

NanoMeasureFrance: A Single Entry Point for Structuring the Nanomaterials Industry around Comparable and More Reliable Data

Georges Favre¹, François-Xavier Ouf¹

1. Introduction

Nanomaterials are formidable sources of innovation and are used in all industrial sectors. However, their development is hampered by the fact that the reproducibility of industrial production processes is difficult to achieve [1], a lack of harmonisation in their definition [2], regulatory requirements for which harmonised test methods are not always available, and an often negative perception by society [3].

The lack of traceability [4] regarding the use of these substances, the risks of which are sometimes still poorly assessed, and the relative fragmentation, within the sectors concerned, of the players involved do not favour the establishment of a context conducive to the marketing of products incorporating nanomaterials.

These various obstacles are partly due to the difficulties in obtaining reliable and comparable testing data, while the characterisation of nanomaterials is a complex task.

2. The NanoMeasureFrance initiative

The NanoMeasureFrance initiative [5] has been launched in 2022 to help moving forward on these issues. It is a French public/private partnership, led by LNE and supported by the French State and the Île-de-France region.

It aims to create a sustainable non-profit association to strengthen confidence in nanomaterials and associated innovations by bringing together interested stakeholders (producers and users of nanomaterials, instrument manufacturers, service providers, academic laboratories and platforms) to build collective answers to the main issues and priorities identified. The association was co-founded by LNE, France Chimie (professional organisation representing companies in the chemical sector in France) and FEBEA (professional association for the cosmetics sector) and already gathers 47 members.

NanoMeasureFrance mainly focuses on harmonisation and validation of the tools and methods needed to better identify nanomaterials in a regulatory perspective and to characterise their key physico-chemical properties at different stages of their life cycle. The main actions consist of:

¹ NanoMeasureFrance Association & French National Metrology and Testing Laboratory (LNE)

- production of documents proposing harmonized approaches upstream of standardization
- sharing information and best practices
- promoting inter-laboratory comparisons initiatives
- liaising with key players, networks and initiatives working in the field of pre-standardization of characterization and testing methods (VAMAS, EURAMET, OECD/WPMN, Malta Initiative, JRC...).

3. NanoMeasureFrance action to improve the identification of nanomaterials

Among the various issues identified within the different Association's WGs, the question of better identification of nanomaterials was seen by members as a key issue. This is indeed the first step in determining the regulatory requirements to be applied, and the corresponding testing methodologies to be implemented.

While this stage is relatively straightforward for a number of particulate substances, there are many cases where difficulties still arise. There are indeed different situations where even the microscopy **Confirmatory Step** recommended in JRC guidance when screening methods are inconclusive is not sufficient to draw a definitive conclusion regarding the determination of the potential **Nanomaterial** status of particulate substance. Furthermore, the existing documents to help advance the process of identifying nanomaterials are aimed at people who have a technical basis to take them in hand, which is far from being the case when regulatory people interact with their suppliers, potentially outside Europe. These documents are also very often too long for SMEs to be able to absorb their content due to lack of time and/or adequate expertise. It is therefore very complicated for them to judge the relevance of the data provided to support the classification as non-nanomaterial of certain substances and the provision of simple documents allowing them to ask the right questions with a view to challenging their suppliers proves useful. A number of documents are currently being developed within the Association's WGs to help all stakeholders make progress on the subject, and to suggest avenues for improvement.

4. Conclusions

The NanoMeasureFrance Association works to build harmonized approaches to produce and access improved quality test data on nanomaterials. The diversity of the 47 members of the association in terms of profile (start-up, SME, big companies, academic or government laboratory, etc.) or sectors (materials, cosmetics, nanomedicine, instrumentation, waste treatment, construction, transport, services etc.) shows the relevance of the approach and the benefit of building links between stakeholders to break down barriers.

Significant efforts are being made to improve the identification phase of nanomaterials at the basis of their traceability in value chains, but the characterization of their main physicochemical properties is also the subject of specific actions.

[1] <https://nanofabnet.eu/>

[2] https://ec.europa.eu/environment/chemicals/nanotech/review_en.htm

[3] <https://echa.europa.eu/fr/-/what-do-eu-citizens-think-about-nanomaterials->

[4] <https://www.anses.fr/fr/content/nanomat%C3%A9riaux-evaluation-du-dispositif-national-de-d%C3%A9claration-r-na>

[5] <https://www.nanomesurefrance.fr/>