

## Declaration on Waste Containing Nanomaterials

Manufactured nanomaterials (MNMs) are applied in rapidly growing amounts of every-day products. Their physical and chemical properties make them an attractive choice in product development, bringing the possibility of both functional and economic advantages. Yet, there are concerns about their adverse effects on human health and the environment.

One significant concern is the fate of nanomaterials in waste streams. This type of waste is already appearing in recycling and waste disposal processes as products reach the end of their use, and will go on increasing with the continuing creation of products containing MNMs. Discarded consumer products, waste from industrial and medical applications, and residues from waste- or wastewater treatment processes can contain various forms of nanomaterials that are hard to characterise and quantify. This can result in environmental and human exposure to a class of substances whose toxicity are not yet fully understood. Given the uncertainty about the risks of MNMs, their dispersion within waste streams and into the environment should be controlled.

Policies and regulations should adopt a precautionary approach and aim at minimising human and environmental exposure to waste containing MNMs.

The undersigned civil society organisations and research institutes call upon governments, research and innovation funding institutions, and companies, in their individual capacities to:

- **Implement full producer responsibility to ensure safe management of waste containing MNMs.** More stringent duties, such as waste characterisation and waste declaration, should be required of producers. This will also require establishing nano-specific requirements and standards on occupational health and safety protection for workers.
- **Restrict transboundary movements of waste containing certain MNMs.** The EU's legal framework should implement strict control mechanisms for exporting waste containing MNMs, similar to existing requirements on the management of hazardous waste.
- **Enable transparent quantification and characterisation of waste flows containing MNMs through an EU-wide public nano-product registry.** Such a register will be instrumental in providing quantitative information on the presence of MNMs in products and in serving as a basis for the monitoring of waste flows that contain nanomaterials in various forms.
- **Stimulate innovation on waste prevention.** Source reduction of waste containing MNMs ought to become a standard requirement for any publicly funded research and development project involving nanotechnologies.
- **Foster the development of safe and effective recycling and disposal technologies for products containing MNMs.** Such technologies should ensure the environmentally safe elimination or demobilisation of MNMs in residues from waste and wastewater treatment.
- **Develop and establish verifiable end-of-waste criteria for recyclable materials containing MNMs.** The presence of nanomaterials in recycling feedstock must not thwart the safe and economically viable recovery of secondary materials. Setting the framework to avoid cross contamination of recycled materials with MNMs is essential to support EU circular economy efforts.
- **Innovators should explore how advanced properties of MNMs can be employed in support of the circular economy without introducing new environmental risks or aggravating existing ones.** Demonstrate, for example, how functional materials can be applied to make repair, re-manufacturing, and recyclability of products more viable (e.g. use of switchable adhesives for easy product disassembly).

**Signed by**

**CIEL** – Center for International Environmental Law

**ECOS** – European Environmental Citizens' Organisation for Standardisation

**Öko Institut** – Institute for Applied Ecology