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SANOWORK: towards a "Safety by Design" management of nanomaterials

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The growing importance of engineered nanomaterials (ENMs) and their applications justifies the European successful promotion and growth of a nano-safety research. It is widely accepted that material designers, engineers, health and safety professionals, business leaders, should converge efforts to develop "Safety by design" (SbD) tools and implementing safer manufacturing processes. The approach followed by the EU collaborative project, SANOWORK, is in this direction. The main goal of Sanowork project has been to promote safe occupational exposure scenarios by developing preventive risk management measures and evaluating them in terms of RISK and expected PERFORMANCES. The results has provided inputs for a COST-BENEFIT analysis and the development of a RISK INSURANCE MODEL exploitable by industrial sectors involved. Five risk remediation strategies based on a SbD approach have been developed and integrated within the processing lines.

The Sanowork approach has been applied to a "representative" pool of nanomaterials: ZrO₂, TiO₂ and Ag nanoparticles; CNTs; polyamide and TiO₂ nanofibers. The proposed strategies aimed to mitigate occupational risk by decreasing adverse health hazard and/or emission potential of nanomaterials, setting back processes of transport to the point of entry. The cooperation with industrial key partners has guaranteed an accurate exposure assessment in the workplace.

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