



# WORK OF THE OECD ON SUSTAINABLE CHEMISTRY

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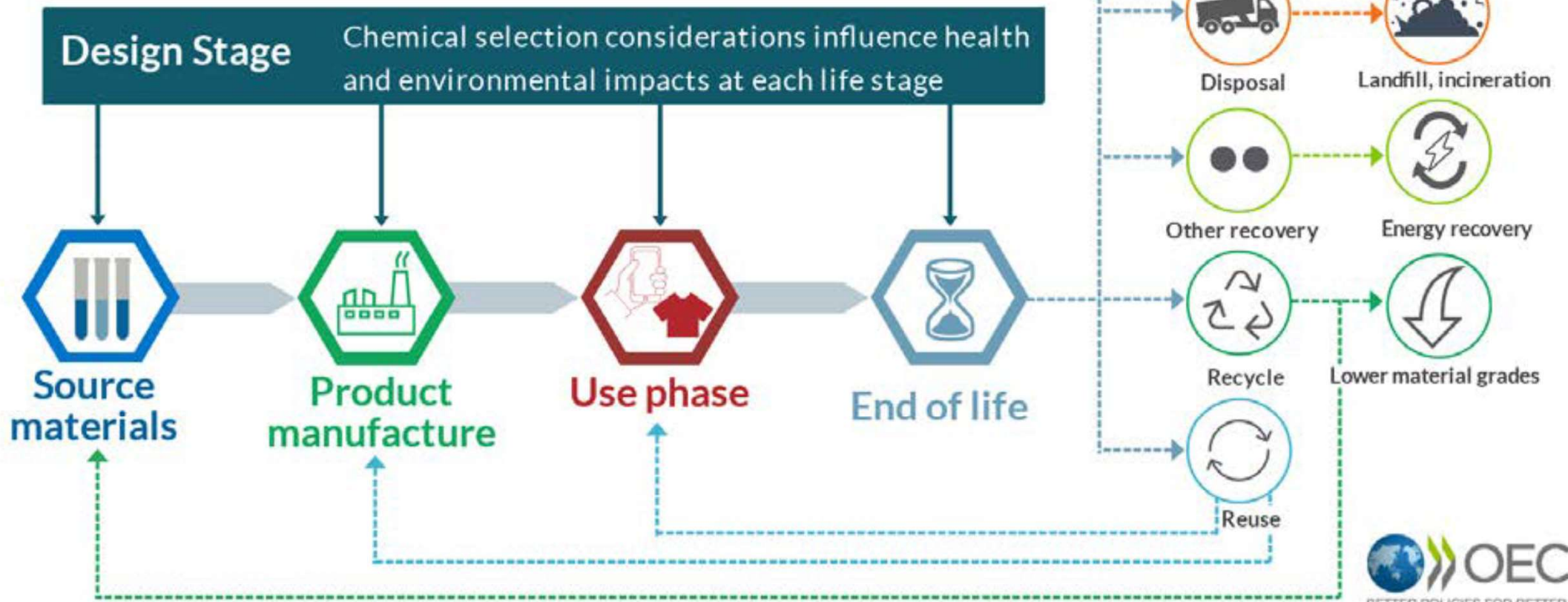
## Sustainable Chemistry

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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.

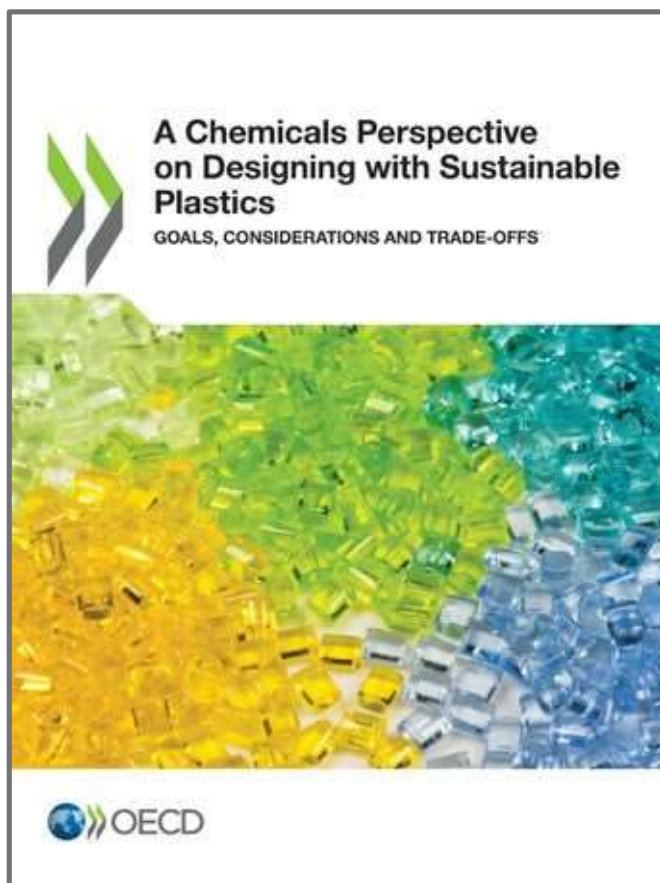
Sustainable chemistry encompasses the design, manufacture and use of efficient, effective, safe and **more environmentally benign** chemical products and processes.

# 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.

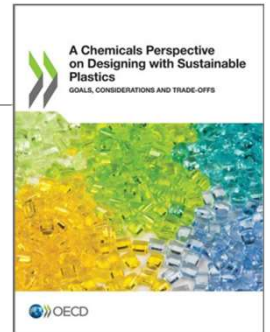
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[oe.cd/chemicals-plastics](https://oe.cd/chemicals-plastics)



## 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

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- 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)

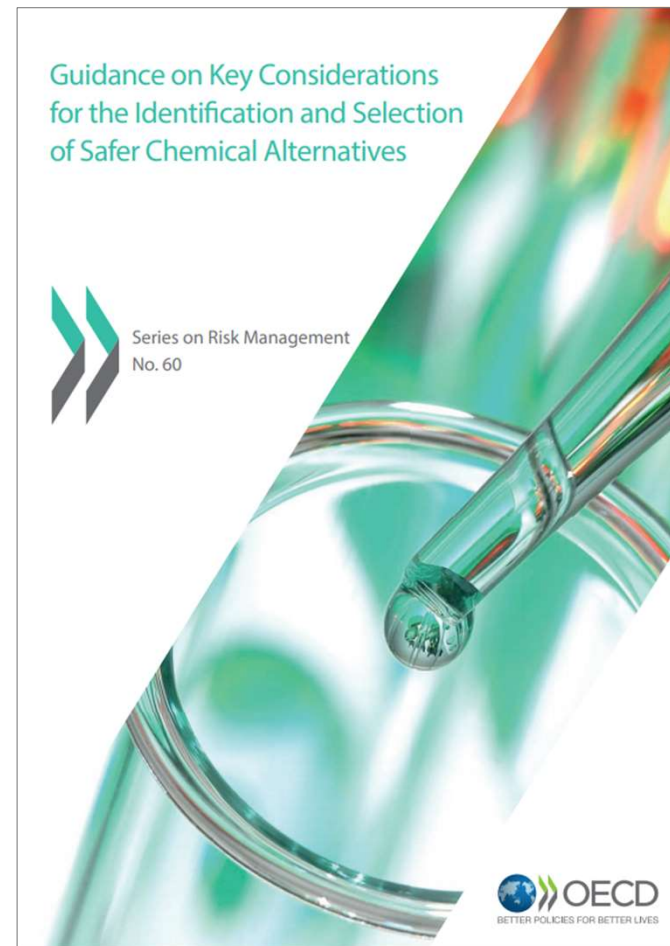


# Guidance on Key Considerations for the Identification and Selection of Safer Chemical Alternatives

## 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

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- **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

