

The Safe-by-Design concept and its application in industrial innovation processes

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The Safe by Design concept for nanomaterials has been developed by TEMAS and others under different flagship European initiatives to cover uncertainties and risks regarding nanomaterials [1]. To materialise this concept, the Safe by Design Implementation Platform was subsequently developed by TEMAS as a web-based management structure, to support industry working with nanomaterials both in processes and product development (Fig 1). The final aim being that safer products arrive to the market in a cost-efficient manner, always taking into account hazard and exposure issues to workers, consumers and environment. The Platform is Regulatory driven and fed by both hard regulation (REACH, Occupational Health, Cosmetics, Biocides, Pesticides) and soft regulations [Life Cycle Assessment (LCA) and Socio-Economic Analysis (SEA)] anticipating future requirements, so users are better prepared for upcoming regulations in a cost-efficient way (Fig 2-3). The Platform can be used at different innovation processes and with different applications. Examples of how to use the Platform in different developmental settings and regulatory contexts will be provided within the "Safe by Design Implementation: Industrial experiences from European Initiatives" workshop and will cover 1) Safety on industrially driven processes, 2) Selection of materials for product development and 3) Regulatory driven use for final products.

References

- [1] Gottardo S. et al. JCR Science for Policy Report April 2017

Figures

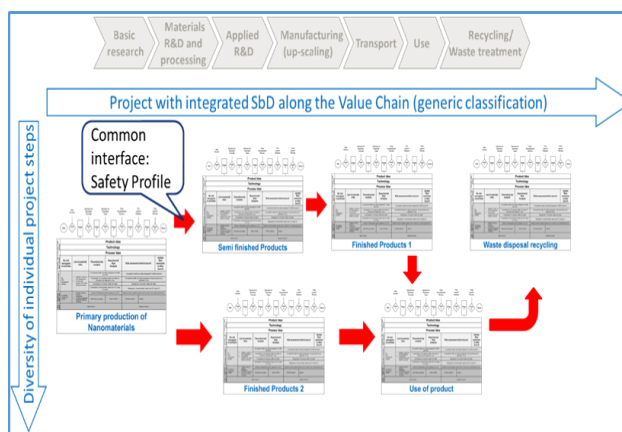


Figure 1: Workflow of the Implementation Platform along the value chain of a product

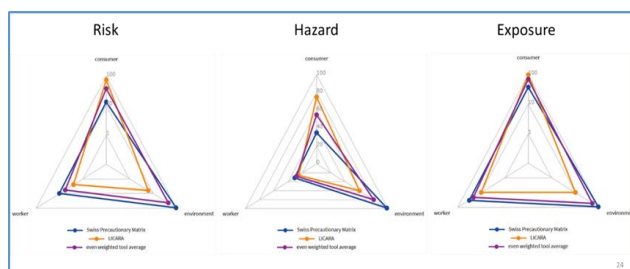


Figure 2: Outcomes from different Risk Assessment tools compared by the Platform

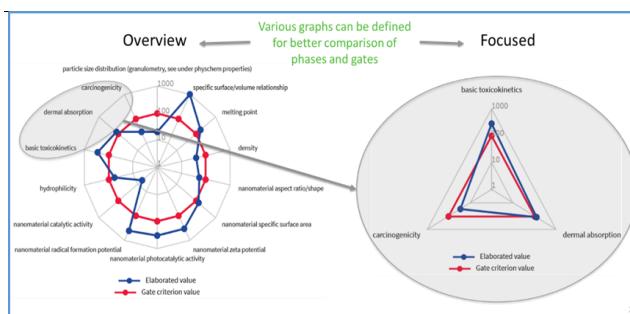


Figure 3: The Platform is fed, with both regulatory accepted toxicological values (gate keepers, red) and experimental values (from case study, blue). The customer can assess at any time the position of their product/process compared to the accepted/regulatory situation