

PLASTCYCLE: Optimizing Resource Efficiency while minimizing recycling of hazardous chemicals under Circular Economy

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NFR 2020-2023

plastcycle

brings together:



-  producers of plastic pallets and products
-  consumers
-  waste collectors
-  waste recyclers

- to close the gaps in the broken cycle of plastic



EU strategies

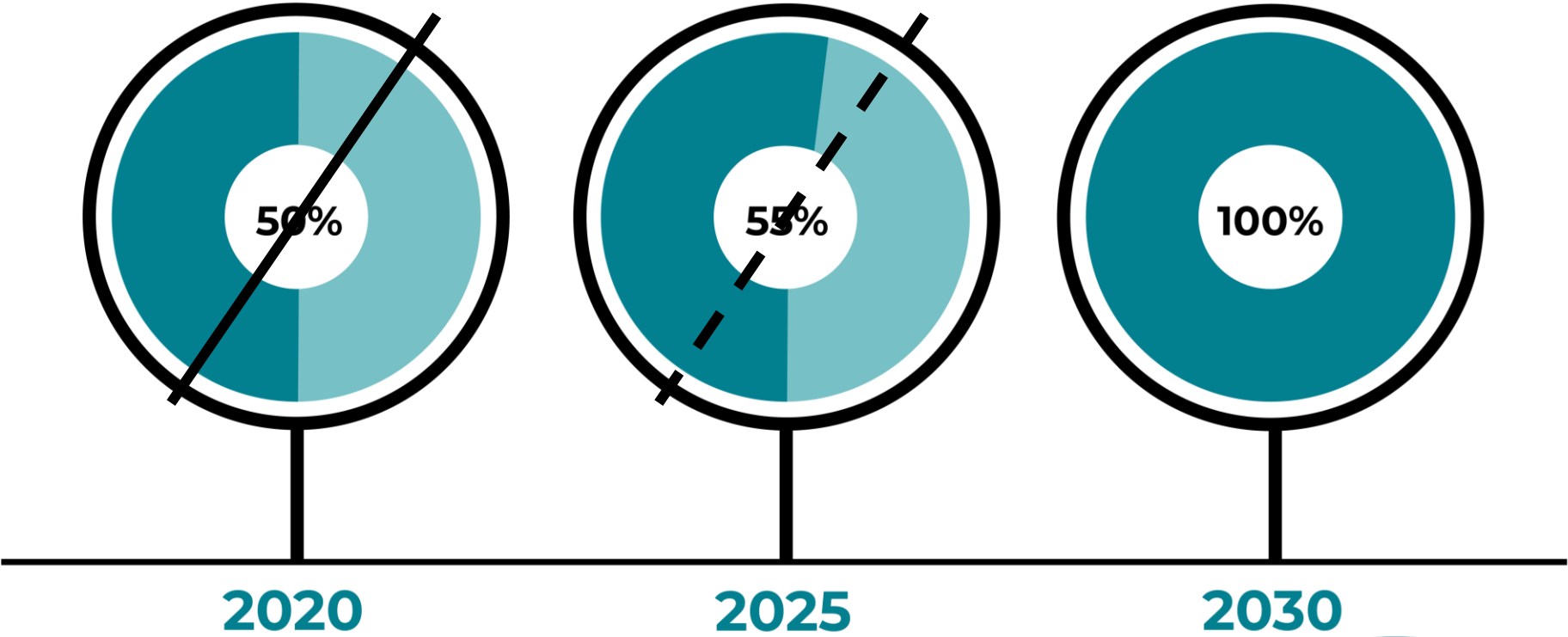
- Design for circularity
- Packaging material: basis on LCA assessment
- EPR: producers cover the cost of collection and treatment of plastic waste



EU strategies and targets



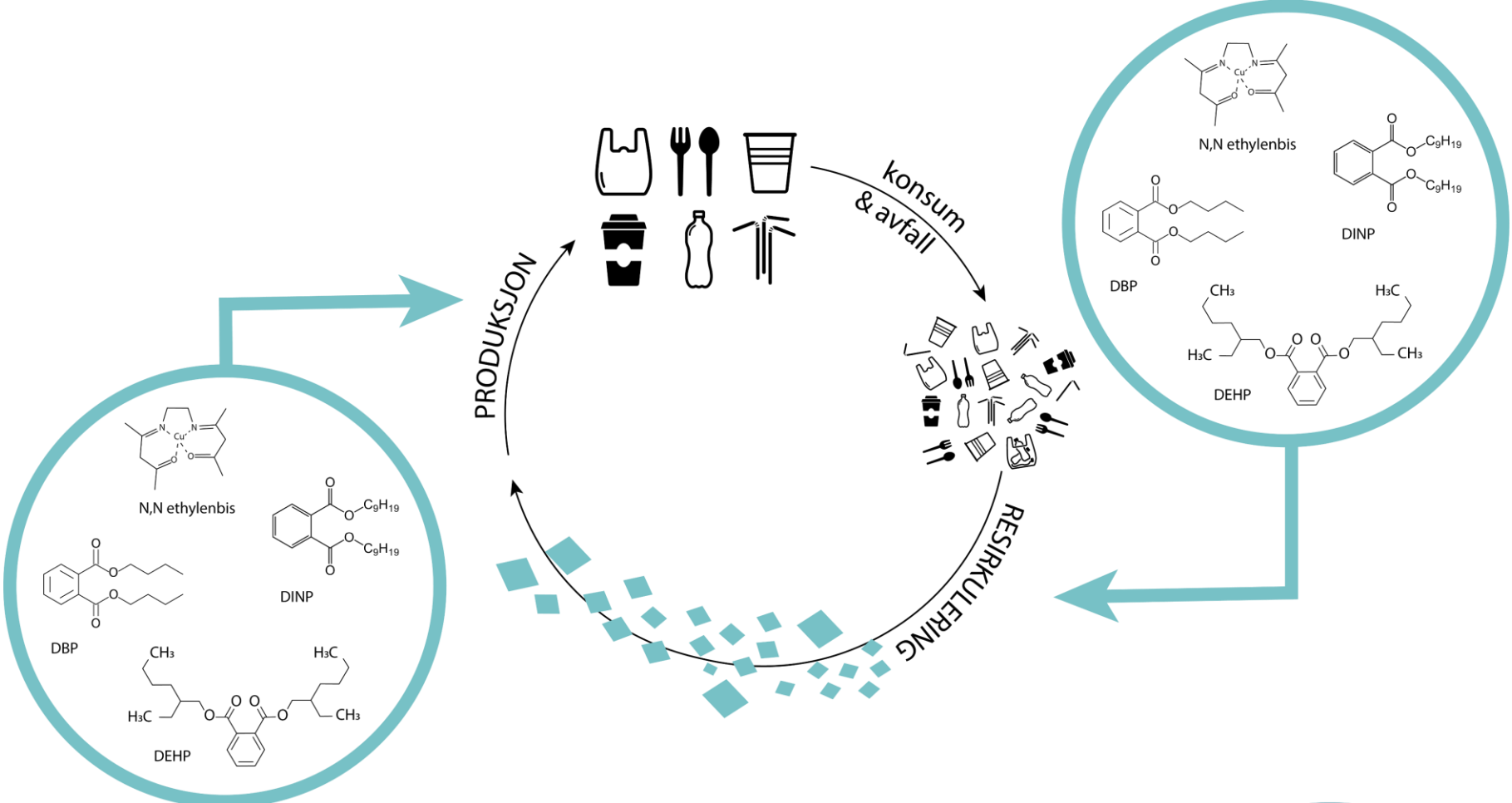
100% of plastic packaging must be reusable and recyclable by 2030



Circular economy of plastic



Hazardous chemicals in plastics



Recycling of chemicals



Forsker sluttet å bruke matboks etter plast-test

Forskeren ble så overrasket da han testet plastprodukter for NRK at datteren ikke lenger fikk ha med den faste matboksen i barnehagen.



TESTET: Norsk institutt for luftforskning har testet ulike plastprodukter for NRKs Forbrukerinspektørene. Der ble det funnet spor av miljøgift i produkter som lover det motsatte.

FOTO: ELIN RUHLIN GJUVSLAND / NRK



Elin Ruhlin Gjuvsland
Journalist

Publisert 12. okt. 2016 kl. 19:17



Artikkelen er flere år gammel.

Drikkeflasker lekker kjemikalier

23. august, 2018

Forbrukerrådet har testet drikkeflasker, som brukes av barnehage- og skolebarn, for helseskadelige stoffer. Flere lekker ftalater, bisfenol A, bly og en rekke andre helseskadelige stoffer – om enn i svært små mengder.

- Det er beklagelig at Hello Kitty-drikkeflasken fra Sanrio, som blant annet selges av Toys R Us, lekker giftstoffer som ftalater, bisfenol A, flammehemmere og bly. Selv om nivåene er lave, hadde vi håpet at produkter rettet mot barn kom bedre ut. Vi liker dårlig at flasken på jumboplass kommer fra en produsent som produserer en rekke flasker med motiv for barn, sier Forbrukerrådets fagdirektør, Gunstein Instefjord.



Intervju?

Gunstein Instefjord
Fagdirektør for handel
905 96 780

- [Hvordan selje foto av Gunstein Instefjord](#)
- [Samlebilde av alle de 11 flaskene som er testet](#)
- [Foto av testvinner \(Ikea behållere\)](#)
- [Foto av Sanrio Hello Kitty-flaske Toys R Us](#)

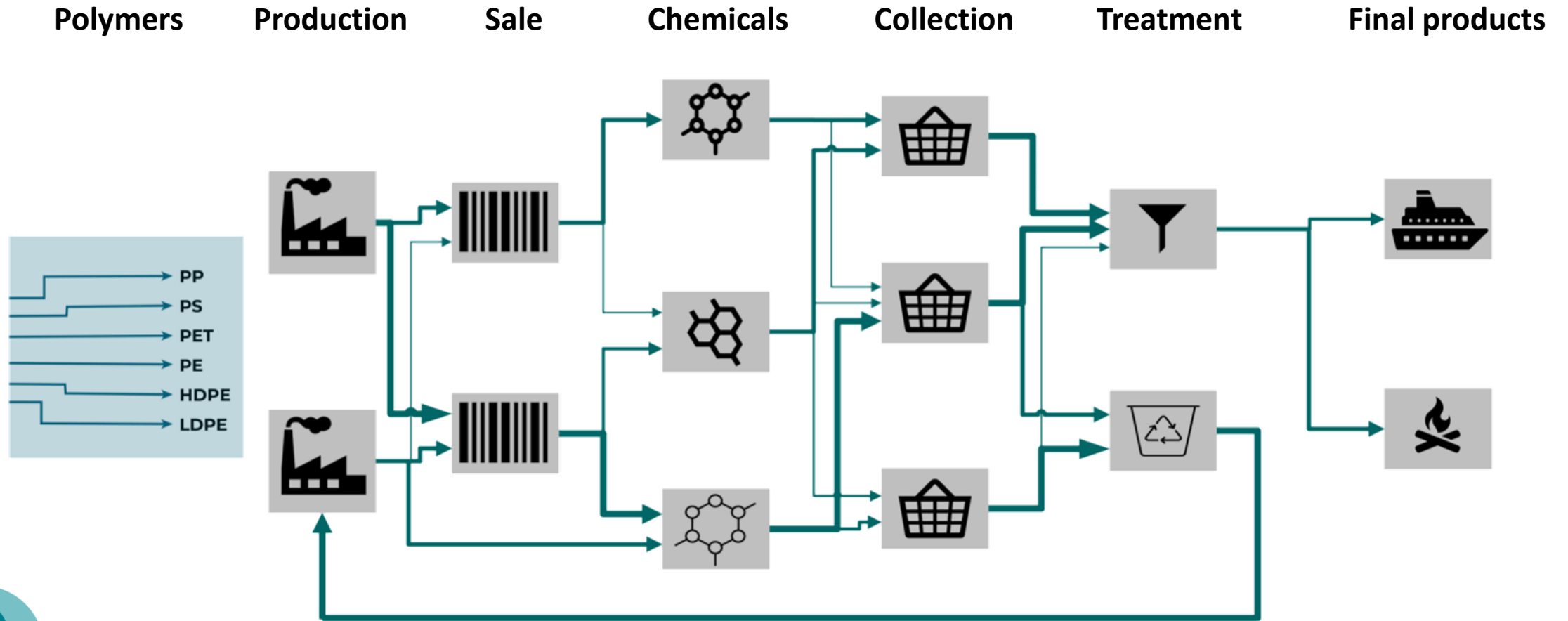
English version

Testrapport

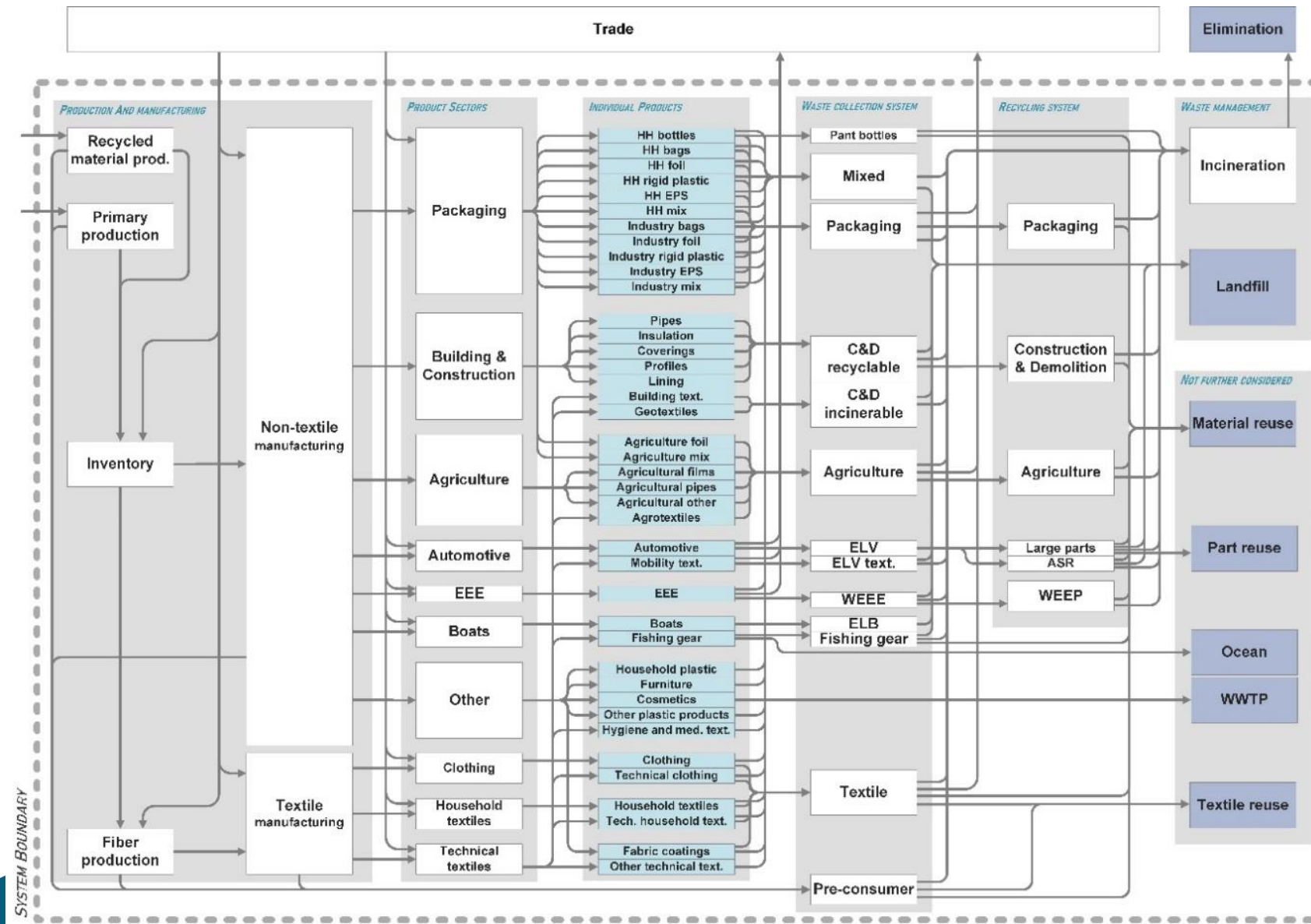
Testen er utført av Norsk Institutt for Luftforskning (NILU) på oppdrag fra Forbrukerrådet, og [testrapport fra NILU finnes her](#).



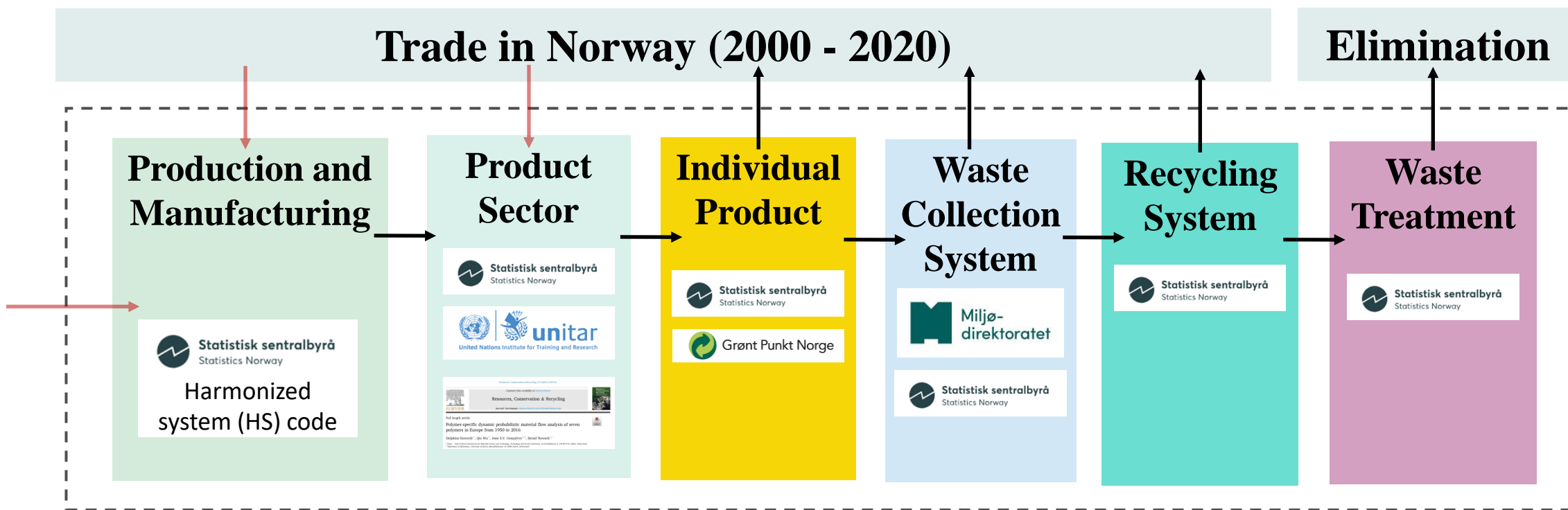
Mapping products and chemicals within



Flow diagram



Model structure



Base model: Kawecki et al (2021) Polymer-specific dynamic probabilistic material flow analysis of seven polymers in Europe from 1950 to 2016

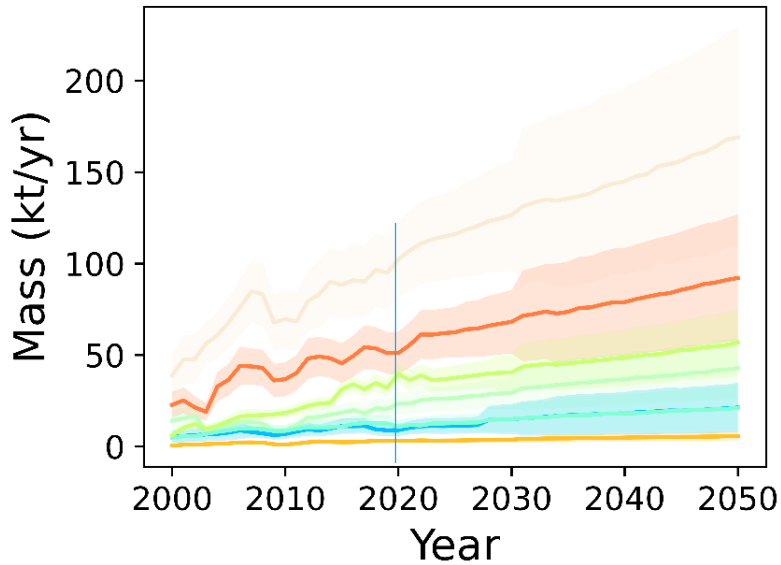


Results – packaging



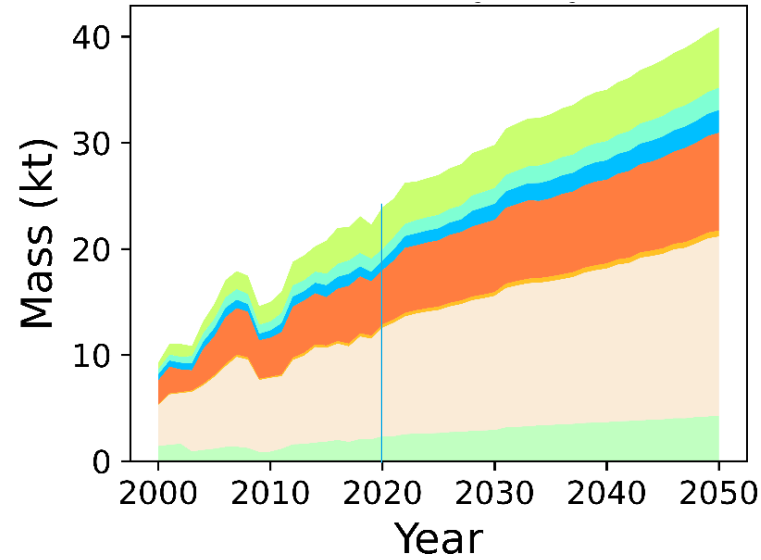
POM

240 ± 25 kt



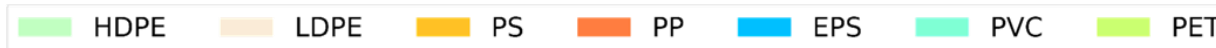
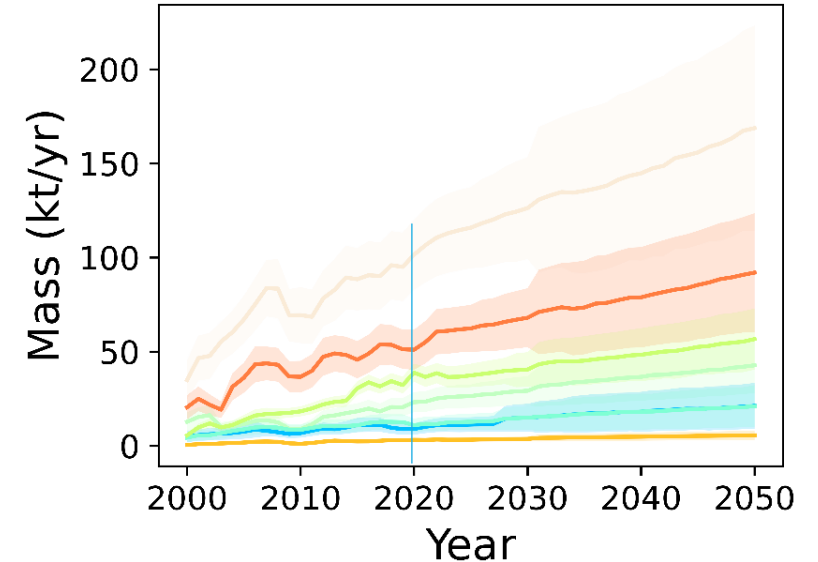
Stock

24 ± 2.5 kt



Waste

240 ± 23 kt

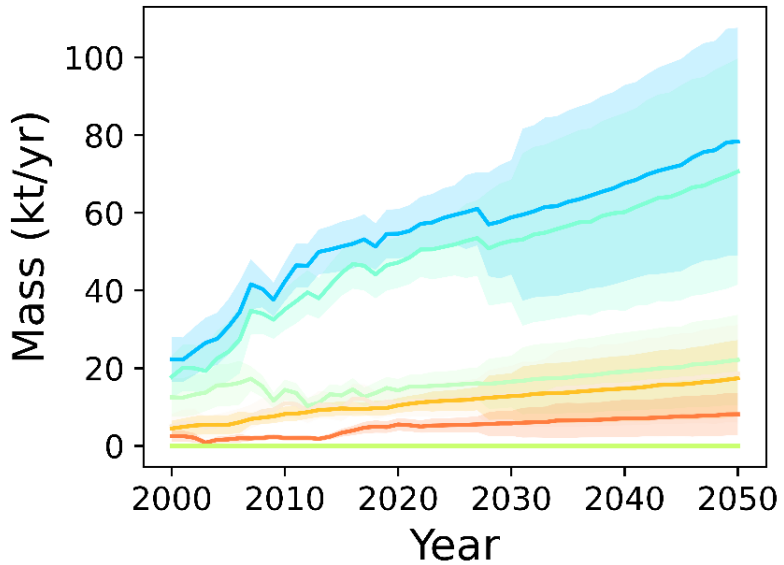


Results – building & construction



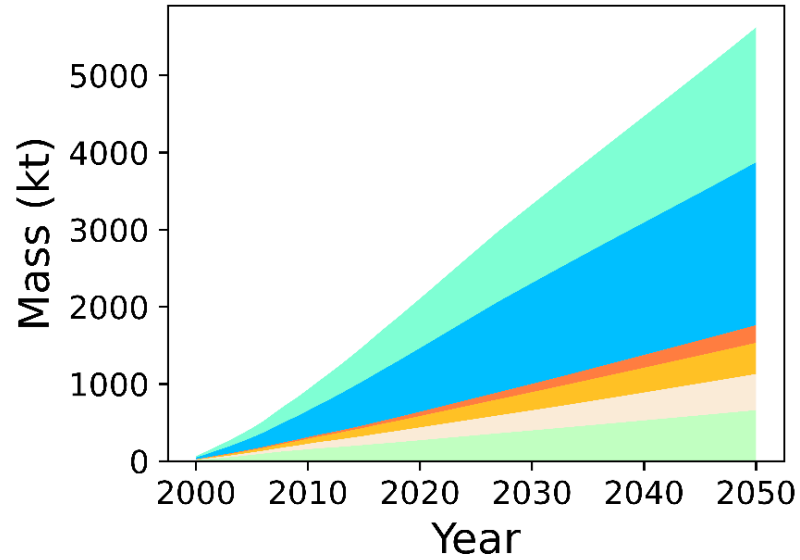
POM

140 ± 11 kt



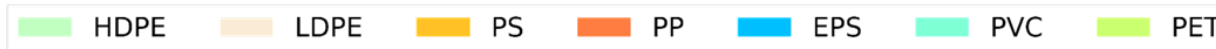
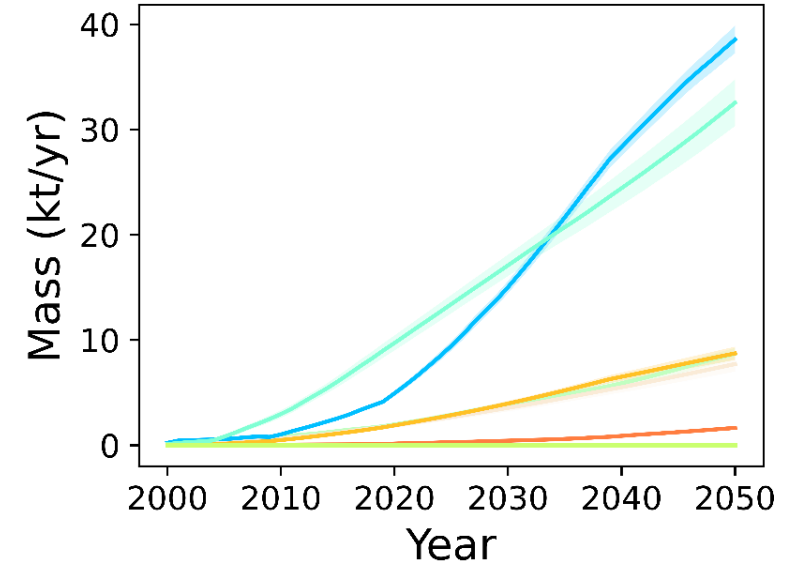
Stock

2100 ± 43 kt



Waste

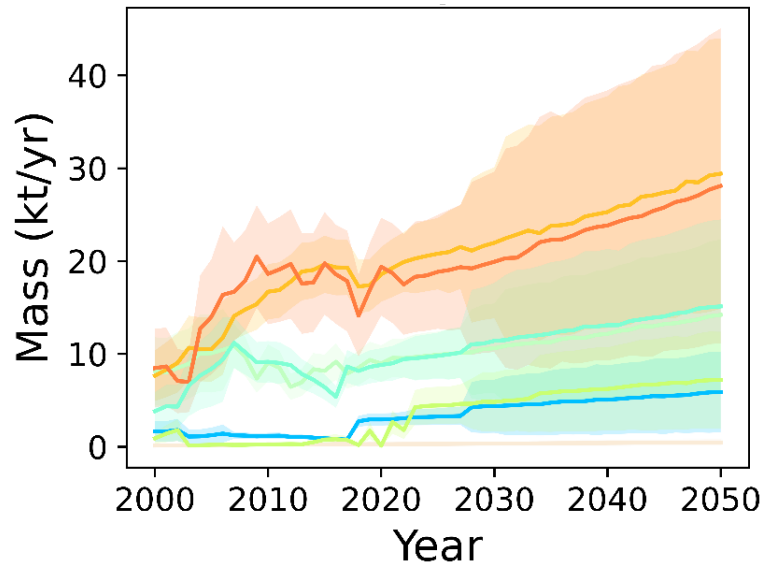
21 ± 0.83 kt



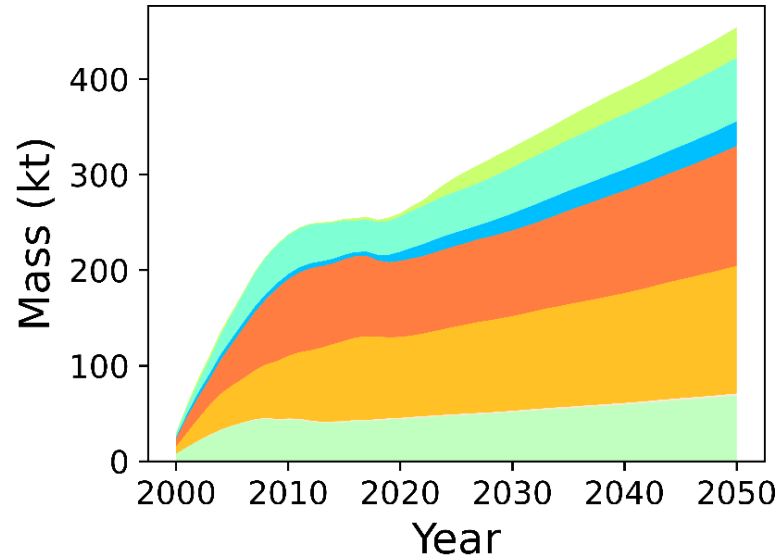
Results – other plastic



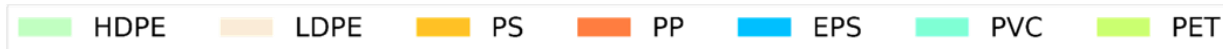
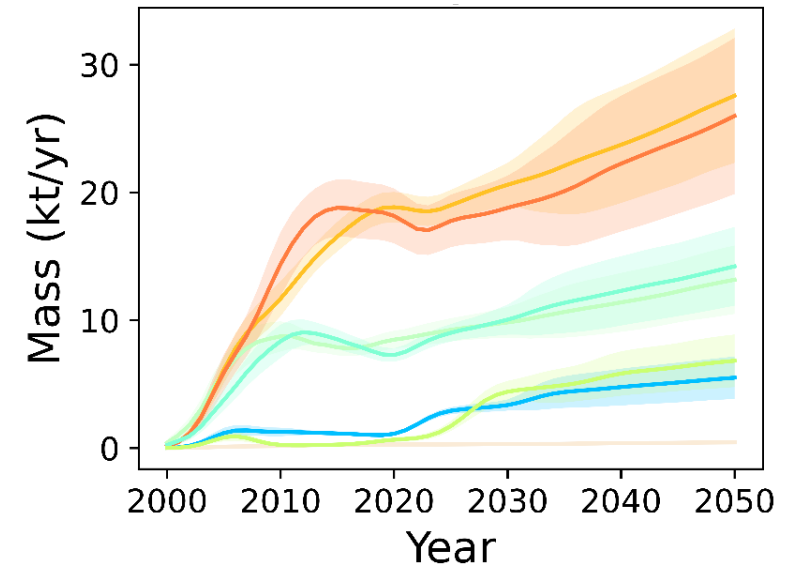
POM
 60 ± 6.6 kt



Stock
 260 ± 12 kt



Waste
 54 ± 2.6 kt



Results

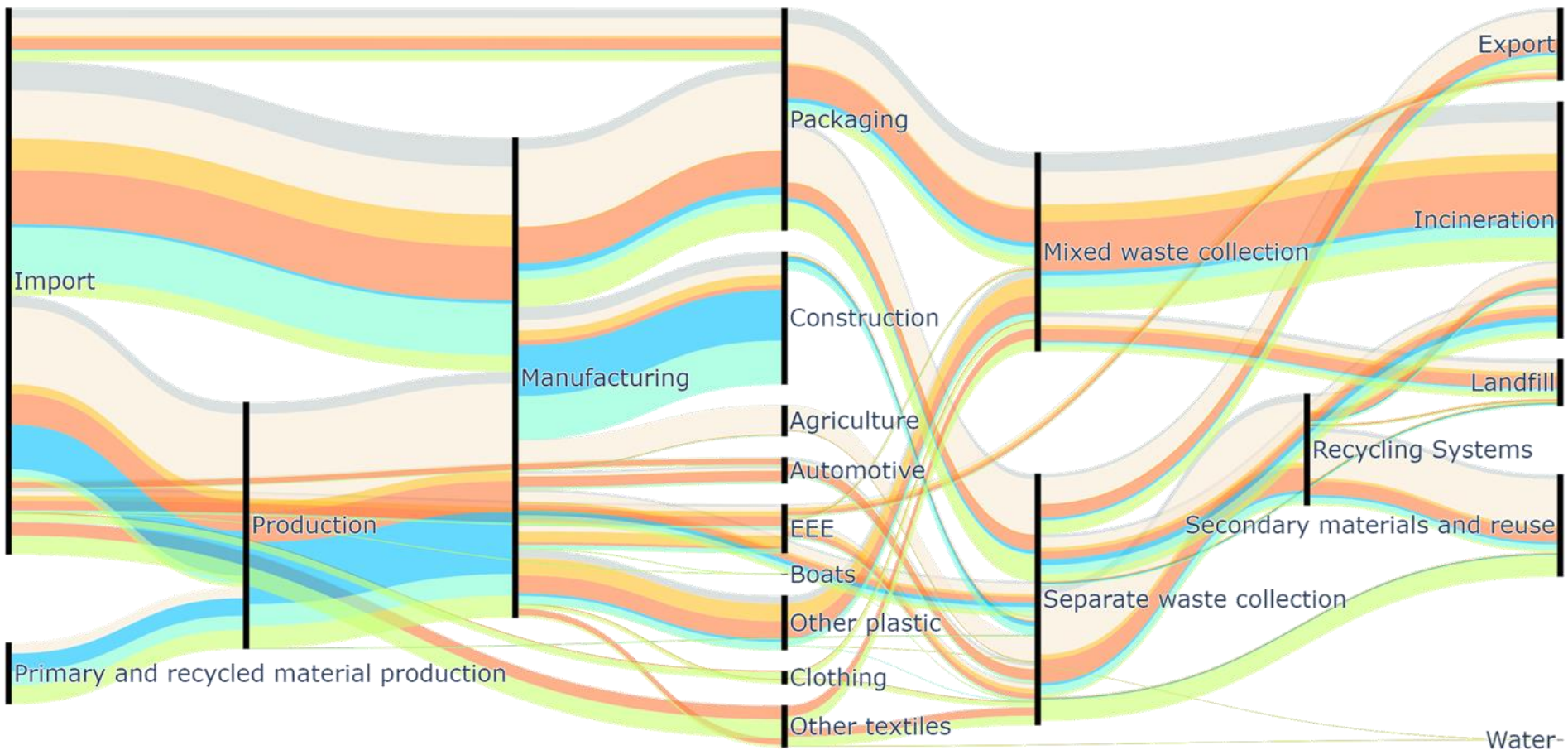
Total in stocks:
3400 ± 56 kt

Total waste:
500 ± 21 kt

Total POM:
620 ± 23 kt

(Semi)finished
products:
89%

Raw material:
11%



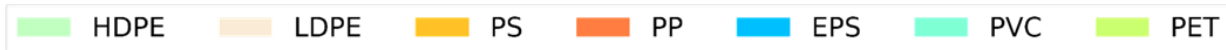
Export:
16%

Incineration:
51%

Landfill:
10%

Reuse:
23%

Year: 2020



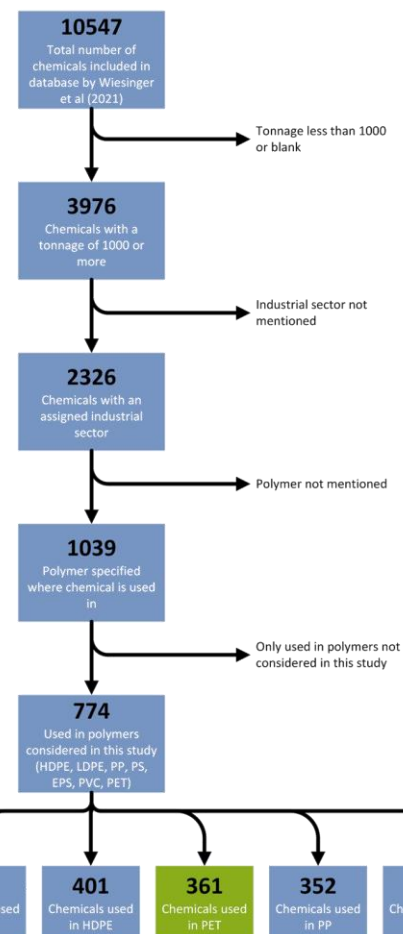
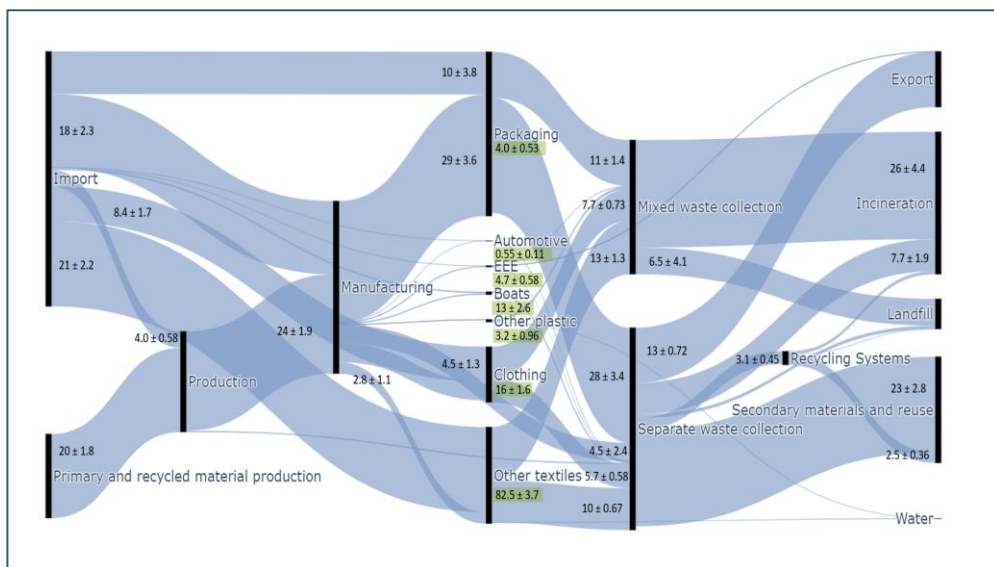
Mapping the flow of CoC in plastic products



Chemical database inclusion criteria

Identifying CoC

Plastic Stock and flows in Norway (PET)



- 361 chemicals in PET
- Application (packaging)
- Chemical function (98 plasticizers)
- Ranking by total amount (kt)
- Further prioritization



Implications of PLASTCYCLE



LDPE



Mainly foil in packaging and agriculture

LDPE waste (2020) > supply 57% of packaging, or 100% of agriculture demand (2021)

PET



71% waste from drinking bottles

PET waste (2020) > 73% of packaging demand, 100% of clothing or other textiles (2021)

HDPE



Application in all sectors, mainly packaging container

92% collection of containers (2020) > supply 63% of packaging demand (2021)

EPS & PVC



Mainly in construction

Products POM in 2020 > supply 70% demand of both EPS and PVC in 2050



To close the loop:

- Standardization of products: less variation in plastic products and chemicals within
- More collection and better recycling facilities
- Harmonized data collection
- Systematic identification and classification of products to set purposeful targets
- Internalize cost of waste treatment in original products values (based on lifespan, durability and cost of treatment)



Acknowledgement



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