. Biosensor platform characterisation.
- Cell cultures of adherent cells. Material biocompatibility studies. In vitro assays for assessing nanometerial genotoxicity, cytotoxicity and uptake studies.
- Advanced material characterisation for non-bio-applications (energy, transport, etc.).





Section Head in Nanotechnology and Chemical Safety, IOM, Edinburgh

The IOM is an internationally recognised centre for research, consultancy and service provision in the fields of occupational and environmental health and hygiene.

We are seeking to appoint a Section Head to lead and manage the SAFENANO Section. Our SAFENANO team provide a wide range of services and consultancy to clients globally concerning the potential risks to health and the environment arising from the development and use of nanotechnology and other advanced materials. Our services include expert risk assessment and the provision of laboratory and field services to inform risk management, protect health and support innovation.

This post provides an opportunity for a scientist with career interests in measurement science, chemical safety and risk assessment to work on a range of interdisciplinary and often international projects.

Candidates should have a physical sciences background and ideally have experience of leading a team. A business acumen, good communication skills and commitment to maintaining your technical knowledge, are essential to deliver the high quality service to our clients.

The successful candidate will report to and work closely with Dr Steve Hankin, Director of Analytical Services. This role will involve regular travel within the UK and overseas.

- A competitive salary and benefits package is available for this role.
- A full job description and person specification is available on request.
- For further information or to apply, please send a cover letter outlining your suitability for this role together with your CV to Dr Steve Hankin at <u>Steve.Hankin@iom-world.org</u>.
- Closing date: Friday 10th November 2017









New NanoFASE research:

Sulfidation kinetics of copper oxide nanoparticles



Recently published in the peer reviewed journal *Environmental Science: Nano*, a new <u>NanoFASE paper</u> by researchers Alexander Gogos and Ralf Kägi, <u>Eawag</u>, Switzerland, and colleagues, looks at how fast copper oxide nanoparticles become sulfidized in wastewater treatment.

"This paper features the first results from our investigations (in liaison with NanoFASE scientists led by Frank Kammer and Antonia Praetorius at <u>UNIVIE</u>) on the transformation reactions that take place in wastewater treatment (i.e. the sulfidation of copper oxide nanoparticles)" explains the lead author.

"We used controlled batch experiments, to provide a better understanding of the kinetics of this reaction as well as underlying reaction mechanisms. Overall we could show that the reaction is very fast, with half-life times in the order of minutes; so we can expect that copper oxide nanoparticles, which are released to the wastewater stream, will likely be discharged as copper sulfides to surface waters."

The original publication is available at: <u>http://doi.org/10.1039/C7EN00309A</u>

Events—nanoFASE Workshop | NanoMonitor Workshop

Workshop on Airborne ENM: Measurements, Implications and Modelling, 28-29th November 2017, Duisburg Germany

Carmen Nickel (IUTA), leader of the NanoFASE work package studying the effects of NM form on environmental fate in air, is organizing this workshop, which is free of charge and open to any interested person.

Day 1 : focus on Release, Environmental Concentration/Exposure and Modelling.

Day 2 : transformation of ENM in the atmosphere and effects on the atmosphere will be discussed.

Each day up to three presentations on each topic will summarize current knowledge as a basis for subsequent discussion. Breakout sessions will center on specific questions in the aim of identifying available information and possible knowledge gaps.

Due to limited space registration is mandatory. Sign up now as seats will soon be filled.

Venue: CENIDE - Center for Nanointegration Duisburg-Essen, Carl-Benz-Str. 199, 47057 Duisburg, Germany

Contact: For further information send an email to Carmen Nickel nickel@iuta.de

Registration: To register for the event go to <u>https://carmennickel.wufoo.com/forms/z16p9w2g06zd8yi/</u>

NanoMONITOR 2nd Stakeholders' Day

24 October 2017 Lancaster House Hotel, Lancaster, UK

Workshop purpose

This workshop is a forum for nanotechnology industry, researchers and regulators to discuss nanotechnology safety, the use of measured data on the concentration of engineered nanomaterials (ENMs) to support risk assessment, the implementation of safe exposure scenarios, and its regulatory challenges. The event will be hosted by the members of the NanoMONITOR consortium.



Exposure to both naturally occurring and anthropomorphic particulates effects everyone, with some exposures linked to serious health hazards in both humans and the environment. As the uses of ENMs increase in both volume and breadth, it is important to have the technology available to measure exposure to nanomaterials in the workplace and the environment. These will allow the identification and tracking of emerging risks, support the development of robust exposure modelling tools and allow users to prove compliance with regulatory obligations. It is the goal of the NanoMONITOR project to develop a robust sampling and analysing station that will allow the real-time measurement of nanomaterials. NanoMONITOR provides scientific based solutions to support the risk assessment of nanomaterials on a regulatory basis, including critical issues such as environmental, occupational and consumer exposure to ENMs, environmental release and fate in the life cycle and product value chains, and human health impacts of ENMs.

The workshop will introduce the exposure and risks arising from exposure to particulates including nanomaterials. It will then discuss the current status of the NanoMONITOR project allowing delegates to have the opportunity to test and provide feed-back on the prototype and the data acquisition software. Finally attendees will learn about the latest regulatory developments affecting nanomaterials in the EU and worldwide, including guidance the best tools available to meet these obligations.

Target audience and key stakeholders are:

• Occupational hygienists

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- Workers and professional users who use ENMs as such, in mixtures or incorporated into articles in research or production processes
- Researchers
- Experts from industry associations and other stakeholder organizations informing companies about the requirements for the safe handling and use of ENMs on a regulatory basis, especially for risk control purposes
- Experts from standardization (i.e. ISO committees) and/or regulatory bodies (i.e. ECHA)

Safe Nanotechnology Risk management, exposure and regulatory challenges

Safe Nanotechnology - Risk management, exposure and regulatory challenges 24 October 2017 Lancaster, UK

www.lifenanomonitor.eu



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Web Link:

http://www.lifenanomonitor.eu/en/events/safe-nanotechnology-risk-management-exposure-and-regulatory-challenges/

Workshop Agenda You can download here the <u>Preliminary Agenda</u>.

Workshop Flyer

You can download here the Workshop Flyer.

Registration

The Workshop is free of registration fees and open to the public. To register click here.

Deadlines

Registration Deadline: 4 October 2017

Due to the capacity limitations of the venue, **the maximum number of attendees to be accepted is limited to 70**. Registration will be on a first-come, first-served basis.

Venue

The second edition of the NanoMONITOR Stakeholders' Day will take place at <u>Lancaster House Hotel</u>, Lancaster, UK.

Logistic information

Here useful information about your travel to Lancaster and accommodation options at preferential rates.

Contacts

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Training Workshop

The Nanosafety Workshops 2017 : the next event organized by the PNS at Grenoble, France

http://www.ateliers2017.insight-outside.fr/ Gaelle Charlier, Cea Gaelle.charlier@cea.fr

The PNS (Nanosafety Platform) is organising "The Nanosafety Workshops 2017", taking place on the 16th of November 2017. Formerly called "The Nanosafety Meetings", this new event will be scheduled every two years alternately with the International Conference Nanosafe (next is scheduled in 2018). This meeting will be conducted in French and will enable the various industrial stakeholders to meet and discuss activities and concerns. Based on a participative mode, a speed-meeting and some practical & technical workshops will be scheduled. The event also offers the opportunity to visit the Nanosafety Platform and to get more specific information about its wide range of activities.

To download the programme and register, visit <u>www.ateliers2017.insight-outside.fr</u>

For more information : ateliers2017@cea.fr www.nanosafety-platform.com

Events—NanoSafety 2017

NanoSafety 2017

11—13 October 2017

The Leibniz Institute for New Materials is hosting the Nanosafety 2017 conference in Saarland, Germany on 11th – 13th October 2017.

Nanotechnologies are considered as key enabling technologies. Their applications are based on effects arising from the promising properties and structure of the building blocks of nanomaterials. Sustainable development and implementation of these technologies demand:

- Safe production and use of nanomaterials
- Detailed understanding of interactions between nano-objects and living organisms
- Knowledge transfer of scientific results to support socially relevant aspects

Topics covered at the conference include:

- Safe by design
- Neurotoxicity
- Nanomaterials: effects and mechanisms
- Safe biomedical applications
- Quantification and detection of nano-objects
- Regulatory issues and long term studies
- Environmental exposure pathways

The conference programme will be available <u>here</u> after abstract review. Further information is available on the event <u>website</u>.











Invitation to the 2nd NanoDefine Industry-focused Workshop

"Measurement and classification of nanomaterials according to the EU definition" 24 October 2017 - Frankfurt am Main - Germany

Purpose and Focus:

The European **NanoDefine** project is organizing a new 1-day industry-focused Workshop on the 24 October 2017 at DECHEMA in Frankfurt/Main, Germany. Main purpose of this workshop is to practically demonstrate the newly developed measurement techniques to end-users, who have to implement the **EC definition of a nanomaterial** (2011/696/EU).

NanoDefine experts have developed a wide panel of new validated measurement methods, techniques, instruments and software, including a **2-tiered analytical approach** consisting of (1) rapid and cost-effective screening methods and (2) more in-depth confirmatory methods, to classify existing and new advanced materials according to the EC nano-definition. In particular the "**NanoDefiner e-Tool**" will help practitioners to reliably determine, whether a material or product is or contains nano, or not.

This unique workshop will focus on the practical demonstration of the applicability, suitability and regulatory significance of the newly developed NanoDefine methodology to classify real-life materials. We warmly invite you to meet our experts and to share their experience, learn from each other and find an answer to the following questions:

- How to address the analytical challenges caused by the EU Nano-Definition?
- How to handle the wide diversity and complexity of commercially relevant products and materials that have to be classified according to this definition?
- How to meet the needs of industry for quick and unambiguous measurement tools?

Register and Save the Date!

Registration is free of charge and can be done by sending an email to <u>events@nanodefine.eu</u> together with the following information:

- Your name, position, phone and email address:
- Type of your organization (e.g., industrial/instrument manufacturer, branch organization, regulatory body, policy/ decision maker, research institute, consultant etc.):
- Type of materials/instruments you manufacture or develop (if applicable):
- Your specific interest in this meeting:
- Practical experiences and problems you want to discuss:
- Other topics and questions you want to address:

Venue:

DECHEMA, Theodor-Heuss-Allee 25, 60486 Frankfurt am Main

Downloads:

Complete program and more information 2





The European Commission is organising the Industrial Innovation Info Days with the support of external stakeholders to:

- Build the basis for the future of Industrial Research in Europe
- Inform relevant industrial technology providers & users about EU activities in the field,
- enhance cooperation among stakeholders.

Programme :

- Plenary sessions with great political impact on the industrial environment and key notes by high level speakers.
- Panel sessions with a focus on upcoming challenges for the next work programme on nanotechnologies, advanced materials, advanced manufacturing & processing, and biotechology.
- Networking activities with possibility to present your project ideas.
- Matchmaking to meet new partners during short face to face meetings (separate registration site)
- The NanoSafety Cluster will be represented by Prof. Eva Valsami-Jones on October 4th at a parallel session on Transforming European Industry: Safety and Regulatory

Programme & web streaming: http://europa.eu/!Ck76GB

Registration: http://europa.eu/!hU83VX

Contact the organisers: RTD-NMBP-INFODAYS-2017@ec.europa.eu

Follow us on Twitter: #IndustryInnovDay .



Other Events ...



October		
16 October 2017	11th World Drug Delivery Summit (Baltimore, USA)	
16 October 2017	5th International Congress and Expo on Nanotechnology and Materials Science (Dubai, UAE)	
18 October 2017	15th World Medical Nanotechnology Congress & Expo (Osaka, Japan)	
19 October 2017	9th Annual Congress on Drug Design & Drug Formulation During (Seoul, South Korea)	
19 October 2017	16th Annual Medicinal & Pharmaceutical Sciences Congress (Seoul, South Korea)	
26 October 2017	13th International Conference on Advanced Materials and Nanotechnology (Osaka, Japan)	
27 October 2017	Nano USA 2017 - International Conference and Exhibition on Nanoparticles & Nanotechnology (USA)	
November		
02 November 2017	4th HVM Graphene + New Materials 2017 (Cambridge, UK)	
06 November 2017	Annual summit on Nanomedicine & its applications (New Orleans, USA)	
09 November 2017	BIT's 1st World Congress of Biomedical Engineering-2017 (Xian, China)	
12 November 2017	6th International Conference on Ultrafine Grained and Nano-Structured Materials (Kish Island, Iran)	
13 November 2017	13th International Conference and Exhibition on Materials Science and Engineering (Las Vegas, Nevada, USA)	
13 November 2017	13th International Conference on Nanotek and Expo (Atlanta, USA)	
13 November 2017	18 th Nanotechnology Products and Summit (Atlanta, USA)	
13 November 2017	22nd International Conference and Expo on Nanoscience and Molecular Nanotechnology (Vienna, Austria)	
13 November 2017	Global Nanomaterials Congress (Singapore)	
23 November 2017	17th International Conference and Exhibition on Nanomedicine and Nanotechnology in Health Care (Melbourne, Australia)	

Engage with the NanoSafety Cluster...

Do you have any news * announcements * events * resources * research positions * updates * comments * opinions * publications * bulletins * blogs * workshops * ideas * jobs * proposals * partnership opportunities * that you want the nanosafety community to know about? Here's how you can inform

everyone....



www.nanosafetycluster.eu