



WORK OF THE OECD ON SUSTAINABLE CHEMISTRY

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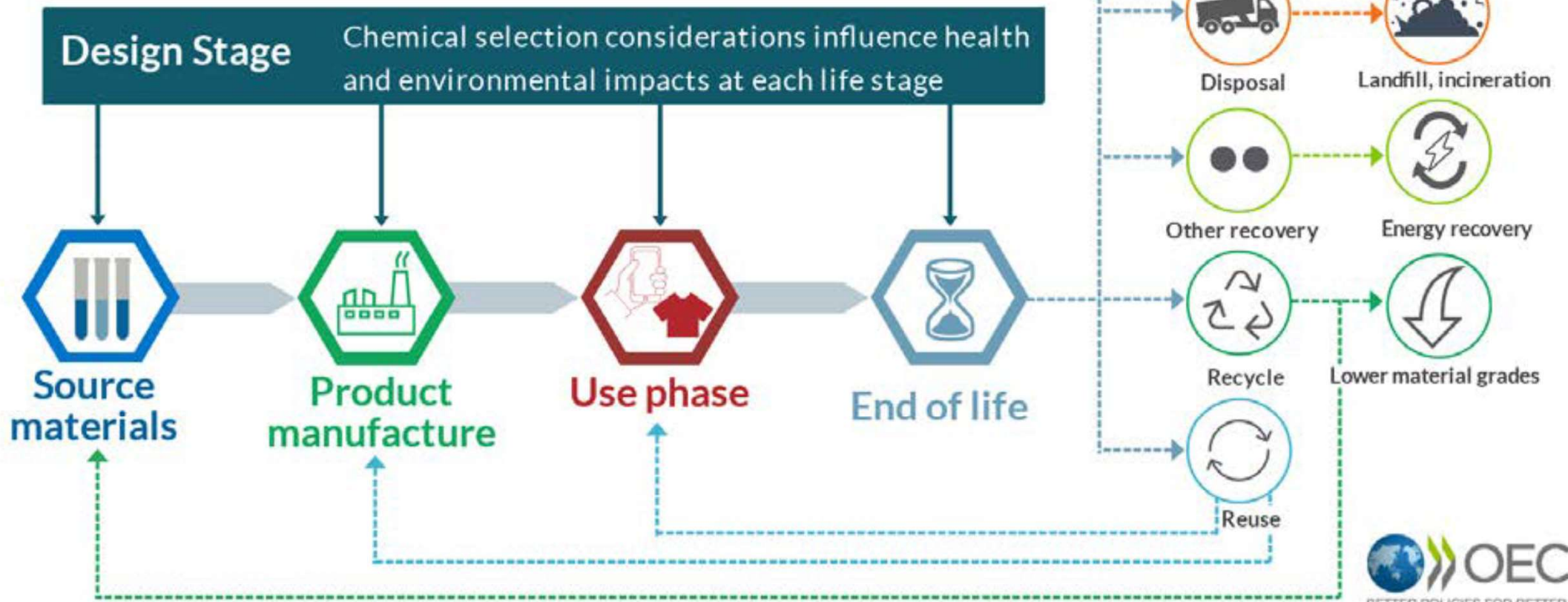


Sustainable Chemistry

Sustainable chemistry is a scientific concept that seeks to **improve the efficiency** with which **natural resources are used** to meet human needs for chemical products and services.

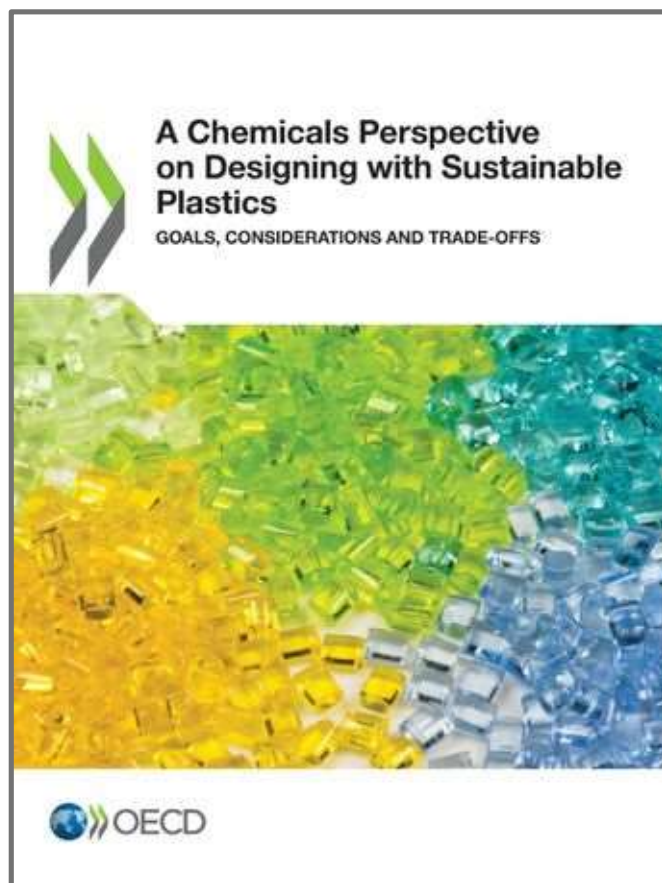
Sustainable chemistry encompasses the design, manufacture and use of efficient, effective, safe and **more environmentally benign** chemical products and processes.

Plastic Product Design and Life Cycle Stage





A Chemicals Perspective on Designing with Sustainable Plastics: Goals, Considerations & Trade-offs



- Enable the creation of inherently sustainable plastic products by integrating sustainable chemistry thinking in the design process
- Equip designers and engineers with knowledge of how to manage the complexity of finding the most sustainable plastic for their products with a view of relevant chemical considerations and support better outcomes.

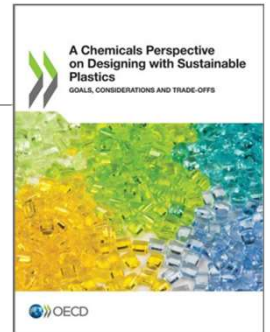
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oe.cd/chemicals-plastics



A CHEMICALS PERSPECTIVE ON DESIGNING WITH SUSTAINABLE PLASTICS

Goals, considerations and trade-offs



- **Design principles of sustainable chemistry and engineering (ACS):**
 - Maximize resource efficiency
 - Eliminate and minimize hazards and pollution
 - Design systems holistically and using life cycle thinking
- **Sustainable design goals:**
 - Select materials with an inherently low risk/hazard
 - Select materials that have a commercial ‘afterlife’
 - Select materials that generate no waste
 - Select materials that use secondary feedstock or biobased feedstock
- **General considerations for sustainable design from a chemicals perspective** were identified as key elements for designers to take into account for **each life-cycle phase** when selecting material composition culminating with whole product optimization.

Focused on **embedding sustainable chemistry thinking** at the **design stage**



Chemical Content in Recycled Plastics

- Report on **Cost-Efficient Chemical Content Validation of Recycled Plastics** (under development)
 - overview of existing certifications/quality control measures/standards regarding the chemical quality of a plastic recyclate
 - overview of established methods for screening of chemical content in recycled plastics including breadth and cost effectiveness of approaches (as information allows)

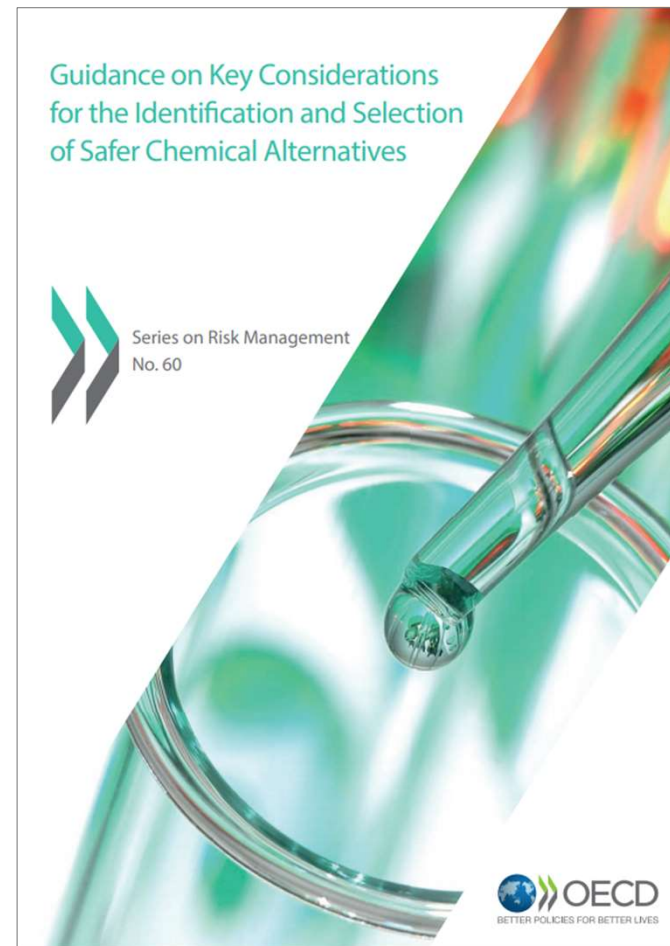


Guidance on Key Considerations for the Identification and Selection of Safer Chemical Alternatives

Goals of the guidance:

- Define “safer” chemicals in the context of alternatives assessments
- Advance a consistent understanding of the minimum requirements needed to determine whether an alternative is safer

<https://www.oecd.org/chemicalsafety/risk-management/substitution-of-hazardous-chemicals.htm>





Additional Attributes beyond Safer for Chemical Selection and Substitution

- **Landscape Study on Additional Attributes Beyond Safer for Chemical Selection and Substitution**
 - Examines what attributes companies are using to support decision-making in order to capture what is currently actionable in practice (*being finalised*).
- **Workshop September 2024**
 - Objective: identify convergent approaches towards a **small core set of actionable and impactful sustainability attributes**, and their associated metrics, to consider for international alignment in the context of chemical selection (including substitution).



Proactive consideration at the design stage ...

- ... enables chemicals through-out their life-cycle to be better managed – in the sourcing, manufacturing/processing, use, product and end-of-life

