

ICARUS-INAS: Integrated Nanostructures Assessment Service

Juan Antonio Tamayo Ramos

Sonia Martel Martín
Rocío Barros García
David Blanco Alcántara
Julieta Díez Hernández
Jesús Ibáñez Porras

University of Burgos – ICCRAM
Plaza Misael Bañuelos s/n

jatramos@ubu.es
smartel@ubu.es
rbarros@ubu.es
dblanco@ubu.es
jdhernandez@ubu.es
jesusibanez@ubu.es

Abstract

The innovation idea of ICARUS-INAS comes from the integration of nanosafety and Life Cycle Assessment (LCA) by the calculation of high-quality Characterisation Factors (CF) for novel nanostructured materials (NMs). Some limitations have been identified by the European Commission in the use of valid CF. Therefore, in this EU funded project, a complete exploitation plan to commercialise these services has been developed, assessing the economic viability of the nanosafety and LCA integration, identifying potential stakeholders, barriers and opportunities in the related markets. The growing tendency on the identification of environmental impacts of novel NMs provide a large market niche to commercialise nanosafety-LCA integrated analyses, together with additional services, such as physico-chemical characterisation of NMs, as well as the determination of potential economic and social impacts, which will allow to create a complete sustainability assessment. The methods used for the nanotoxicological assessment will be competed with the calculation of the CF, in order to integrate the obtained results in a single model for the implementation of Sustainability by Design strategies in the development of new nanomaterials.

References

Saouter, E., Biganzoli, F., Ceriani, L., Versteeg, D., Crenna, E., Zampori, L., Sala, S, Pant, R. (2018). Environmental Footprint: Update of Life Cycle Impact Assessment Methods – Ecotoxicity freshwater, human toxicity cancer, and non-cancer. EUR 29495 EN, Publications Office of the European Union, Luxembourg, ISBN 978-92-79-98183-8, doi:10.2760/611799, JRC114227.

Figures

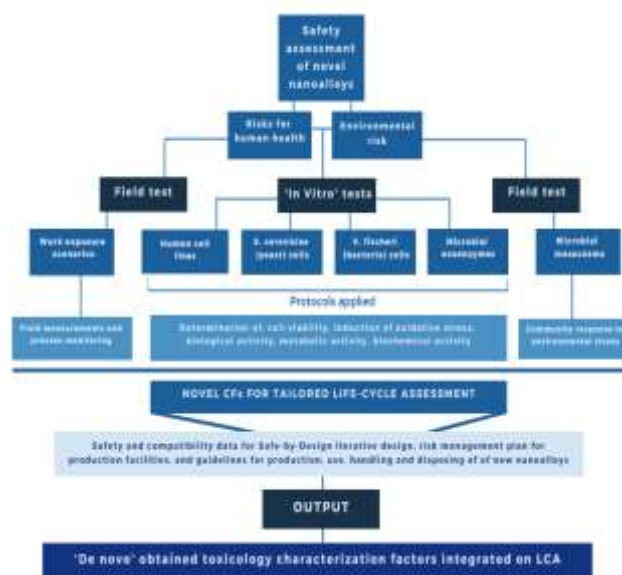


Figure 1: Overview of nanosafety approach for the determination of CF in LCA

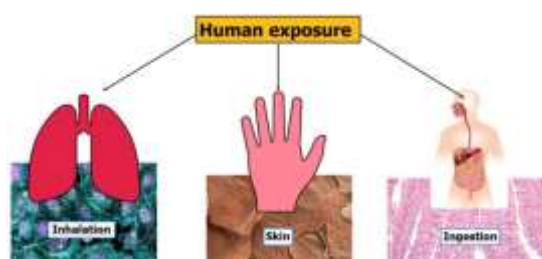


Figure 2: Human cell lines to be used in the determination of human hazard