

An approach to assess and control the potential risks related to nanomaterials- the case of INSPIRED project

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Abstract

The use of engineered nanomaterials in a wide number of consumer, medical and industrial applications has led to increase the interest to understand potential safety issue derived from the use of these new materials. To guarantee the implementation and the social acceptance of the nano-based products/processes it is necessary to ensure that they do not pose an additional risk for health or the environment.

The INSPIRED project [1] (Grant Agreement No 646155; 2015-2018) deals with the use of engineered nanomaterials for printed electronic applications. Its goal is to scale-up the whole value chain to ensure the availability of nano-based functionalised inks in industrial scale quantities and enable rapid high-throughput production of novel printed electronic components on a wide variety of substrates. INSPIRED runs in parallel the development of the pilot production lines and the assessment of potential impacts from nanomaterials (nanosafety assessment). Specifically, the focus of these activities is the identification, evaluation and control of potential environmental and worker exposures to avoid related risks. The approach includes the use of state-of-the-art qualitative and semi-quantitative risk assessment tools as ECETOC TRA [2], Stoffenmanager-Nano [3] and ISO 12901-2 [4] to identify “hot-spots” in the process and to rank possible risks derived from the use of the engineered nanomaterials. For selected scenarios, quantitative measures may be performed to assess the potential release of nanoparticles and to check the efficiency of controls to reduce worker exposure (following the harmonized tiered approach from the OECD, 2015 [5]). The final goal of this approach is to develop guidance to achieve safe nano-related processes that may foster the development of printed electronic applications.

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References

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- [3] <https://nano.stoffenmanager.nl/>
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- [5] OECD (2015) Harmonized tiered approach to measure and assess the potential exposure to airborne emissions of engineered nano-objects and their agglomerates and aggregates at workplaces. ENV/JM/MONO(2015)19