



Tray-to-tray recycling

The future of food packaging is circular

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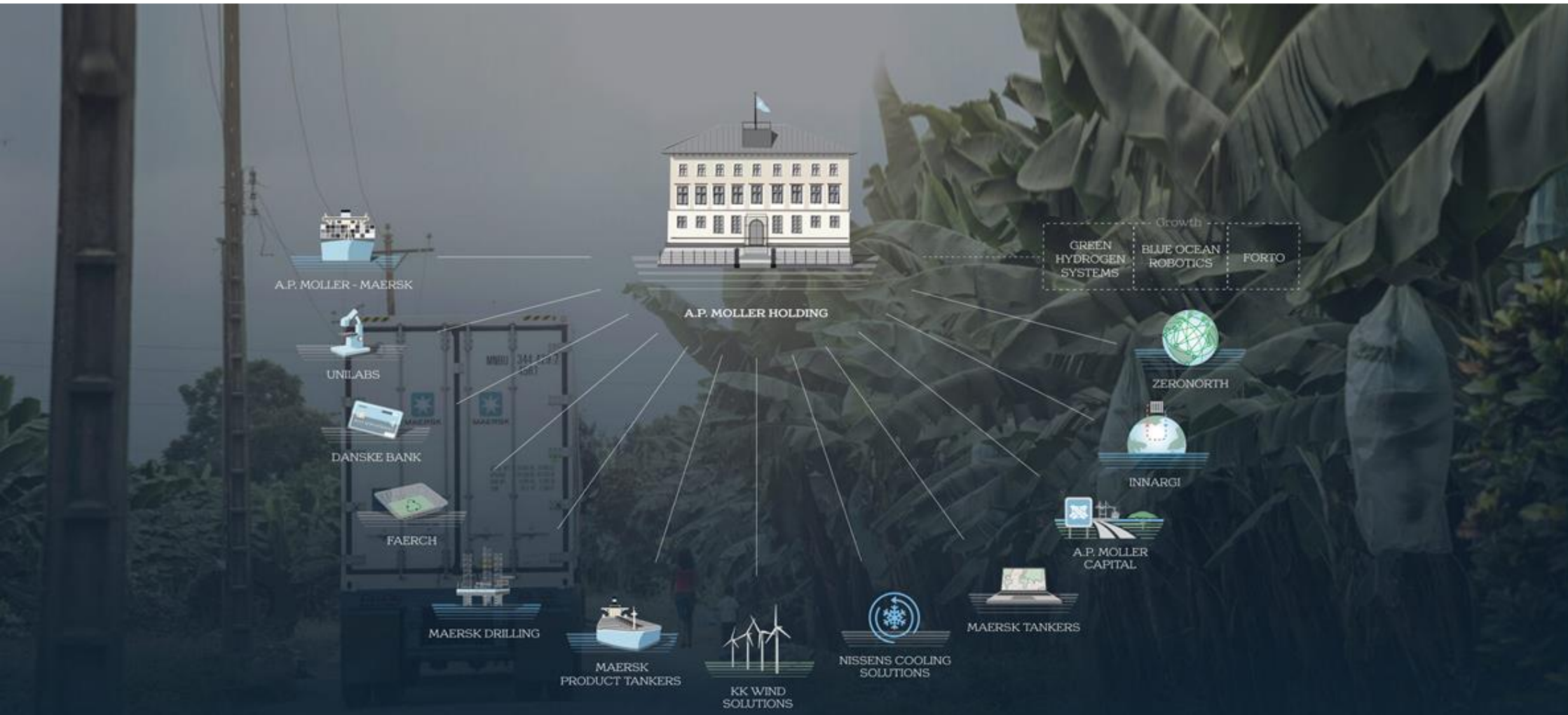
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 - Choosing the right material
 - Developing quality standards for post consumer tray bales
 - Developing the technology
 - Changing the mindset of the customer
 - Closed loop





Introduction to Cirrec - Faerch Group - AP Moller

AN OWNER DEDICATED TO SUSTAINABILITY



FAERCH HEADLINES

Figures



34
Sites



1.425
Net Sales / m EUR



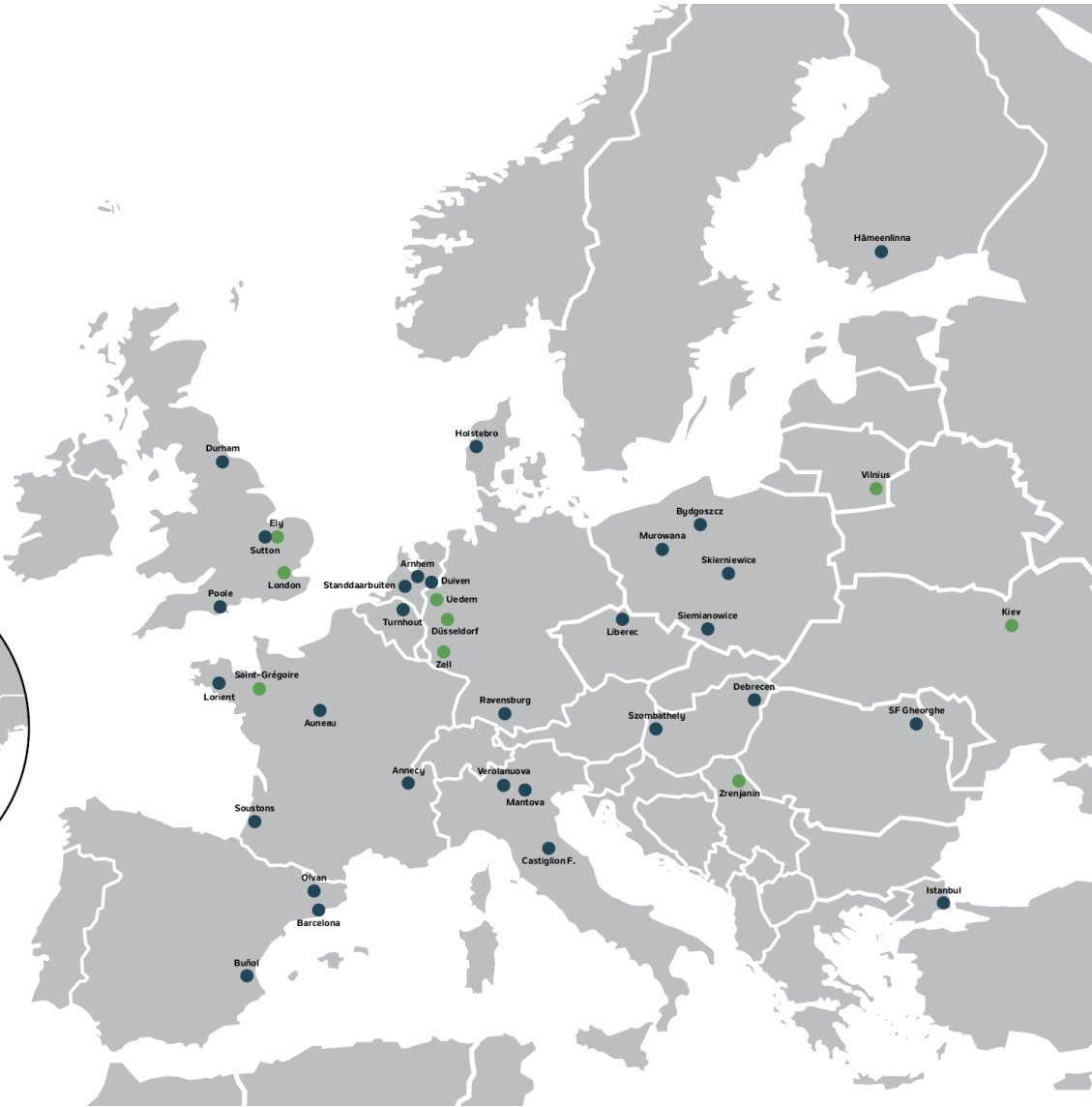
6.000
Employees



325.000
Tons



● Plants
● Sales offices



Faerch

Overview of products

Ready Meals



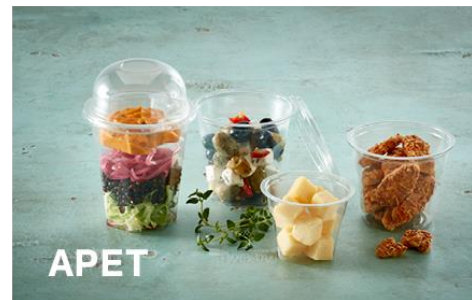
CPET

Fresh Meat / Protein



MAPET® II

Food to Go



APET

Dairy



APET



CPET+



PP



PP



PP



PP



PP-EVOH-PE

The benefits of tray-to-tray recycling integrated in tray producer

- Stable outlet as internal customer
- Development of tray to tray recycling on to the end product
- Food safety testing
- Development of new products and reaching customers (eg. clear recycled trays)
- Creating closed loops with customers



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Cirrec at a glance



Leader in recycling of PET food packaging



- **Tray-to-tray centre of excellence for post consumer trays, both presorted and aftersorted**
- Advancing **circular recycling** in food packaging
- Offering Unique circularity programmes as **Closed Loop and Back of Store**



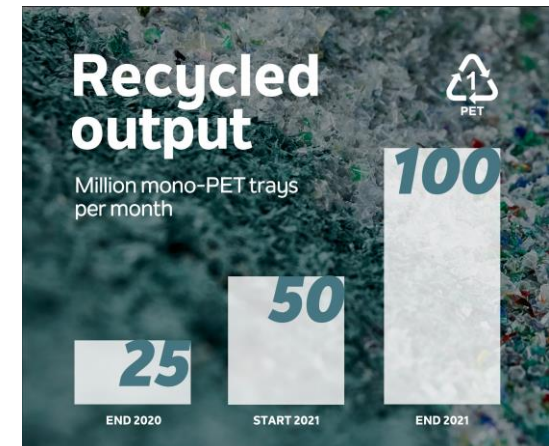
Industrial scale pots, tubs and tray recycler



- **Capacity of +24,000 tonnes p.a**
- **Agreement with** waste management companies in several countries.
- Currently expanding capacity to 60,000 tonnes p.a.



Set up for growth



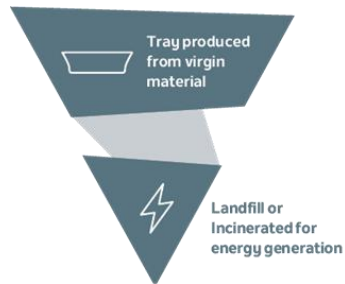
- **Strong volume growth expected from new tray line**
- **Expansion throughout Europe in the coming years**

**The road to tray-to-tray recycling:
Choosing the right material**

Choosing the material:

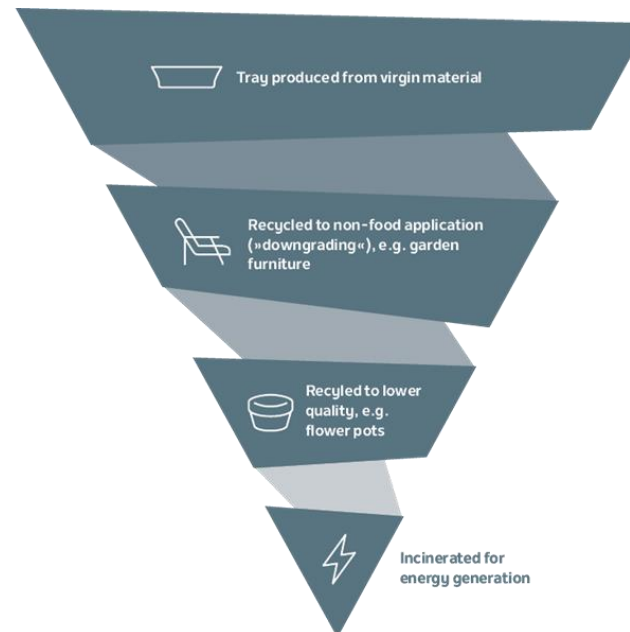
Two Types of Recycling Exists within Food Packaging; Spiral and Circular

No Recycling



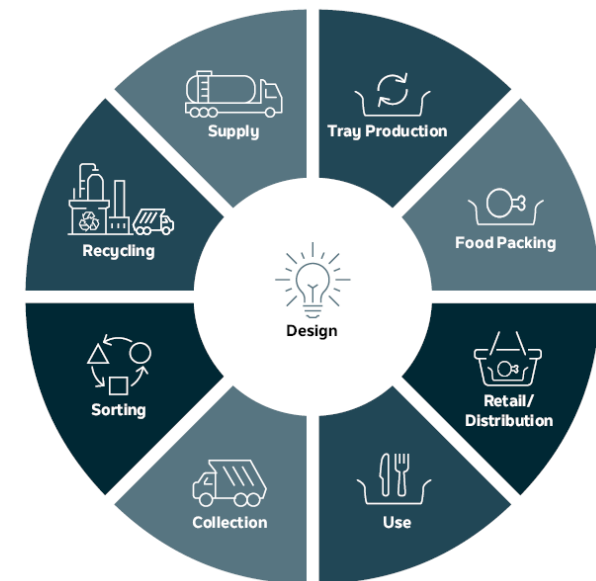
Linear production

Spiral Recycling



Always made from virgin material in food applications
Cannot be recycled into food contact material again

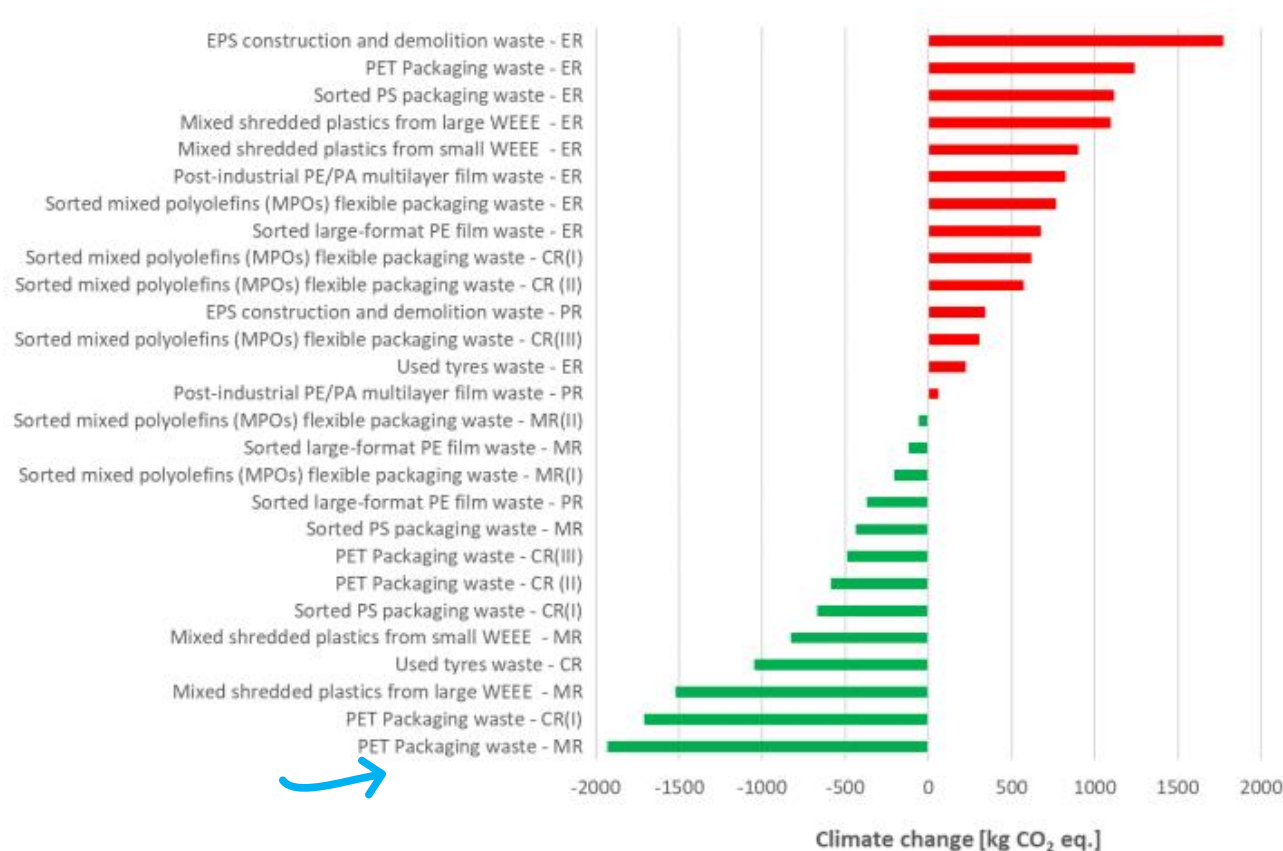
Circular Recycling



Made from recycled content and recyclable back into products of the same quality, i.e. food packaging recycled into food packaging

LATEST EU PUBLICATION 23 FEBRUARY 2023:

Mechanical PET recycling has largest positive impact on CO₂ reduction



Summary overview of climate change associated with the management of 1 t of various plastic wastes. Negative values (green bars) represent net GHG savings, while positive ones (red bars) represent net GHG burdens. See Table 1 for a description of the different treatment scenarios/technologies. CR: chemical recycling; ER: energy recovery; MR: mechanical recycling; PR: physical recycling.



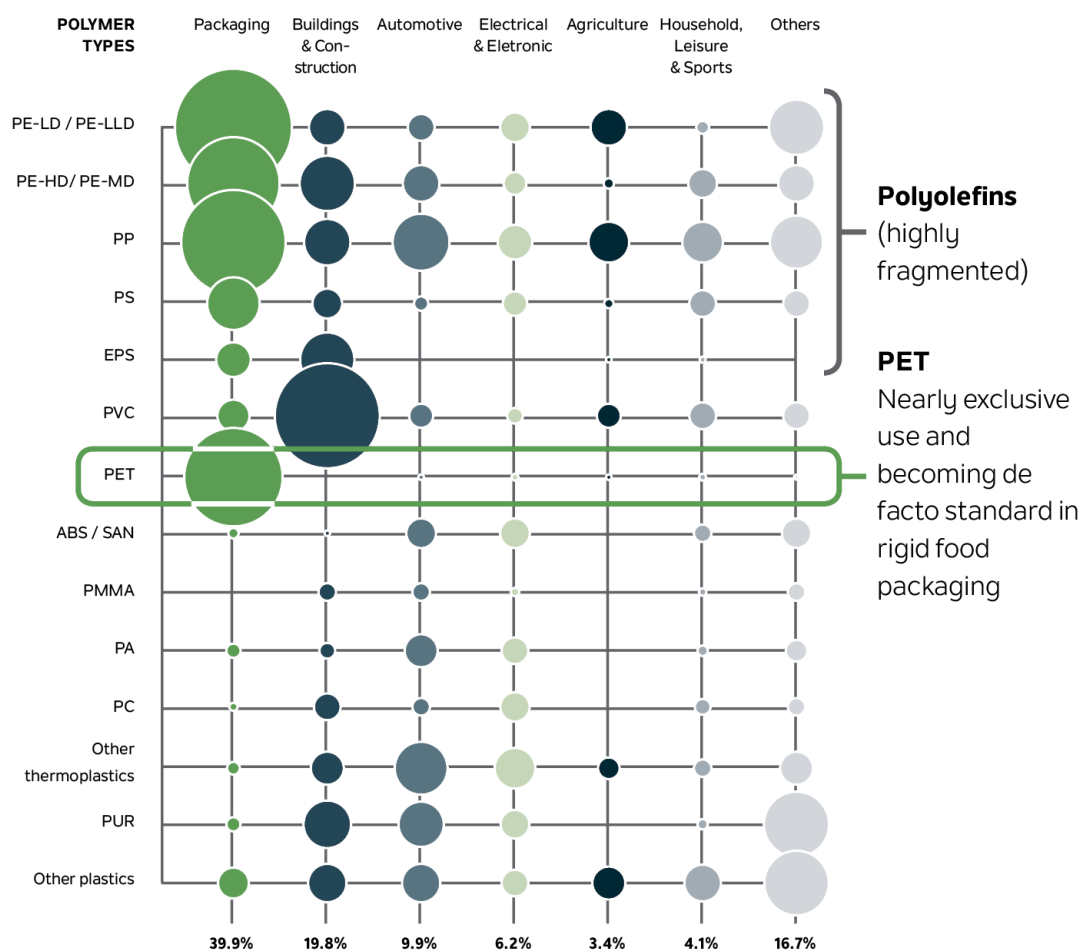
Source: 134 pages science study
[JRC Publications Repository – Environmental and economic assessment of plastic waste recycling \(europa.eu\)](#)

Faerch



PET is becoming the standard in rigid food packaging; Pollution in the circular stream is of high importance

Plastics Demand per Application and Polymer Type, EU28+NO/CG, 2018



Differences in material properties

- PET can be recycled without loss of functional properties, i.e. food grade products can be recycled back into food grade products again and again.

PET

- PET represents the standard in rigid food packaging, well-known and proven from bottles.
- A “de facto standard” for PET exists, and compliance to it is a prerequisite for circularity. It ensures that material properties can be protected over a number of use cycles and contributes to the development of efficient markets for high-quality recycled PET.
- The PET food contact stream needs to be protected from contamination from non-food PET applications.

Circularity is key and material choice is essential

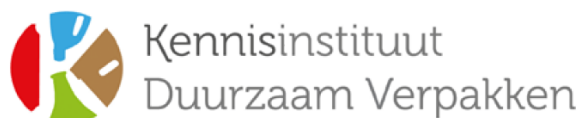
Circularity has benefits for both an environmental (decoupling growth from consumption of finite resources and lowering CO₂) and a business perspective (continuity and contingency of supply).

**PET is for us the only circular plastic in food packaging through
mechanical recycling**

**The road to tray-to-tray recycling:
Developing the quality standards for
post consumer tray bales**

Minimum requirement for bale specification: creating country standards for sorting centers

- Extended responsibility programs (Packaging funds – dual systems) are crucial in creating standards
- Creating standards is a starting point – continuous development is ongoing with sorting centers
- In several European countries, trays are still considered unrecyclable because it is simply not done. Everything goes to incineration.



Product specification 05/2016

Sorting fraction: PET trays

A Specification/Description

Used, residue-drained dimensionally stable, system-compatible packages made of polyethylene terephthalate (PET), volume ≤ 5 litres in the following composition:

1. trays, e.g. meat trays, fruit trays and other dimensionally stable PET packages, e.g. mugs, bowls, bottles

Transparent, clear, coloured, opaque, including ancillary constituents such as labels, lids, foils, inlay materials etc.

2. Transparent PET bottles

System-compatible implies that the plastic article is not shredded and is collected by systems of source separation or post-consumer separation as applied in Dutch municipalities.

B Purity

At least 80 mass % of PET trays and other dimensionally stable PET packages
Maximally 20 mass % transparent PET bottles

Mass % as per Specification/Description

C Impurities

Maximum total content of impurities 6 %

Metallic and mineral impurities with a unit weight of > 100 g are not permitted

Other metal articles < 0,5 mass %

PVC articles < 0,1 mass %

Aluminium-coated plastics < 2 mass %

Other residual materials < 4 mass %

Examples of impurities:

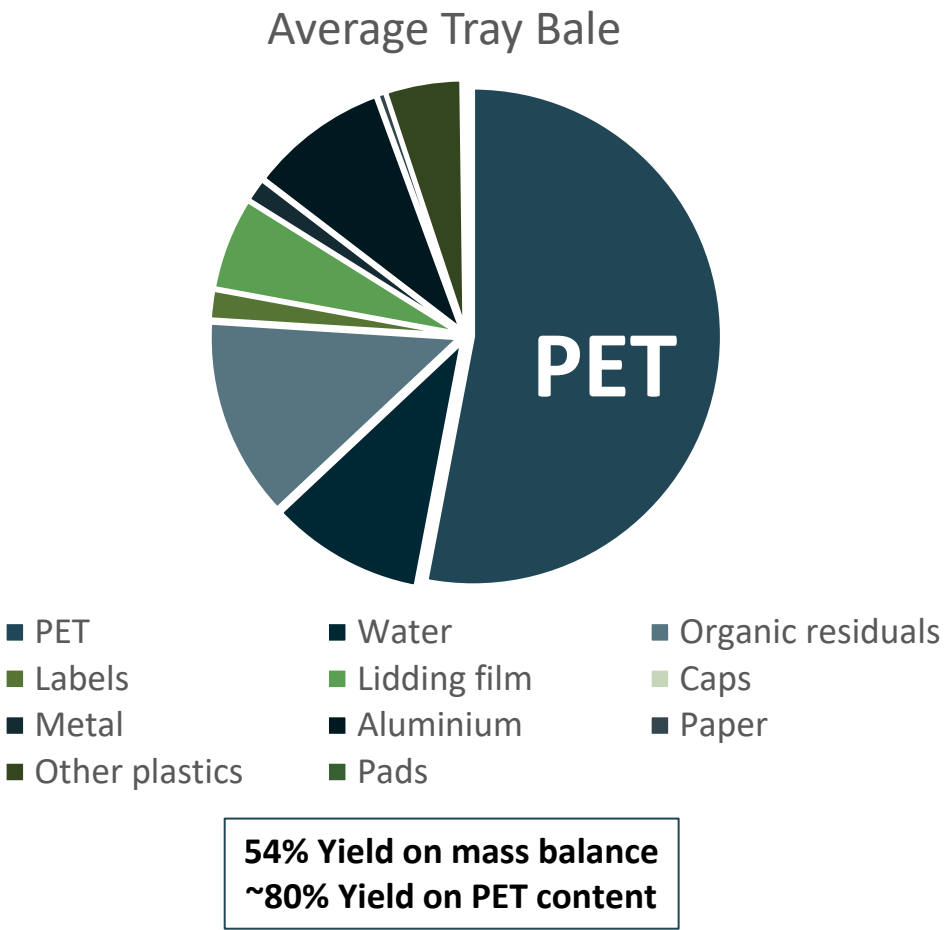
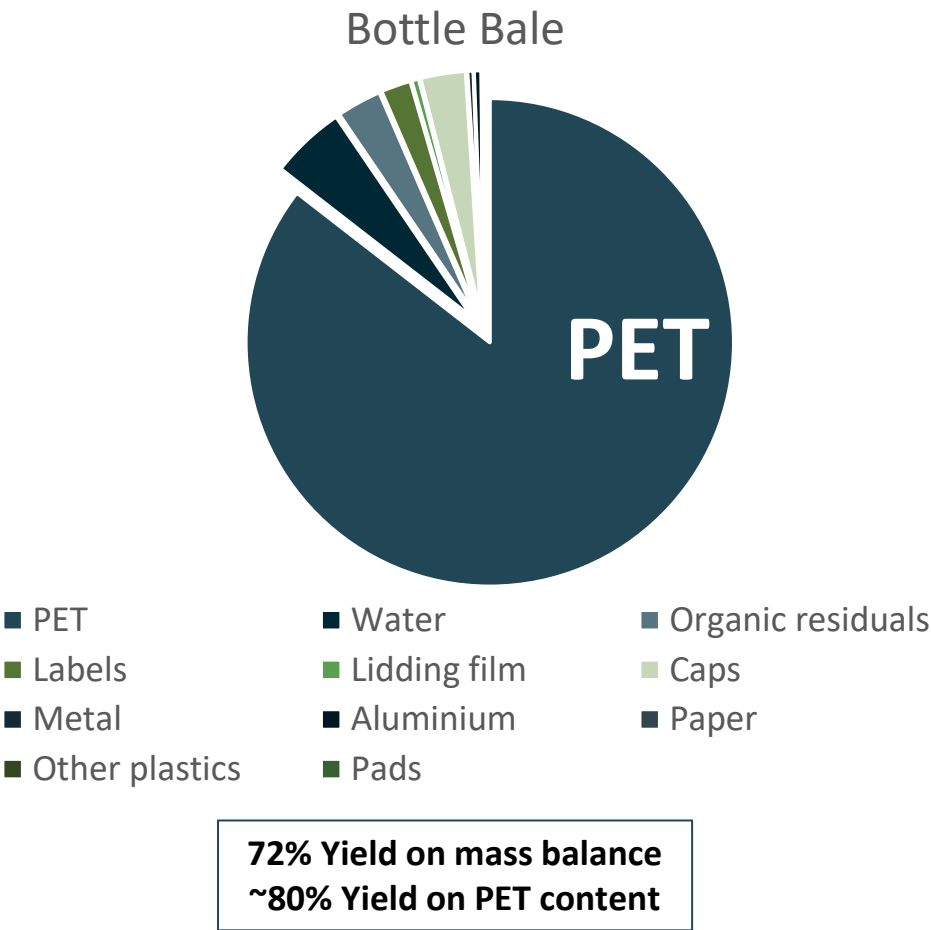
- Glass
- Paper/board/cardboard
- Paper/board/cardboard composite materials (e.g. cartons for liquids)
- Foreign materials (e.g. rubber, stones, wood, textiles, nappies)
- Compostable waste (e.g. food, garden waste)

The maximum total impurity content is the share of all impurities contained in the fraction and must on no account be exceeded.

**The road to tray-to-tray recycling:
Developing the technology**

From bottle to tray: dramatic increase in impurities

Approx. 70-75% PET in a bottle bale versus approx. 50-75% PET in a tray bale



Essentials of tray-to-tray recycling

Washing

- Handling large quality variations of incoming materials
- Trays are more brittle than bottles
- Handling multilayer materials
- Cleaning extensive impurities (both organic as inorganic)
- Colour sorting

Extrusion

- Decontamination step with a trusted EFSA-approved supplier
- Bringing back the viscosity to values needed for processing into products
- Handling significant different properties of tray flakes in extrusion

Compliance

- Changing the quality management system to incorporate tray recycling
- Register tray-to-tray recycling at EFSA



The road to tray-to-tray recycling: A change in customers mindset

Evolve by Faerch – Products ranging up to 100 % recycled content

Based on Cirrec output material

Recyclable back into new food packaging. **Without any loss in quality** – again and again

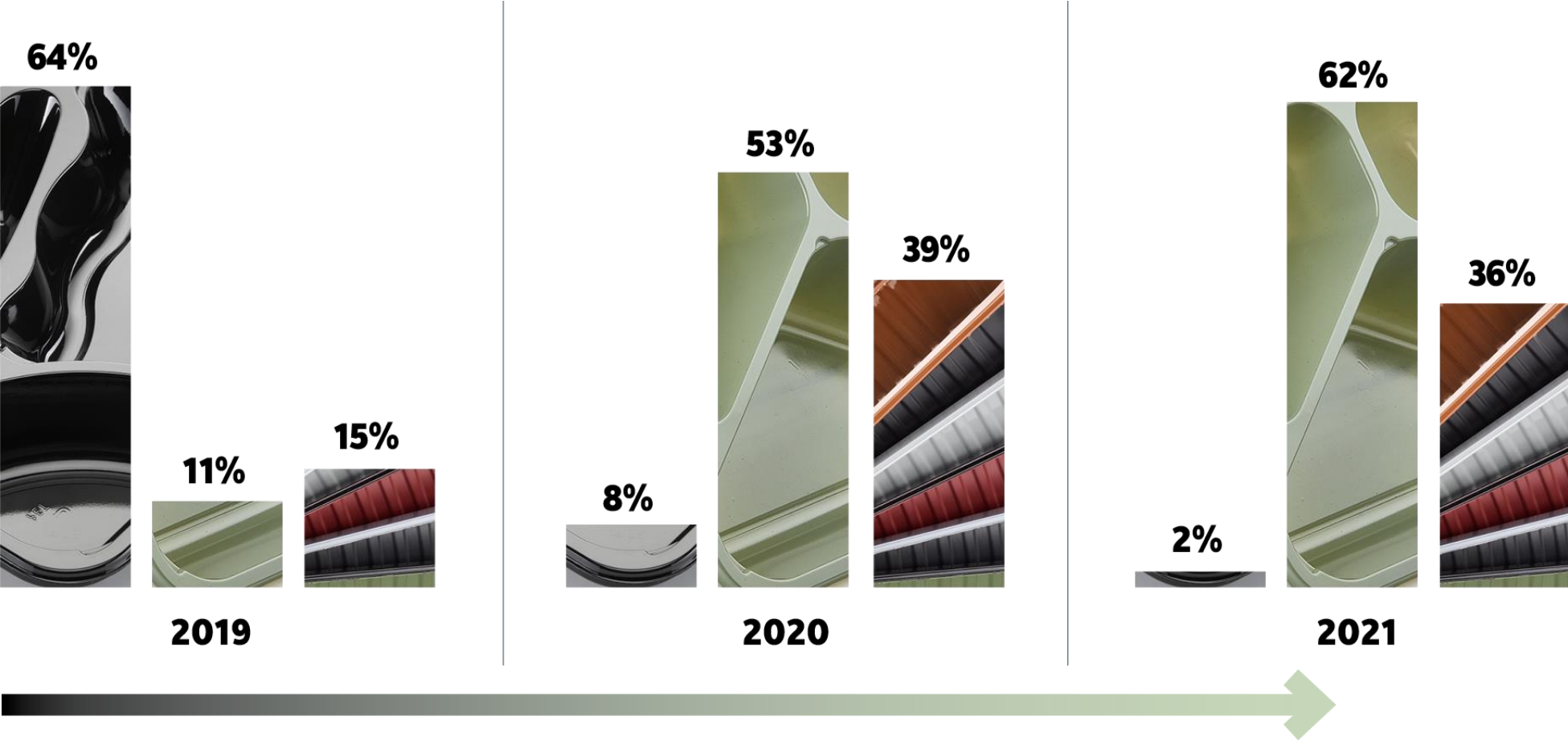
Made from up to **post-consumer recycled PET**

Unique colours reflect the recycled material they are made from – **attracting attention and signalling sustainability**



From black to Evolve by Faerch: changing the mindset together with retailers

Carbon black share vs. Evolve by Faerch share



**The road to tray-to-tray recycling:
Taking it one step further: Closed loop**

Closed loop recycling



Questions?



cirrec
A PART OF FAERCH

