FAST FACTS

Duration:
42 Months

Completion Date:
February 2019

Total Funding:
€10 Million

Partners:
42 across 15+ countries

Objective:
Establish Safe by Design as a fundamental pillar in the development of nanomaterials or nano-enabled products

Outcomes:

- Nanomaterial
- grouping strategy
- Associated
- integrated testing
- strategy

Learn More:
NanoReg2.eu

DSM Industrial Demonstrator

DSM is a large multi-national company which had employed Safe by Design protocols prior to the start of the NanoReg2 project. In addition, DSM has consistently applied EU regulations, guidance principles and risk assessments when working directly with nanomaterials. DSM had already developed its own set of internal standards for Safe by Design approaches prior to the project start date. Thus, on the Safe by Design aspect of the project, the company came into this project well-versed on implementation.

However, there was a particular reason for DSM becoming involved with the NanoReg2 project. DSM was focusing on the 'safe use' pillar of Safe by Design and was interested in NanoReg2 concerning a specific application at a customer's site. The nanomaterial in question was amorphous and crystalline nanosilica i.e. silica nanoparticles. In its customer's applications, the silica nanoparticles were being embedded into a polymer resin before being cured. One specific application was of interest for further investigation from a safety point of view. The application involved abrasion of the nanoparticles so that they formed a desired shape. It was considered that this abrasion process could lead to a risk of nanomaterials being released into the local processing environment where the workforce was located. DSM sought to investigate this further through the NanoReg2 project and determine if there were any risks associated with this process and what advice should be given to its customer regarding the handling of the nanomaterial(s). Overall, through this project and a further ambition for using Safe by Design in this instance, DSM was to be able to bring safe products to the market whilst ensuring safety in the work place for its staff and those of clients.

As DSM was already experienced in processes associated with Safe by Design, including its own internal standards and regulations, its main consideration was the safety aspect at their customer's site. Therefore, and unlike other participants in the NanoReg2 project, DSM did not consider any new design aspects for the information it was attempting to gather. Specific experimental tools were used to gather information on the release of nanoparticles during the abrasion process, including a combination of an automated abraser, particle size analysis instruments and elemental analysis methods.

Results from DSM's experimental testing demonstrated that there were no safety or risk issues associated with the abrasion process. This also established that no further information needed to be communicated to the customer regarding handling of the nanomaterials or whether any new safety protocols needed to be undertaken during the abrasion process. DSM previously applied Safe by Design principles within the company prior to the NanoReg2 project, it thus determined that there were no barriers created during the project and it will continue to use Safe by Design in the future.

DSM
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