

Compostable bioplastic products in a full scale industrial organic waste treatment facility

Organic recycling within the Circular Economy: The role of compostable plastics

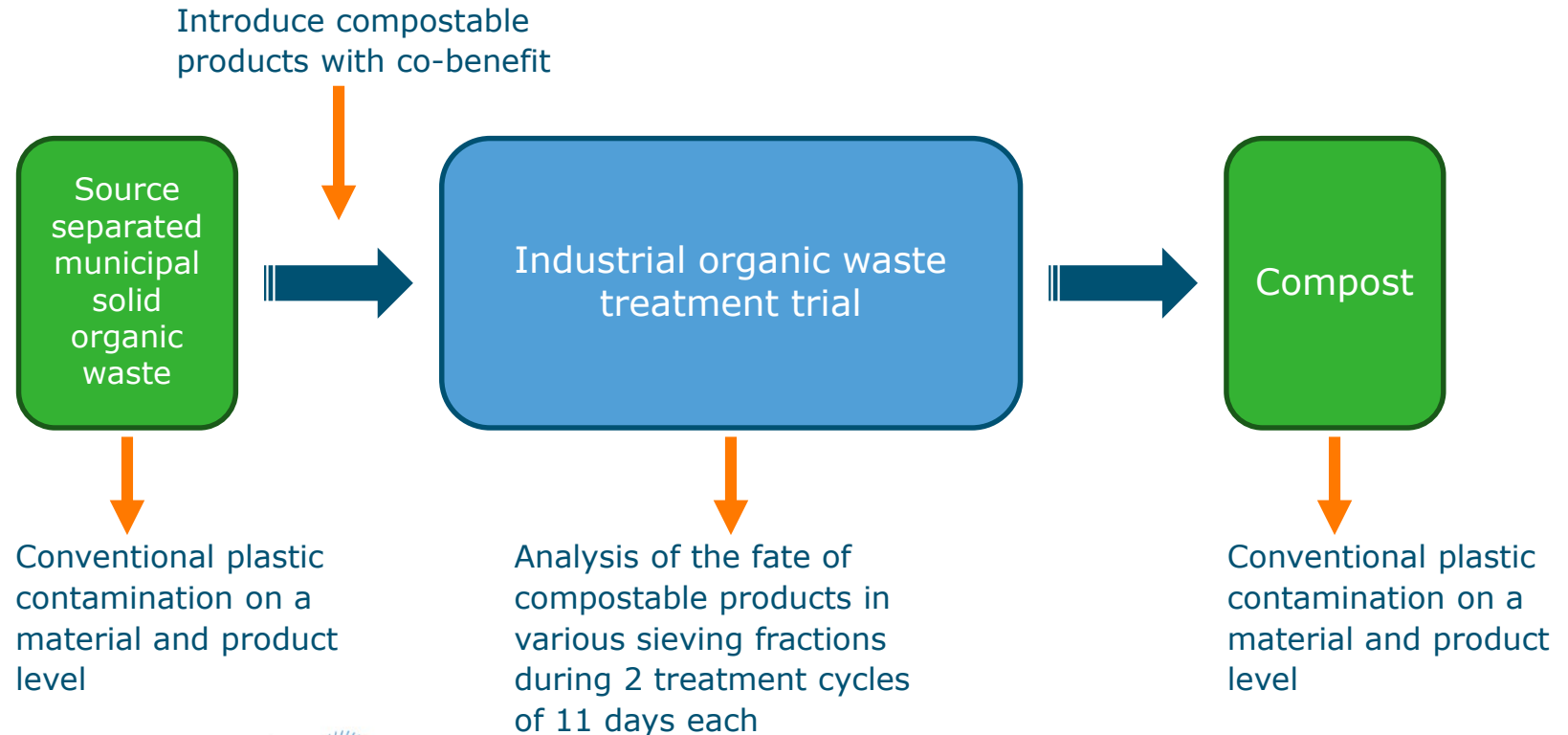
Karin Molenveld, March 3rd 2021



Background

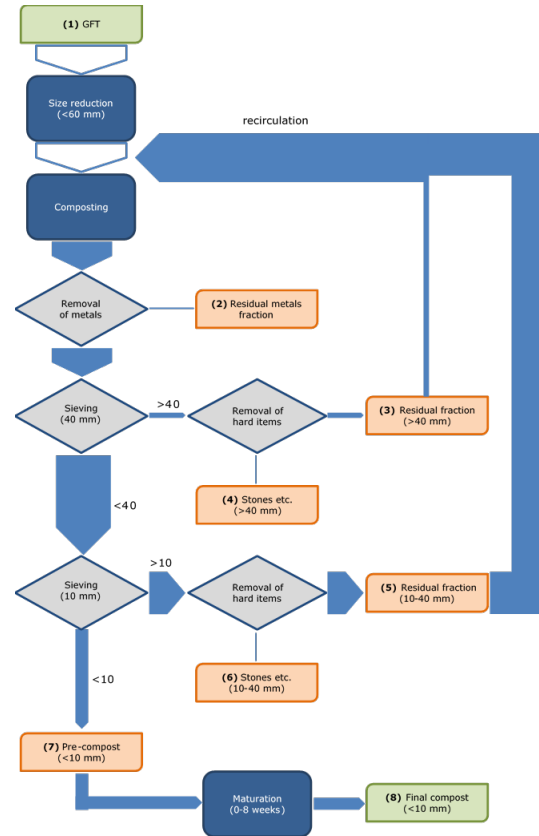
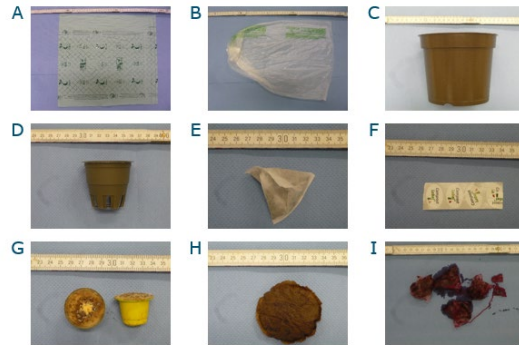
- **Motive:** >20 years of debate: acceptance of compostable products in biowaste bin (source separated municipal solid organic waste)
 - Do certified products disintegrate fast enough in the current practice and is the standard for compostable products still applicable
- **Project partners:** Dutch government, Waste treatment sector (VA), bioplastics producers (HB).
- **Topics:** Current practices, co-benefit, pollution (increase or reduction).
- **Products:** biowaste collection bags, plant pots, tea bags, coffee pads, fruit labels, coffee capsules.

Scope of the study



Details of the study

9 different test products:
biowaste collection bags,
plant pots, tea bags,
coffee pads, fruit labels,
coffee capsules,



Introduced in the process:
as such and in mesh bags

Analysis of the fate during
2 treatment cycles



General findings waste treatment trial

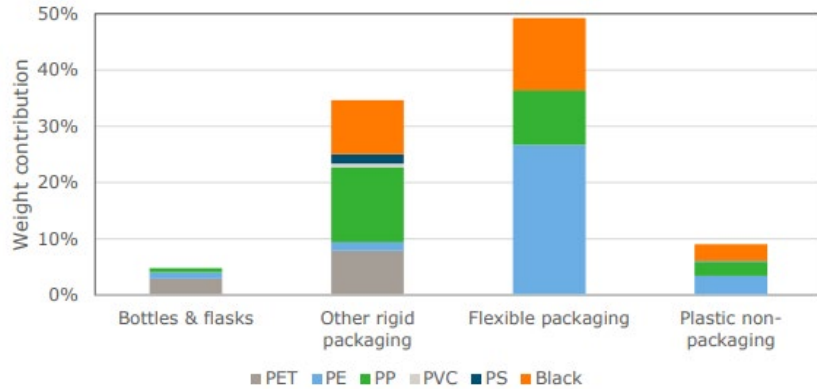
- ~20% of the reactor output is compost (<10 mm)
- ~80% ends up in **residual fractions**
 - ~70% in 10-40 mm fraction (always recirculated)
 - ~10% in >40 mm fraction (usually recirculated)
 - <1% in the rest
- **Residual fractions:** predominantly organic matter (consistent with short residence time) and some **plastics**
 - ~1% in 10-40 mm fraction, ~8% in >40 mm fraction
- **Plastic fractions:** predominantly non-compostable plastics

Compostable products

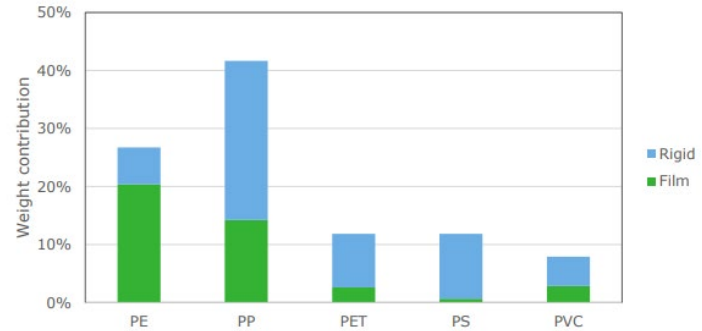
- **Some** test products were actually found in residual fractions
 - In >40 mm fraction: predominantly biowaste collection bags
- **No** test products identified in the compost fraction (<10 mm)
- One waste treatment cycle (11 days) was sufficient for the PLA plant pot to completely disintegrate.
- Most other products needed more than 1 waste treatment cycle to fully disintegrate (including banana skin and orange peel references and paper products)

Plastic pollution (conventional plastics)

■ Found in biowaste



■ Found in compost



Questions?

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The full research report is
available for free on:

<https://edepot.wur.nl/514397>

