



PET Trays and TCEP

The Journey to a Circular Future



Thermoforms Conference 2025
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Tray Circularity Evaluation Platform (TCEP)

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www.tcep-europe.org





From Recyclability to Circularity



2014 – Not so good story – “Recycled but not recycled”

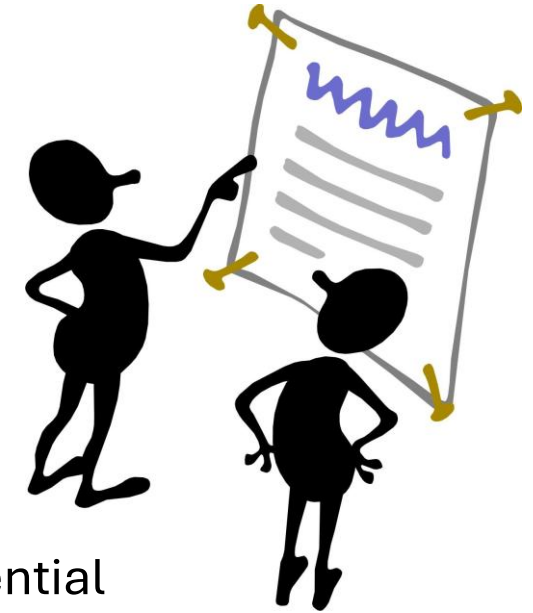
- PET thermoforms using rPET from recycled bottles, mainly under functional barrier
- No real interest in collection, sorting and recycling of a dedicated PET thermoforms stream
- Some attempts to recycle thermoforms in the PET bottles stream
- Recyclability perceived as important, but no at scale solutions

2022 - The good story – Dedicated industrial recycling plants

- PET thermoforms collection, sorting and recycling becoming industrial

2025 – The even better story – T2T Recycling

- Circularity no longer a novelty but an industrial reality with huge growth potential





PET Thermoforms State of Play (2022)



Placed on the market

1070 kt

21% of total (vPET + rPET) conversion

Total rPET content

470 kt

44% rPET content on average

accounting for 25% of rPET use (2nd largest application)

Separately collected

300 kt

28% of total placed on the market (bottles 75%)

Installed recycling capacity **150 kt**

Expected to reach 300 kt in the next years





Initial Roadblocks to Recycling



Stream complexity and variability

- Demanding applications (shelf life and content protection)
- Variety of packaging solutions and ancillary elements

Higher contamination than PET bottles

- Oily and greasy product residuals

No incentive for collection and sorting

- Low yields if processed in PET bottle recycling plants
- No real demand from recyclers for a dedicated stream
- Lower rPET quality (limited value and demand)



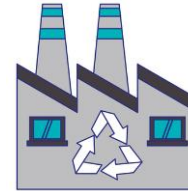
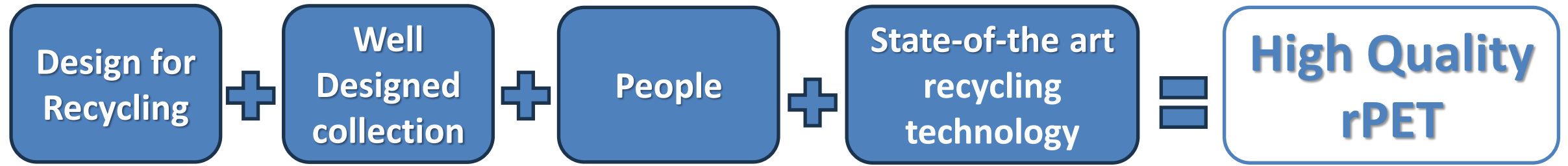
Improve collection and sorting and establish dedicated recycling processes and plants



The PET tray-to-tray value chain



Equation for Success

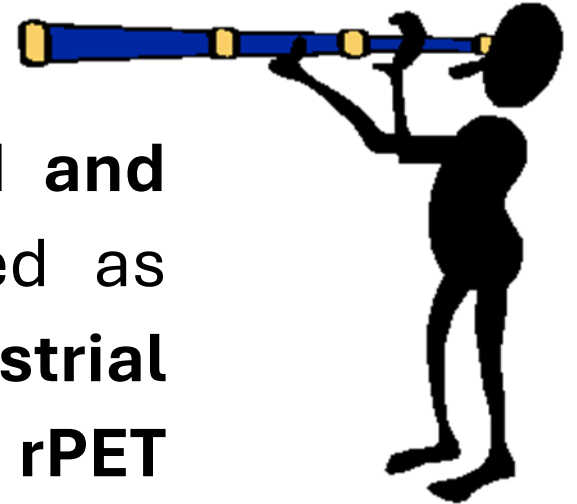




TCEP (2020) Started with a Circularity Vision



Well designed PET trays can be **collected and sorted into a valuable stream** to be used as feedstock by **state-of-the-art dedicated industrial recycling processes** to generate **high quality rPET** which in turn can be used as **feedstock for PET trays production**, in order to meet PPWR future recycled content obligations.





TCEP Structure

Born with 12 Years of Experience ( EPBP)

- **Steering Committee (SC)**

- Direction
- Goals
- Approval

- **Technical Committee (TC)**

- Guidelines
- Technical documents
- Assessments
- Position papers

- **Secretary General**

- Management
- Coordination
- Communication

Business experts: value chain experience, strategy and vision

Technical experts: production, use, collection, sorting and recycling of PET trays

Support & coordination





Promoting PET tray recyclability



- Develop and update a **PET tray recyclability assessment protocol**
 - Simulation of “standard” European PET recycling process
 - Flexible, to be adapted to specific situations
 - To be carried out at a qualified labs
- Develop and publish **PET tray design guidelines**
 - Built on expert experience, knowledge and assessments
- Provide **quick tests** to industry
 - Self assessment tool (no replacement for protocol)
- Perform **PET tray concepts assessments**
 - Upon request and for free (testing costs covered by applicant)
 - Focusing on critical points
 - **Under confidentiality**
- **Promote PET tray recyclability back into trays**





TCEP Achievements (so far)



Recyclability Assessment Protocol

- Full protocol developed and validated
- Three independent testing laboratories qualified

Design guidelines

- Published for clear mono-PET trays

Quick tests

- Some already published, others being finalised

Assessments

- First positive technical opinions published
- More assessments in progress (under confidentiality)






NEW (2025):

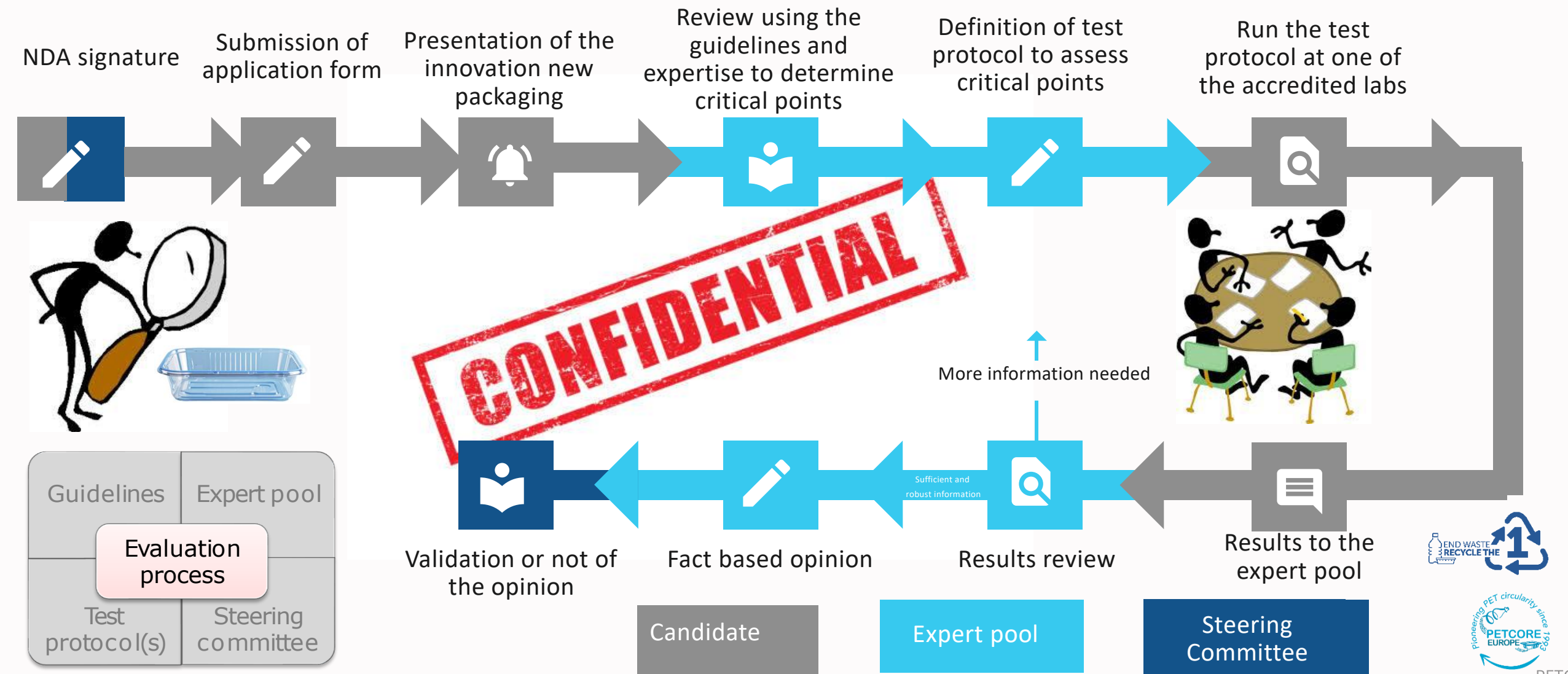
1. Design Guidelines for multilayer and coloured trays
2. Delamination test protocol

Design Guidelines

All in full
 alignment
 with CEN

	YES Full compatibility – materials that passed the testing protocols with no negative impact	CONDITIONAL Limited compatibility – materials that passed the testing protocols if certain conditions are met	NO Low compatibility – materials that failed the testing protocols OR
<u>Container</u>			
<u>Size</u>			
<u>Colours</u>			
<u>Barrier</u>			
<u>Additives</u>			

Guidelines are interactive and updated on a regular basis to reflect latest TCEP knowledge base, test results and industry experience on PET trays recycling. Please check www.tcep-europe.org for the latest version.





Plans for the Future

PET trays are here to stay



- **Keep supporting the industry with up-to-date design guidelines and recyclability assessment of new packaging concepts**
- **Support the standardisation effort and the development of the PPWR secondary legislation**
- **Ensure alignment between the design guidelines and protocol and the future CEN standards** (PETCORE and EPBP are liaison organizations in CEN)

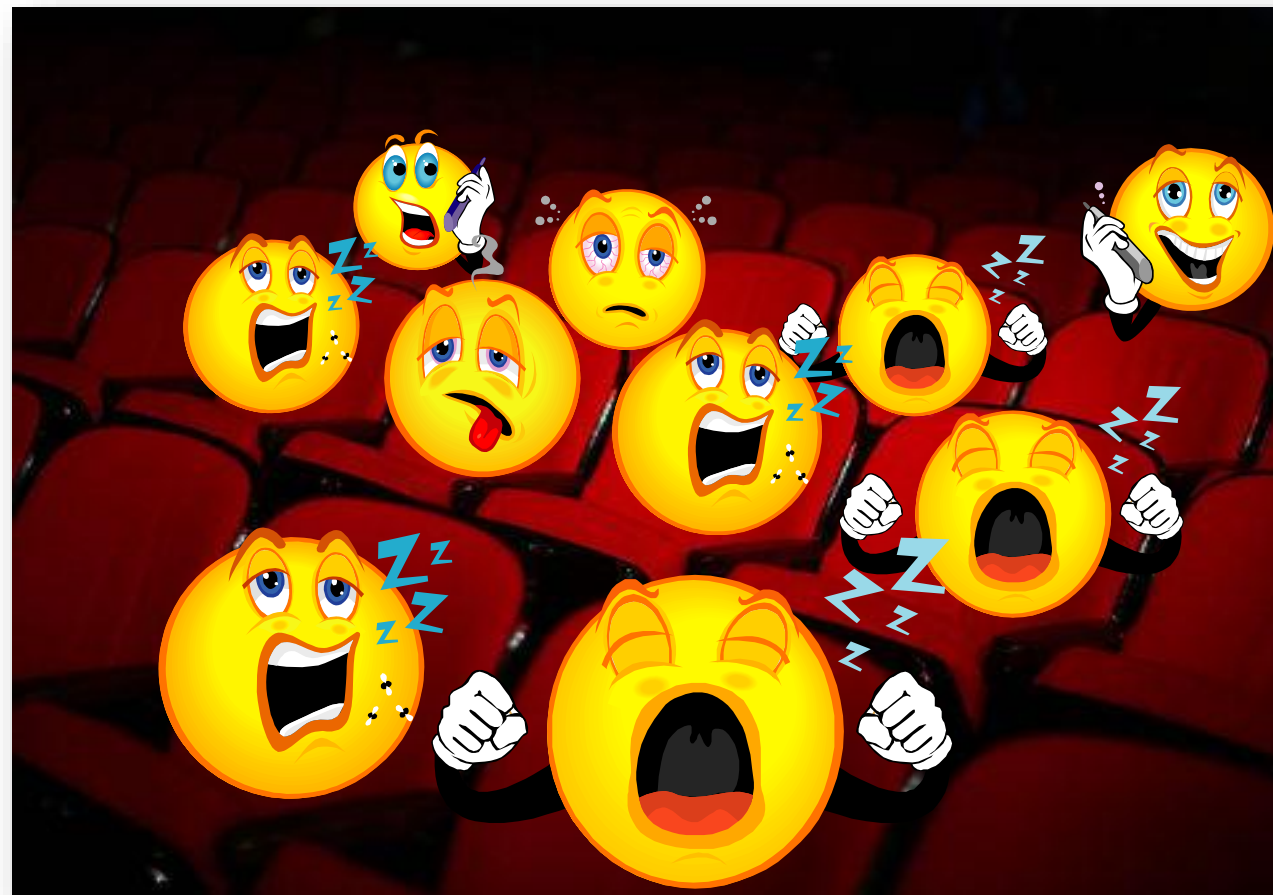
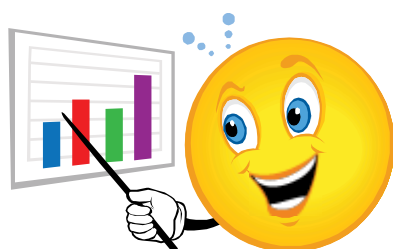


“Other than packaging, it is doubtful if there is anything in this world linked to so many diverse business sectors, which improves the daily lives of billions, prevents waste and yet is regarded negatively by most people”.

Julian Carroll – Former EUROOPEN President



Thank You for Your Attention!





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Annual Conference 2024

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Communications Campaign

www.recycletheone.com



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