SUSTAINABLE CHEMISTRY - AN ENABLER

Eeva Leinala, OECD
24 May, 2023

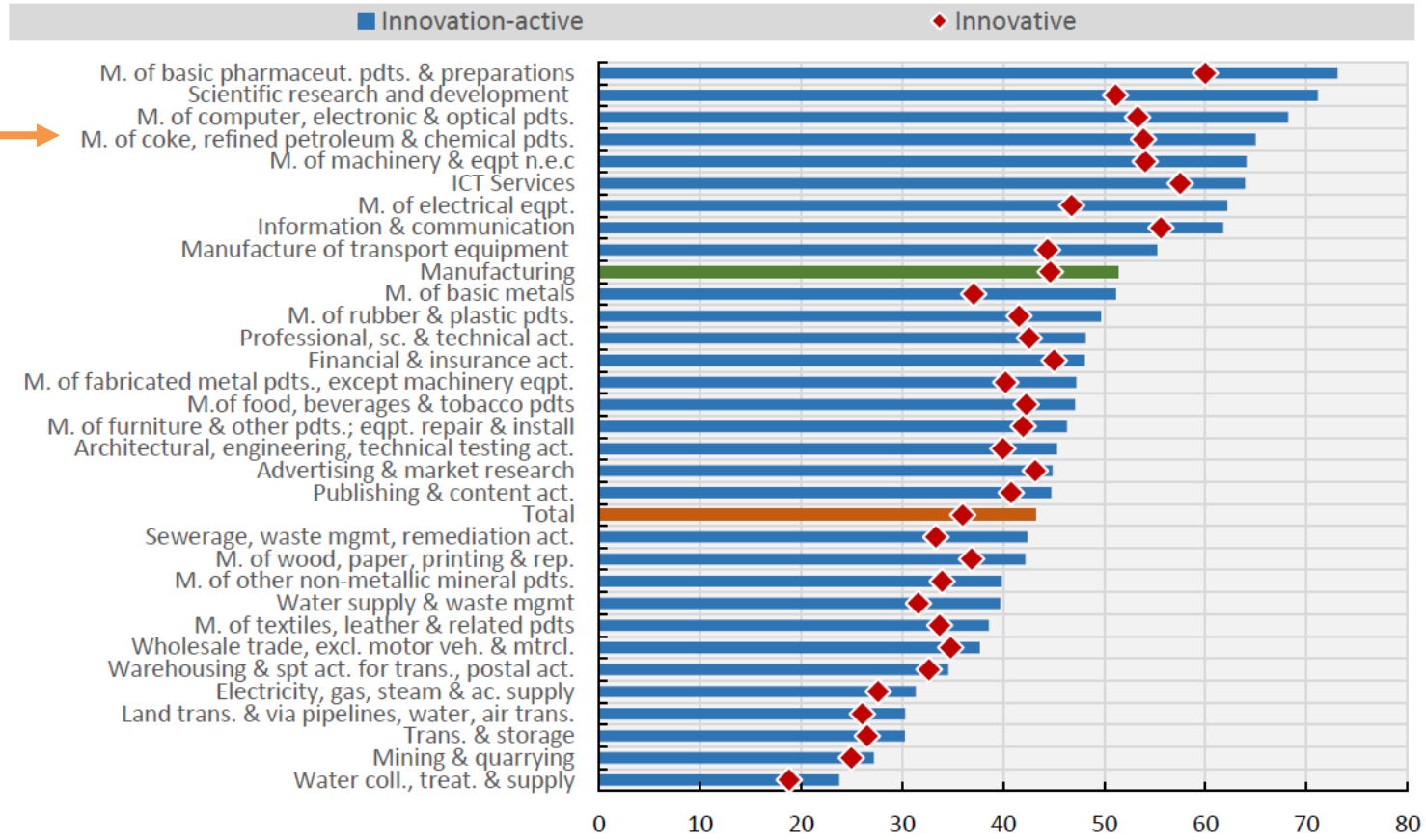
GLOBE EU conference on Sustainable Chemicals

BETTER POLICIES FOR BETTER LIVES

Proactive consideration of sustainable chemistry…

Average innovation intensity by industry, OECD and partner economies, 2016-2018

Numbers of innovation active or innovative firms, as a percentage of total firms by industry

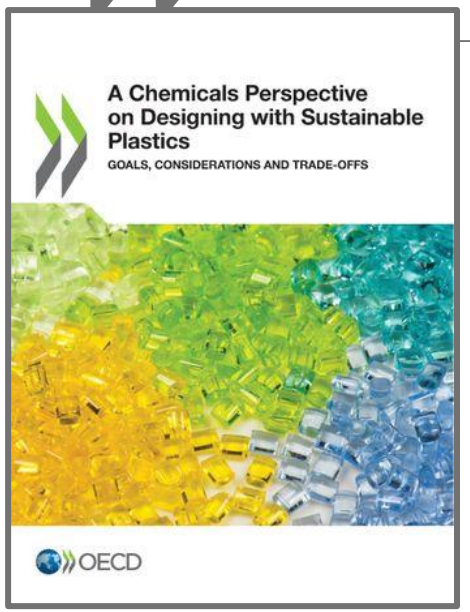


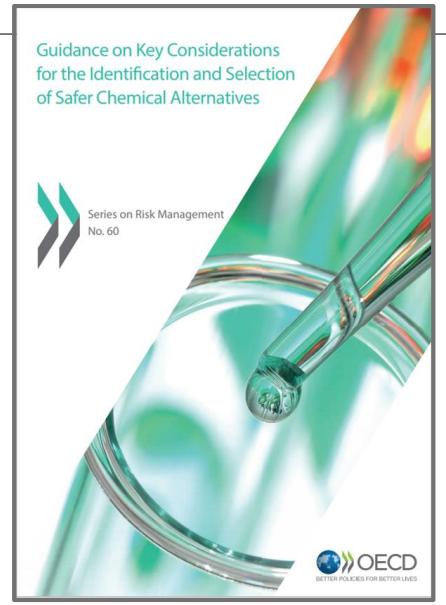
Note: *Innovative firms* are those reporting at least one product or business process innovation in the reference period (2016-2018). *Innovation active firms* comprise all companies engaged in innovation-oriented activities over the reference period, not only those who introduced an innovation. Un-weighted average across countries participating in the data collection. Personal services and primary industries fall outside the scope of innovation surveys.

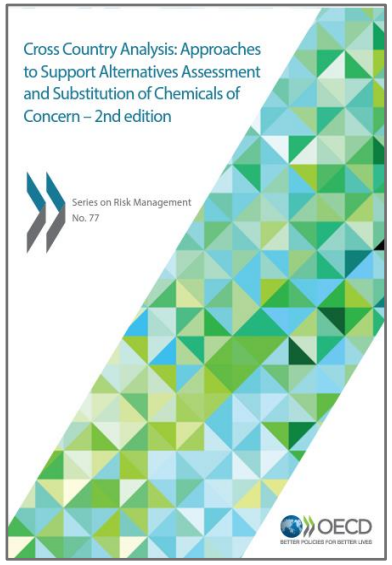
Source: OECD, based on the 2021 OECD survey of Business Innovation Statistics and the Eurostat's Community Innovation Survey (CIS-2018), https://www.oecd.org/sti/inno-stats.htm, April 2022.

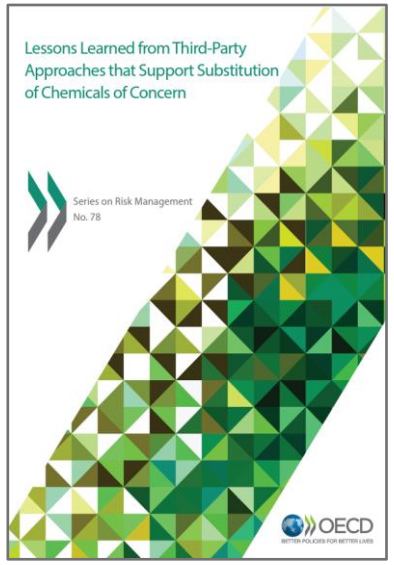
… enables chemicals through-out their life-cycle to be better managed – in the sourcing, manufacturing/processing, use, product and end-of-life

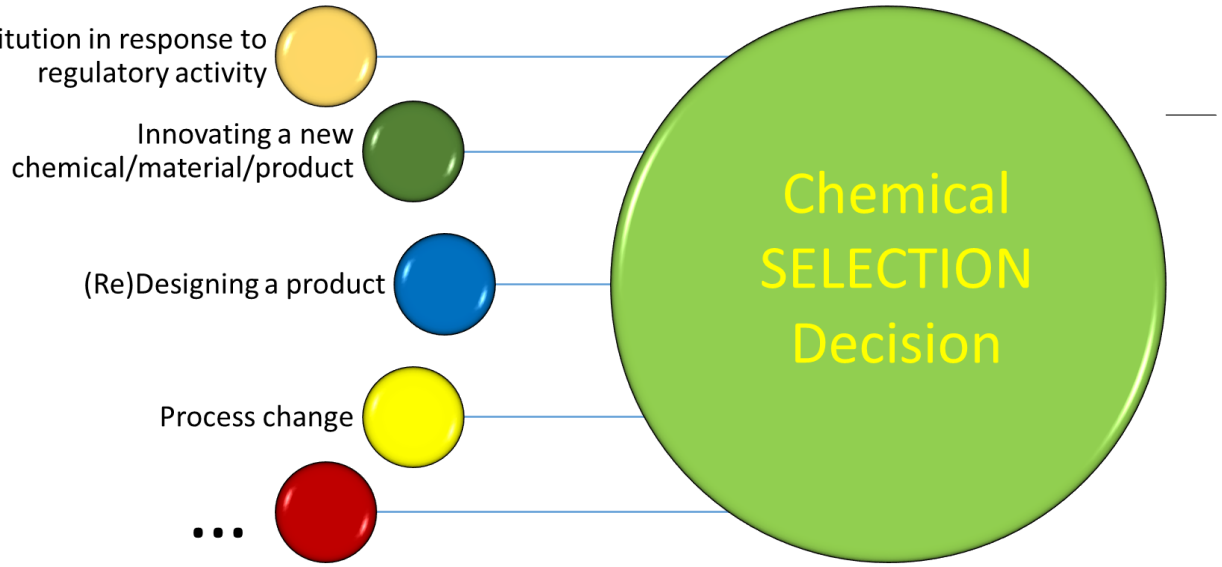
Chemical Selection, Substitution & Sustainable Chemistry

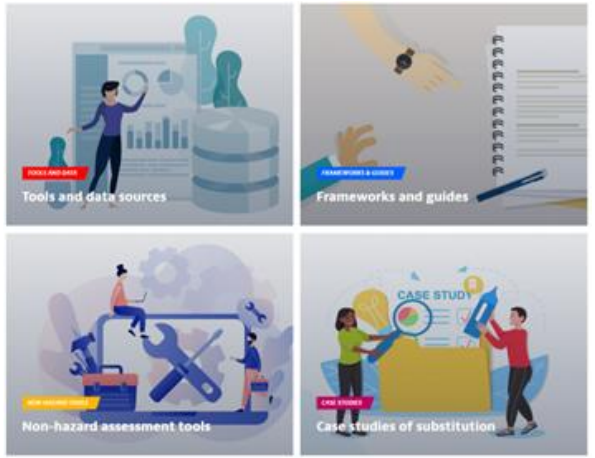






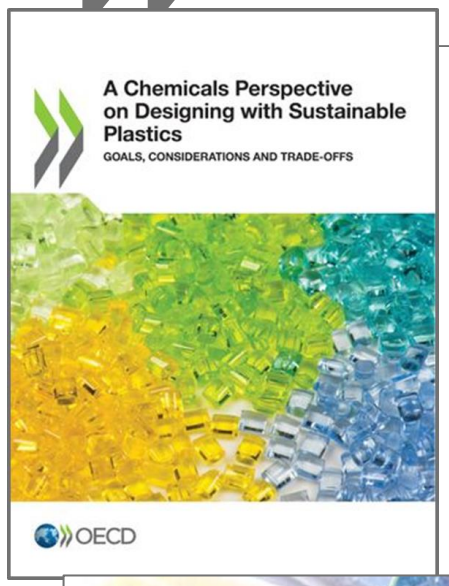




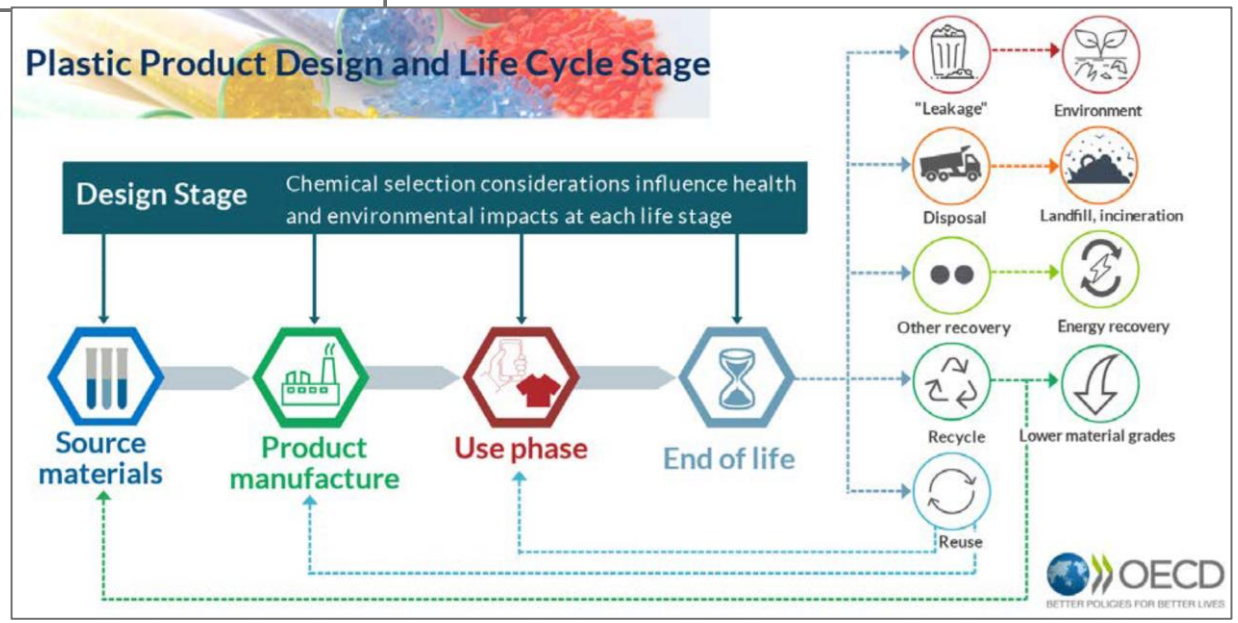


https://www.oecd.org/chemicalsafety/risk-management/substitution-of-hazardous-chemicals/
https://www.oecd.org/chemicalsafety/risk-management/sustainable-chemistry/

A CHEMICALS PERSPECTIVE ON DESIGNING WITH SUSTAINBLE PLASTICS
Goals, considerations and trade-offs



Focused on embedding sustainable chemistry thinking at the design stage



Design principles of sustainable chemistry and engineering:

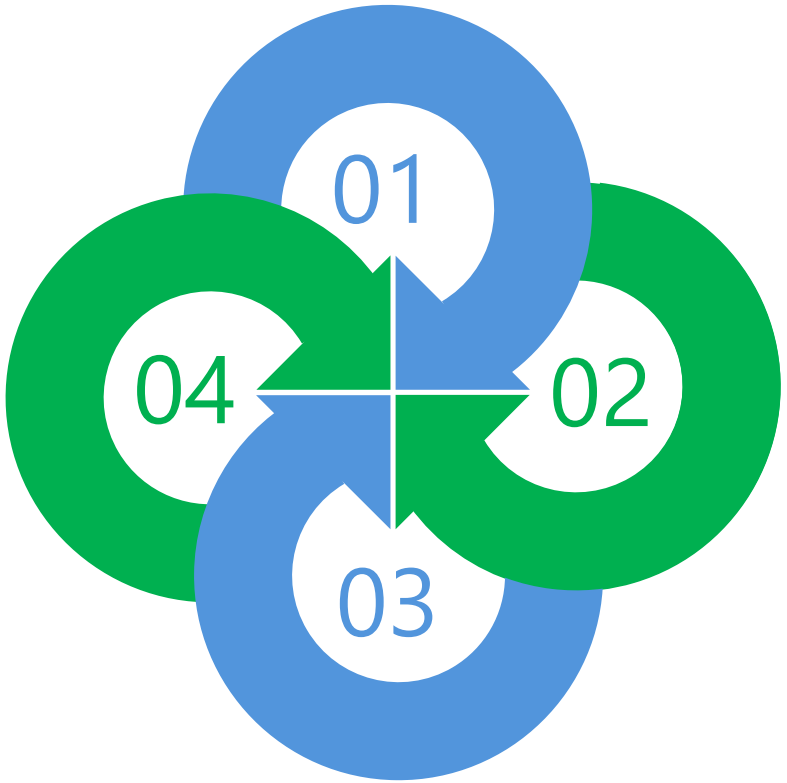
- Maximize resource efficiency
- Eliminate and minimize hazards and pollution
- Design systems holistically and using life cycle thinking

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.

Potential Policy for More Sustainable Solutions



Chemical Management Frameworks

Integrate proactive chemicals management – sustainable design; greener chemistries

Consider life-cycle thinking in order to understand trade-offs

Have in place a systematic chemicals management framework

Linking Risk Management and Innovation

Focus innovation on alternatives to chemicals that will be regulated, or are likely to be regulated

Financial Measures

Increasing financing for sustainable chemistry

Applying economic instruments that incentivise substitution

Education

Better integrate knowledge of toxicology and environmental health into chemistry and engineering programmes