

Communication on the ECETOC Plastic Additives Task Force, November 2024

The ECETOC Plastic Additives Task Force (TF) was convened in September 2024 to address stakeholder concerns that humans and the environment may be exposed to chemicals from plastic wastes and recyclates. Focus of the TF work is the preparation of a **Framework for Risk Assessment of Plastic Additives in Complex Scenarios**, planned for publication by the end of 2025 and for further discussion at a multi-stakeholder workshop. **Experts in the field that are interested in contributing to the work of the ECETOC Plastic Additives TF are invited to contact ECETOC at info@ecetoc.org.**

The TF work specifically addresses additives, as intentionally added substances, once they are incorporated in plastics, with a focus on different life stages of their uses and the subsequent recycling and polymer reuse. Legislation related to sensitive uses of additives, e.g. in food contact materials, is in force in several regions across the globe. **Risk assessment principles for plastic additive uses** are established for individual additives in these sensitive uses. However, the **risk assessment of plastic additives in circular uses and at end-of-life** introduces complexities since plastics of the same type containing different additives, may be mixed and can be treated by different recycling technologies. Therefore, new types of material streams must be described and accounted for to evaluate the fate of the additives. Risk assessment may have to use more predictions and assumptions, for example how a specific additive may breakdown to other substances when exposed to high temperatures in plastic processing or to sunlight, or when consumed by environmental microorganisms (**considerations on degradation product assessment**; text colours reflected in Figure 1).

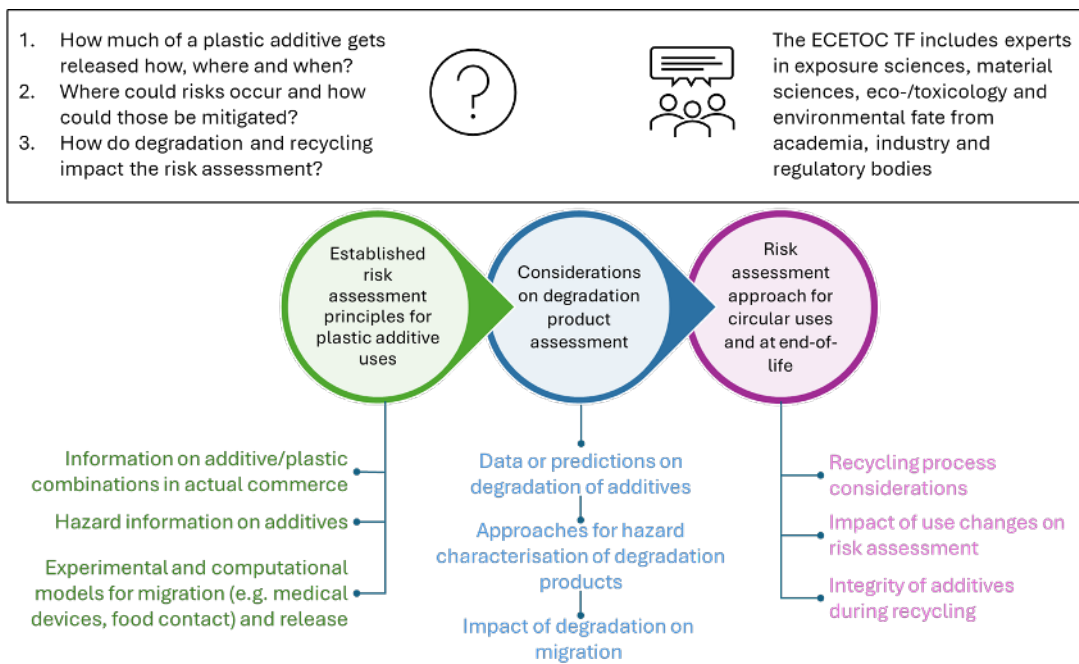


Figure 1: Project phases of the ECETOC Plastic Additives Task Force

The planned framework makes use of available databases and established as well as innovative tools to determine whether an additive present in a plastic for a given use is likely to degrade, what the degradation products may be, in which plastic value chain stages they may be present (e.g. recycled materials), the quantity of the different degradation products that could be released at which point of the value chain, and how to estimate their hazards, and, thus, the risk potential of releases. Depending on how many use/life-cycle stage/additive combinations are in scope, the risk assessment can be straightforward or very complex, with different degrees of uncertainty, which need to be described transparently. This complexity and elements that may contribute to the uncertainty are reflected in Figure 2.

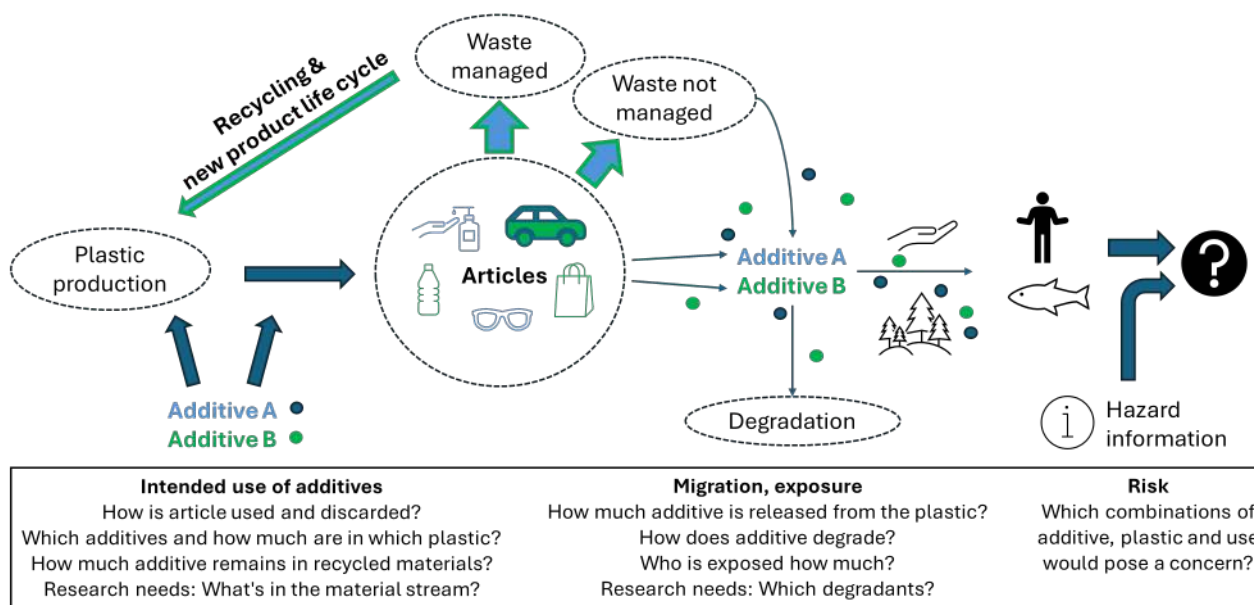


Figure 2: Considerations for a framework for plastic additive risk assessment in complex scenarios

The framework shall enable risk assessors to conclude which *combinations* of use/life cycle stage/additive may (1) necessitate limitation or substitution due to an unacceptable risk; (2) be deprioritised due to low risk; or (3) have uncertainties and/or knowledge gaps that prevent robust conclusions. Case studies will be developed to exemplify the framework and identify such knowledge gaps. Beyond plastic additive use, the framework will also be applicable to other types of substances in plastics or (non-plastic) solid polymers.

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