

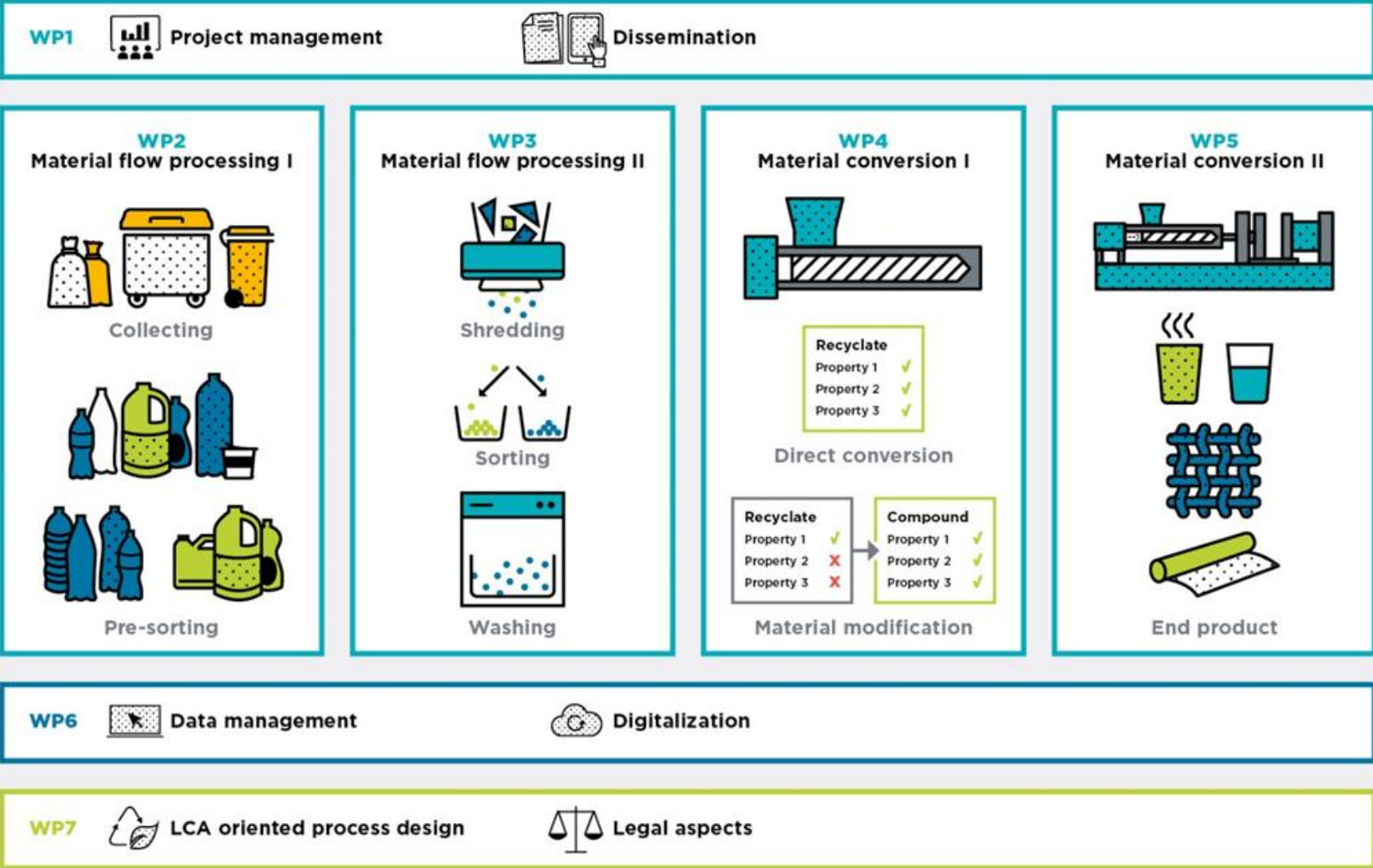
Vom Problemstoff zur Ressource: Recycling von Tray-reichem PET- Reststrom zu rPET BigBags



Moritz MAGER, Jörg FISCHER

Johannes Kepler University Linz, Institute of Polymeric Materials and Testing & LIT Factory

Industrial Trial within circPLAST-mr



circPLAST-mr | Project Partners

11 Scientific partners:

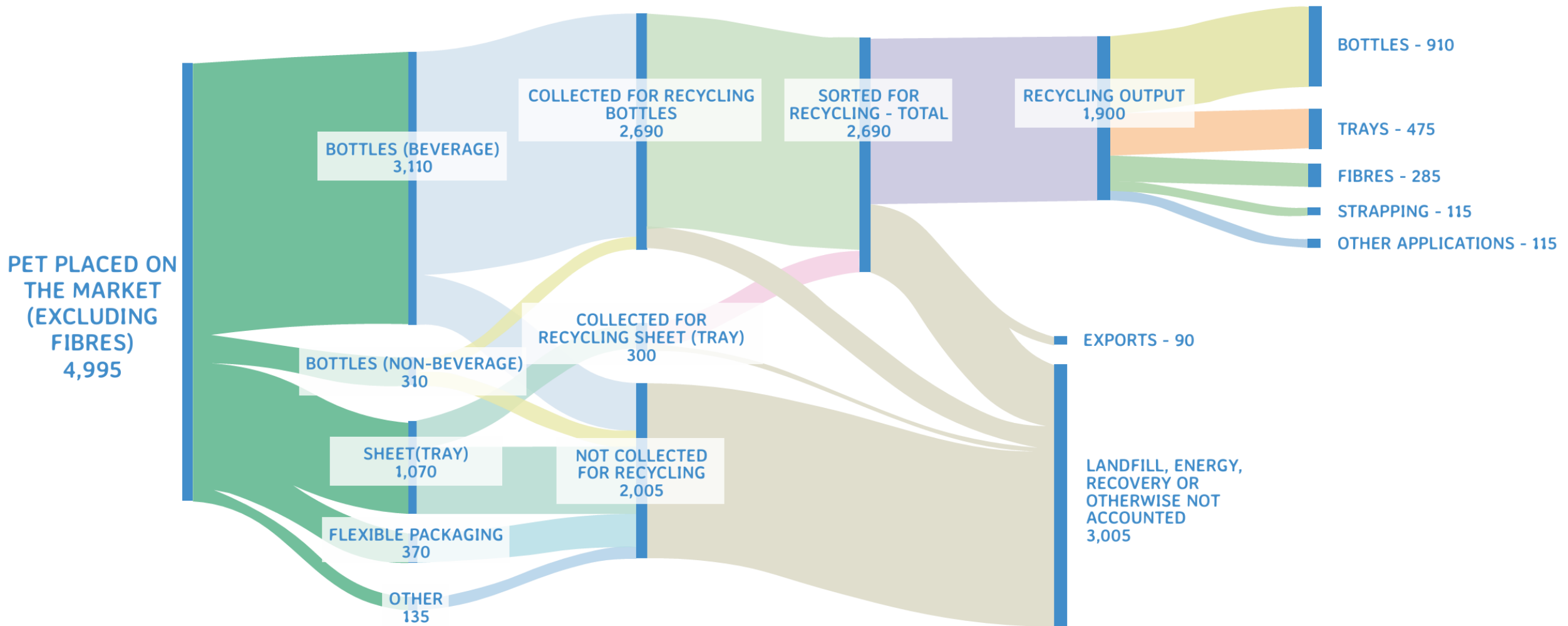
- Johannes Kepler University (JKU) Linz:
 - Institute of Polymeric Materials and Testing (**JKU-IPMT**)
 - LIT Factory (**LIT Factory**)
 - Institute for Chemical Technology of Organic Materials (**JKU-CTO**)
 - Institute for Environmental Law(**JKU-IUR**)
- AEE INTEC (**AEE INTEC**)
- Competence Center CHASE GmbH (**CHASE**)
- Energy Institute at JKU Linz (**EI-JKU**)
- JOANNEUM RESEARCH Forschungsgesellschaft mbH (**JR-DIGITAL**)
- Montanuniversitaet Leoben:
 - Chair of Waste Processing Technology and Waste Management (**AVAW**)
- Software Competence Center Hagenberg GmbH (**SCCH**)
- Transfercenter für Kunststofftechnik GmbH (**TCKT**)

14 Company partners:

- ALPLA Werke Alwin Lehner GmbH & Co KG (**ALPLA**)
- Altstoff Recycling Austria AG (**ARA**)
- APC Advanced Polymer Compounds (**APC**)
- Borealis Polyolefine GmbH (**Borealis**)
- Business Upper Austria – OÖ Wirtschaftsagentur GmbH (**BIZ-UP**)
- ENGEL Austria GmbH (**ENGEL**)
- EREMA Engineering Recycling Maschinen u. Anlagen GmbH (**EREMA**)
- GAW technologies GmbH (**GAW**)
- Greiner Packaging International GmbH (**GPI**)
- Lindner Recyclingtech GmbH (**Lindner**)
- O.Ö. Landes-Abfallverwertungsunternehmen GmbH (**LAVU**)
- OSMO Membrane Systems GmbH (**OSMO**)
- Saubermacher Dienstleistungs AG (**SDAG**)
- Starlinger & Co. Gesellschaft m.b. H. – viscotec (**viscotec**)

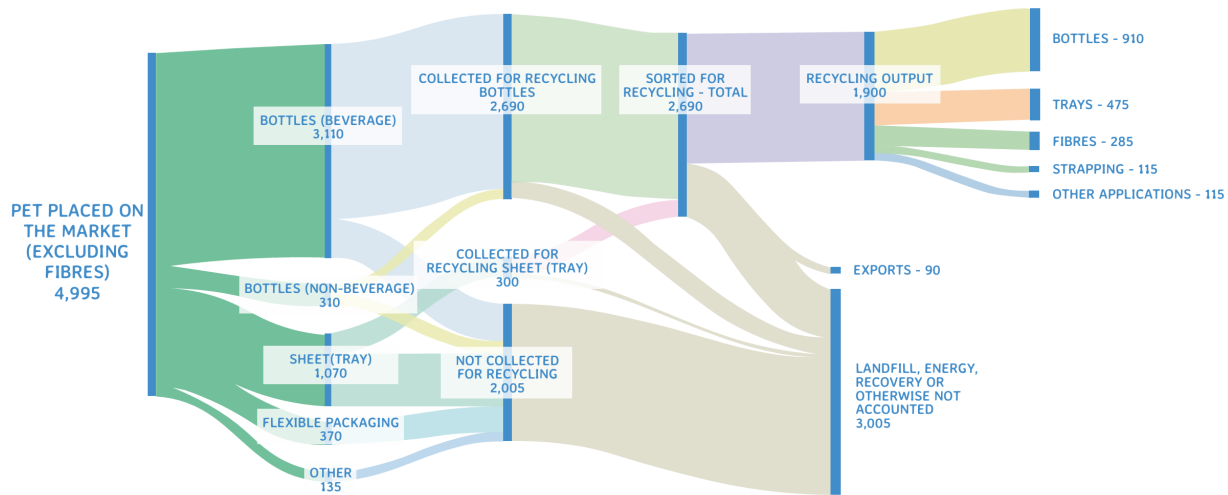
European PET and rPET Flow in 2022

in 1000 tons



European PET and rPET Flow in 2022

in 1000 tons



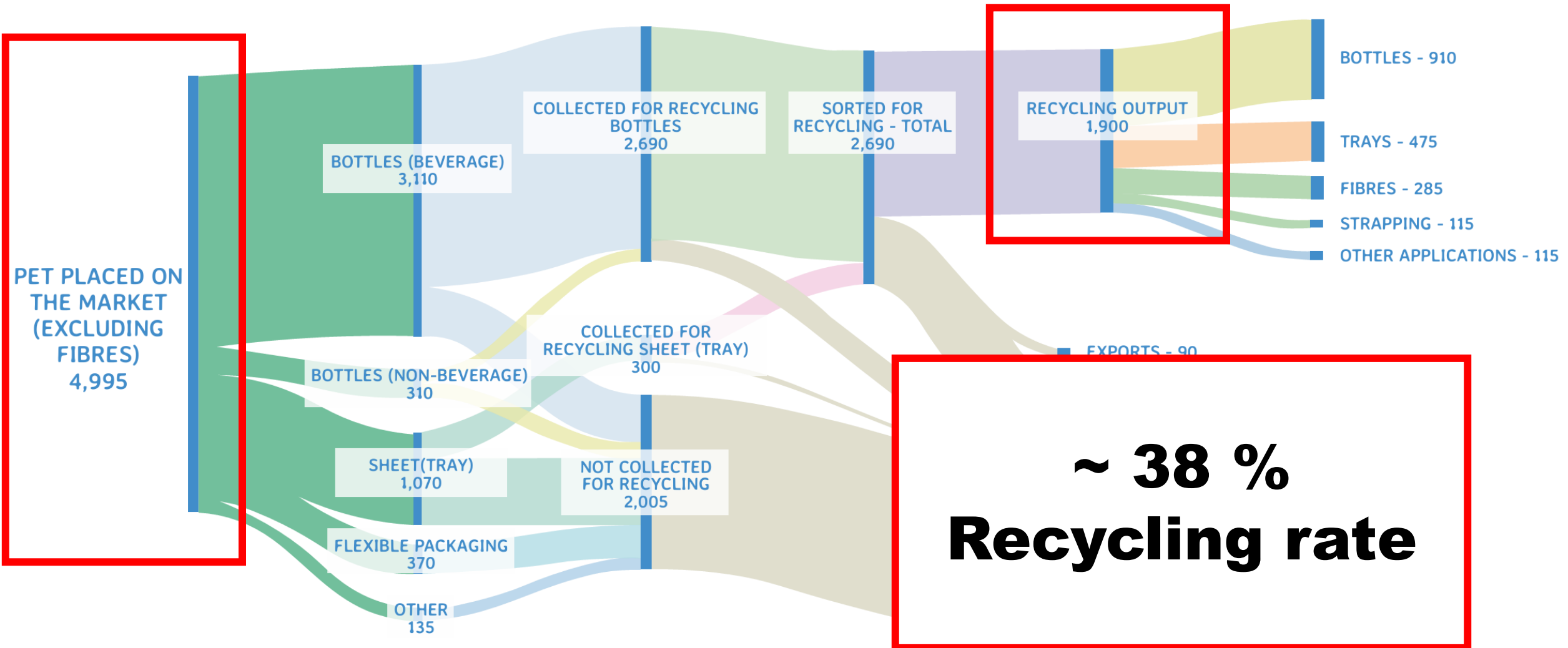
Proposed mandatory recycle content in plastic packaging

Revision of EU Directive 94/62/EC

	PET beverage bottles	PET food contact	non-PET food contact	non-food packaging
2030	30 %	30 %	10 %	35 %
2040	65 %	50 %	50 %	65 %

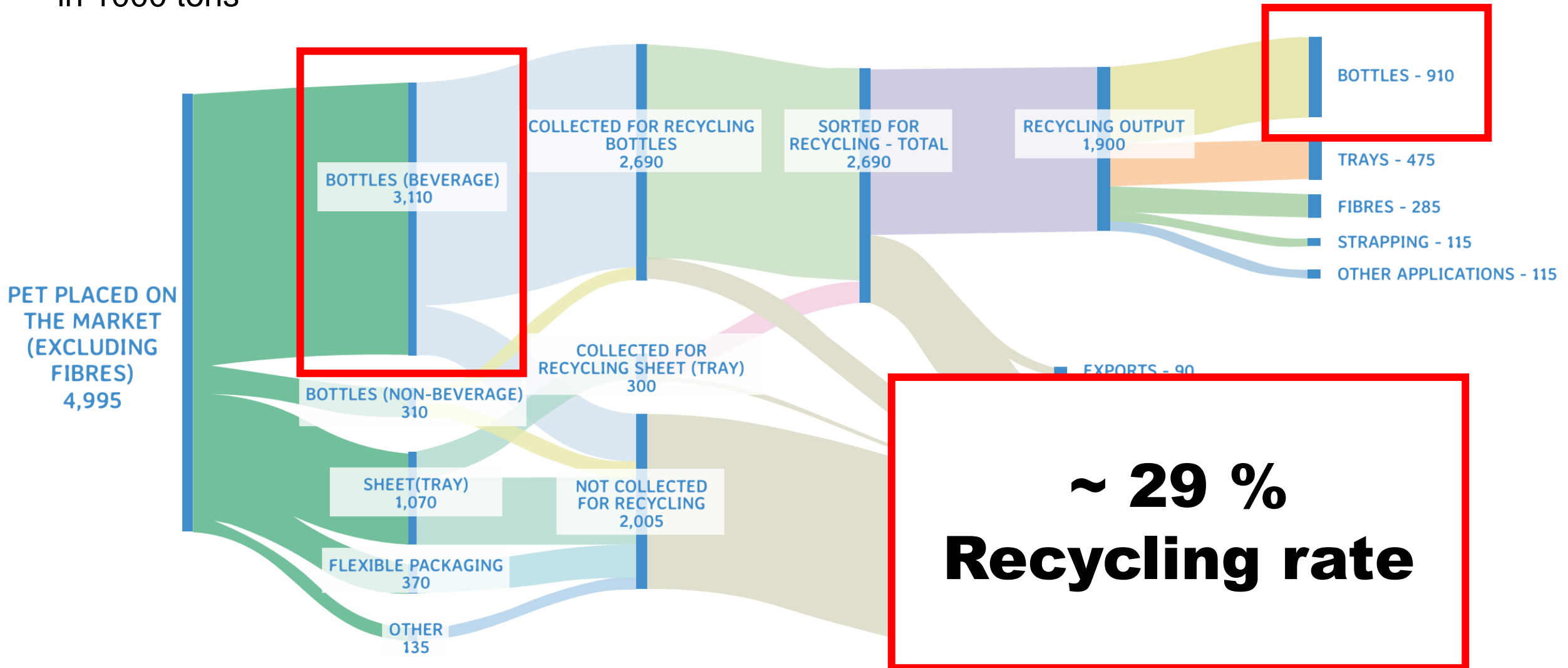
European PET and rPET Flow in 2022

in 1000 tons

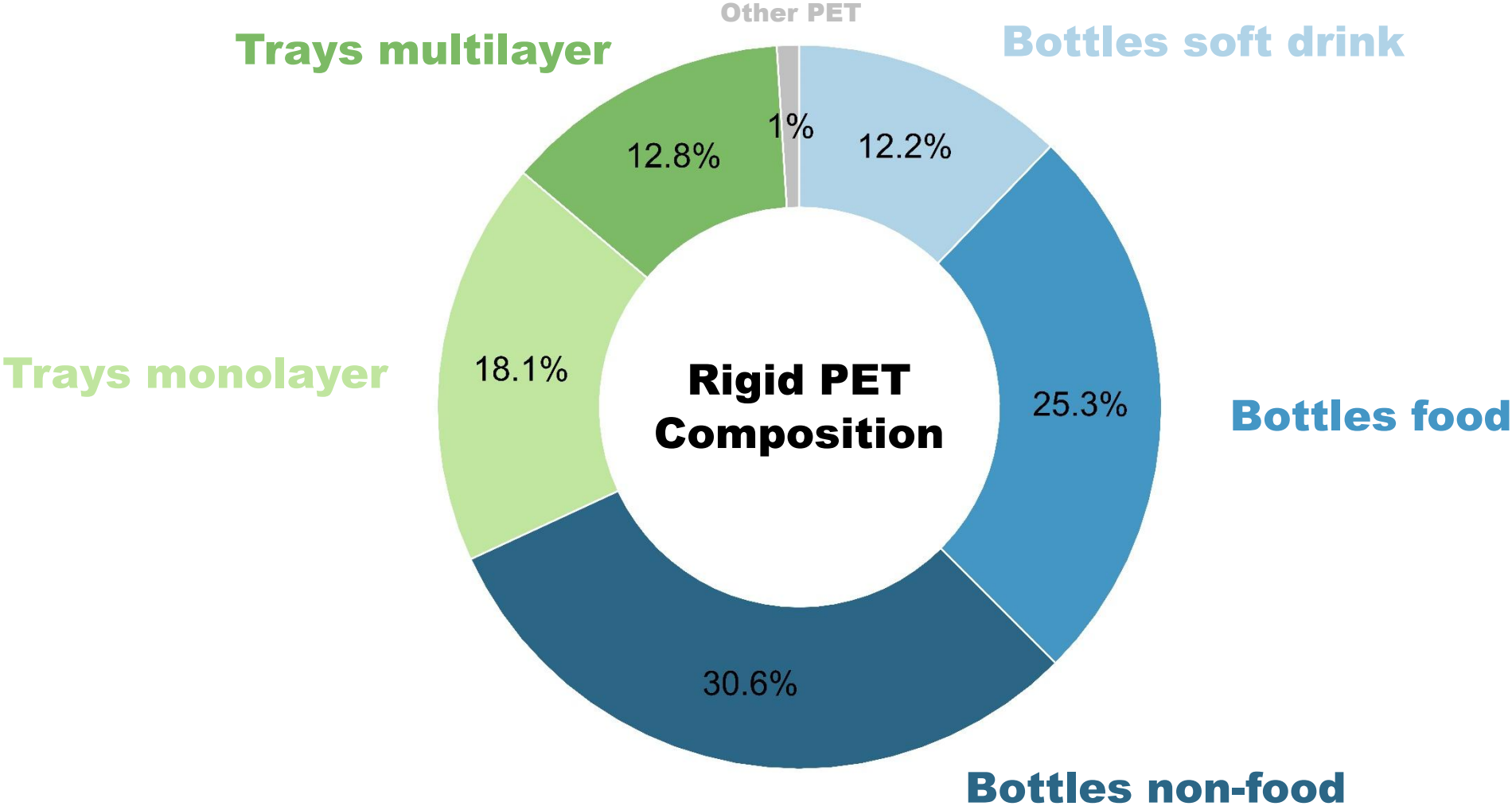


European PET and rPET Flow in 2022

in 1000 tons



PET 499 composition | Results from PET2PACK



Deposit System | What's excluded?

“The deposit covers all closed or predominantly closed one-way beverage containers made of plastic or metal with a filling volume of 0.1 to 3 liters.”

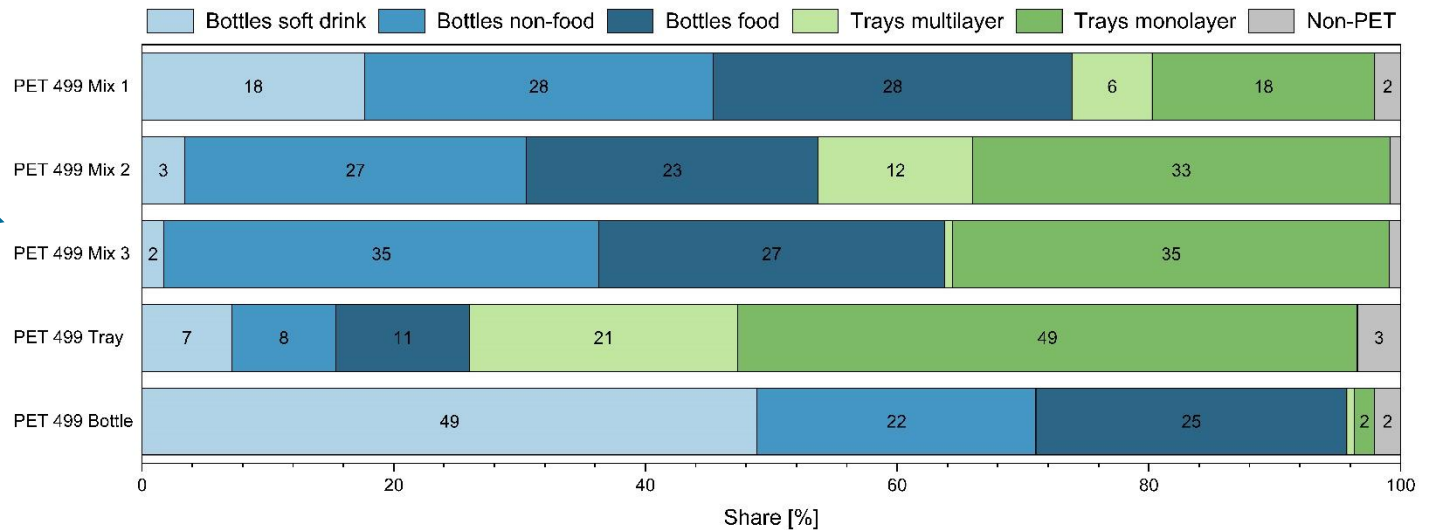
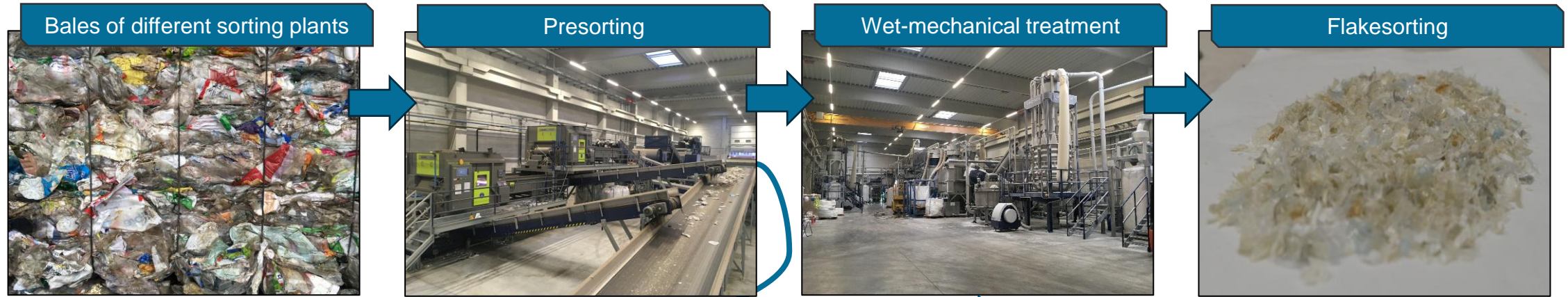
The following PET products are excluded

- Milk and dairy products
- Syrups
- Oil
- Vinegar
- Sauces
- Non-food bottles

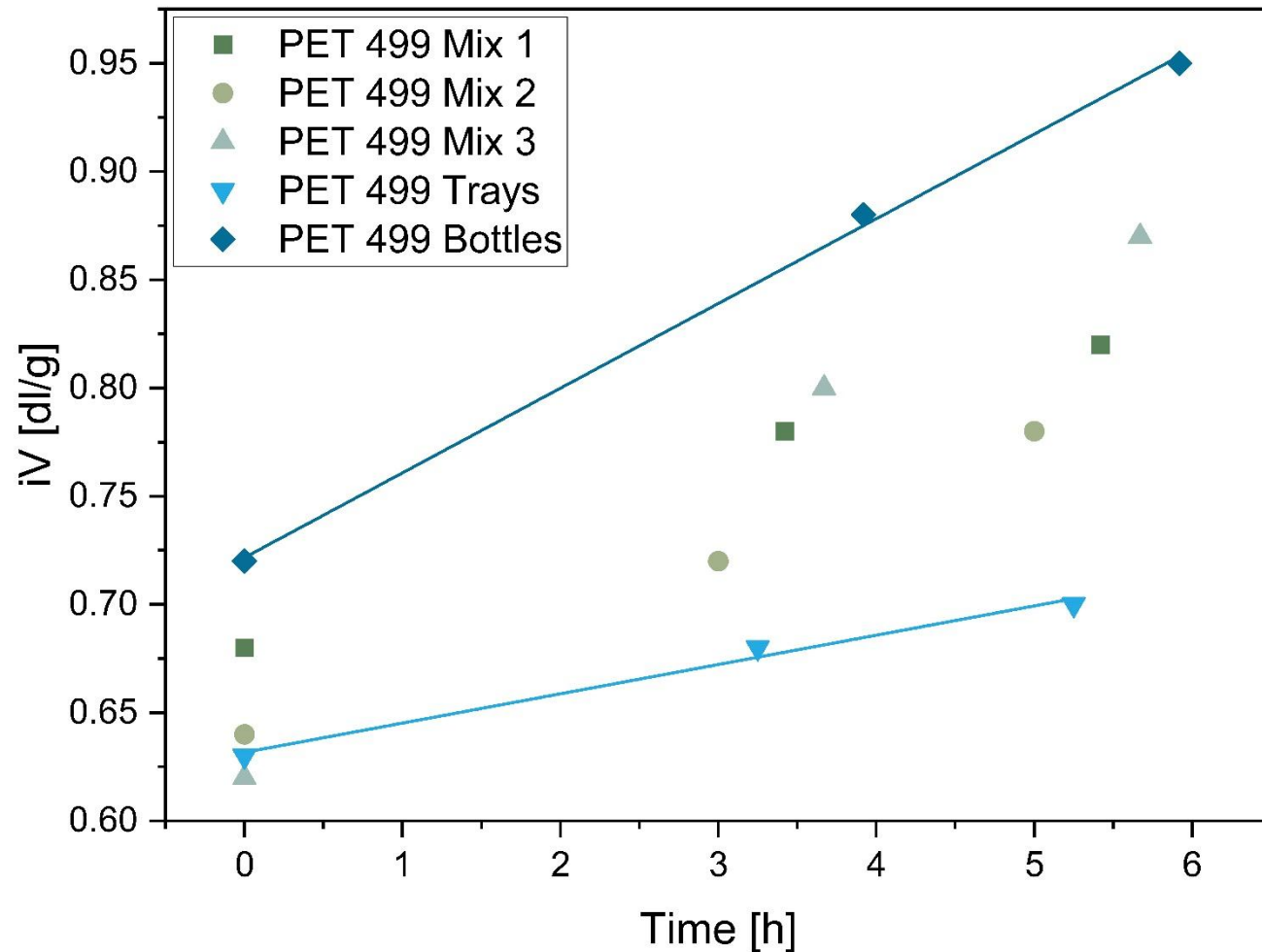


Industrial Trial PET499 | Sorting & Washing

PET Recycler



Output Qualities | iV Increase + Flake Composition



PET 499 Trays

Open- & Closed-Loop Strategies | Use Case

Bigbag (non-food) Open-Loop Recycling



- **Lower-quality output streams selected**
 - PET 499 Trays
 - PET 499 Mix 1 (Flake Reject)
- **Additional granulation step required**
 - Filtration & Homogenization
 - Avoid agglomeration in SSP reactor
- **Outlook**
 - Product tests
 - LCA comparison to beverage bottle flakes and virgin

**Thank you for your
attention!**



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