



EURAMET workshop on EMNs 09 January 2018, Paris

Nanoparticles / Nanomaterials characterisation

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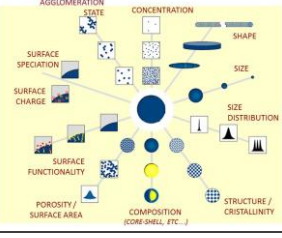
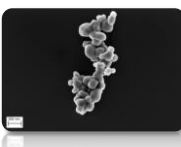
MESURES ET RÉFÉRENCES
VECTEUR DE COMPÉTITIVITÉ
ET DE SÉCURITÉ



Le progrès, une passion à partager

Rationale

- ❑ **Nanomaterials seen as an important topic for EU competitiveness**
- ❑ **Characterization of nanomaterials = quite difficult** because:
 - numerous parameters have to be measured (*ISO/TR 13014:2012*)
 - wide variety of analytical techniques available on the market for each parameter with very different levels of performances and targeted measurands → *Academics and industry often do not use the right one for their case because of lack of knowledge and/or difficulties to access adapted capacities*
 - very few SOPs and (certified) reference materials available
- ❑ **Labelling requirements to have data on exposure of the general population** (*Food* with EC n°1669/201 INCO Regulation, *Cosmetics* with EC Regulation n°1223/2009...), but to date no control (except in France for food sector from 2017) → *JRC and DG SANTE started to work with control laboratories to build a network and share expertise + asked for support regarding metrology* (Summary Report of Joint JRC-DG SANTE SYMPOSIUM Nanomaterials in Food: Reliability of measurement results, May 2017)
- ❑ **EMCC (European Material Characterization Council) road-map for Materials Characterization (Sept. 2017)** → *priority actions = formation of an independent platform which can effectively connect the different stakeholders and tools + link with nanometrology and standardization*
- ❑ **Europe launched EU-NCL (Nanomedecines Characterization Laboratory) in 2015** following the example of NCI-NCL in US which relies on FDA (*regulatory part*) and NIST (*metrology part*) to accelerate innovation to reach the market
→ *EU-NCL interacts with EMA but do not have the possibility to have an European partner for metrology questions able to cover the full scope needed*

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Activities and Actors

- **GATHER** all actions dealing with nanomaterials metrology within iMera+, EMRP and EMPIR + EURAMET
- **SHARE** at the European level national needs regarding nanomaterials metrology in order to propose roadmaps and interactions with the European Materials Characterization Council (EMCC) and update vision of the FP7 project CO-NANOMET (*Coordination of nanometrology in Europe, 2009-2010*)
- **COORDINATE** a network of expertise and technical means dedicated to nanomaterials metrology
- **BUILD** a database of NMI/DI capacities and capabilities for nanometrology and nanomaterials characterization as recommended by the High Level Group of EU Members States and Associated Countries on Nanosciences, Nanotechnologies and Advanced Materials (October 2017) to accelerate the uptake of innovation in materials technology by promoting industry access to high level characterization infrastructures and facilitate EU regulation implementation
- **SUPPORT** development of adequate standards (link with CEN/TC 352 and VAMAS), certified reference materials (in line with the recent JRC survey / October 2017) and uncertainty evaluation
- **PROVIDE** a framework to host proficiency testing on nanomaterials characterization and link with EA (European co-operation for Accreditation) to support skills acquisition by testing laboratories
- **DISSEMINATE** information and training on terminology, metrological tools, principles and procedures



Key NMI/DI already OK



Others partners already OK

NMI/DI potentially interested


Others to come...



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Outputs


- Research through Common Joint Research Projects and FP9 projects
- Contribution to the EMCC road-map and activities for the nanomaterials part
- A new free access web platform for sharing with policy makers, regulators, control laboratories, European SMEs and big companies **expertises, contacts and reference tools** of NMI/DI members regarding nanometrology and **high level nanomaterials characterization capabilities**
- Reference methods to support regulation and labelling requirements
- New (C)RMs and calibration standards + **easy-to-use database** (in collaboration with JRC)
- **Services** regarding calibration, nanomaterials characterization and supply of reference values for PT schemes (within JRC/DG Santé network for food and cosmetics characterization or EU-NCL activities)
- **Support materials developers** regarding analytical techniques and corresponding metrology information to help them to use the best suited technique



3 SECTORS TARGETED :

- FOOD INDUSTRY
- COSMETICS INDUSTRY
- NANOMEDECINES NEW PRODUCTS

Opening to others sectors and applications in a second step (Medical Devices...)?





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Impact

- Enable reliable controls by Member States authorities of regulatory nanomaterials labelling requirements on food and cosmetics products**
 - *Consumer information*
 - *Data regarding exposure of general population to nanomaterials (food and cosmetics)*
 - useful for safety and epidemiological studies
 - support to European policies regarding nanomaterials and their uses
- Support to industry by providing tools to ensure better controls of raw materials**
 (today a lot of industry actors are using nanomaterials and nanoparticles without their knowledge...)
- Support for the recognition of services providers skills in the future (accreditation)**
- Education on nanomaterials characterization and associated pitfalls**
- Independence of EU regarding metrology for nanomedecines characterization**
 (instead of NIST which is today the metrology support for EU-NCL)
 - *Shortened development cycles for nanomedecines*
 - *Increased competitiveness of European Industry*

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