From macro- to microplastics - Analysis of EU regulation along the life cycle of plastic bags

Plastic pollution and its environmental effects has received global attention the recent years. However, limited attention has so far been directed towards how plastics are regulated in a life cycle perspective and how regulatory gaps can be addressed in order to limit and prevent environmental exposure and hazards of macro- and microplastics. In this paper, we map European regulation taking outset in the life cycle perspective of plastic carrier bags: from plastic bag production to when it enters the environment. Relevant regulatory frameworks, directives and authorities along the life cycle are identified and their role in regulation of plastics is discussed. Most important regulations were identified as: the EU chemical Regulation, the Packaging and Packaging Waste Directive including the amending Directive regarding regulation of the consumption of lightweight plastic carrier bags, the Waste Framework Directive and the Directive on the Landfill of Waste. The main gaps identified relate to lack of clear definitions of categories of polymers, unambitious recycling rates and lack of consideration of macro- and microplastics in key pieces of legislation. We recommend that polymers are categorized according to whether they are polymers with the same monomer constituents (homopolymers) or with different monomer constituents (copolymers) and that polymers are no longer exempt from registration and evaluation under REACH. Plastics should furthermore have the same high level of monitoring and reporting requirements as hazardous waste involving stricter requirements to labelling, recordkeeping, monitoring and control over the whole lifecycle. Finally, we recommend that more ambitious recycle and recovery targets are set across the EU. Regulation of the consumption of lightweight plastic carrier bags should also apply to heavyweight plastic carrier bags. Last, the Marine and Water Framework Directives should specifically address plastic waste affecting water quality.

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