Generating FAIR data for micro and nanoplastics in a regulatory perspective

Chiara Laura Battistelli e Cecilia Bossa

Micro- and nanoplastics (MNPs) are considered of particular concern, in relation to the potential negative effects they can cause on the environment and on human health (Seewoo *et al*. 2023).

Availability of experimental data on the physico-chemical and (eco)toxicological properties of MNPs is an essential requisite to enable their risk assessment, including the possibility to apply *in silico* methodologies, like QSAR, grouping and read across. To guide the scientific community towards optimal data management and facilitate reuse, the FAIR (Findable, Accessible, Interoperable, and Reusable) principles have been defined (Wilkinson *et al*. 2016). By applying the FAIR principles, researchers and regulators can ensure that their data are well-described, easily discoverable, and ready for reuse in diverse contexts (Bossa *et al*. 2021; Jeliazkova *et al*. 2024).

Standardization in the field of MNPs is particularly challenging, because it is a relatively young and highly multidisciplinary research area and there is a lack of harmonization of sampling, analysis methods and data reporting (Noventa *et al*. 2021; Cunningham *et al*. 2023). The methods, protocols and parameters driving data generation are indeed emerging at the same time as the data themselves on MNPs characterization and impact on human health and environment. Application of FAIR principles to the management of MNPs safety data will be crucial to maximize their availability, understanding, exchange and, ultimately, reuse.

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