



PETcore Annual Conference 2022

Session 4 “Working Groups update”

Recycling PET thermoforms working group.

Design guidelines and last technical developments



Agenda



1

Context

2

WG activities

3

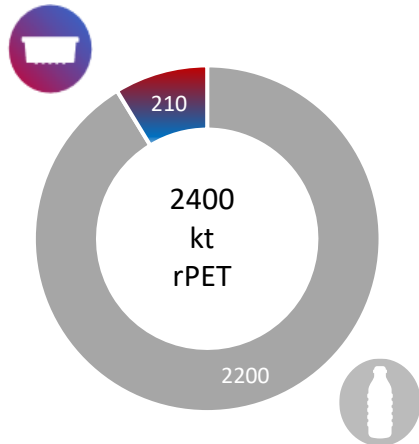
Roadmap to success



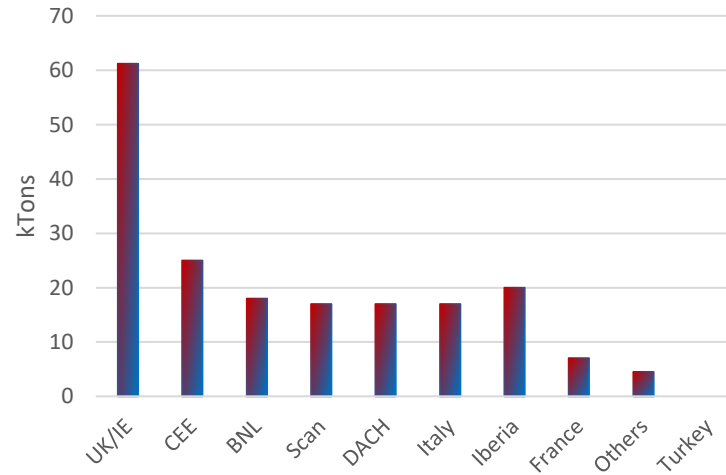
Landscape of PTTs recycling

Out of 1MTons PET sheet consumed in Europe just 21% is collected
52% estimated PCR content, mainly coming from bottles

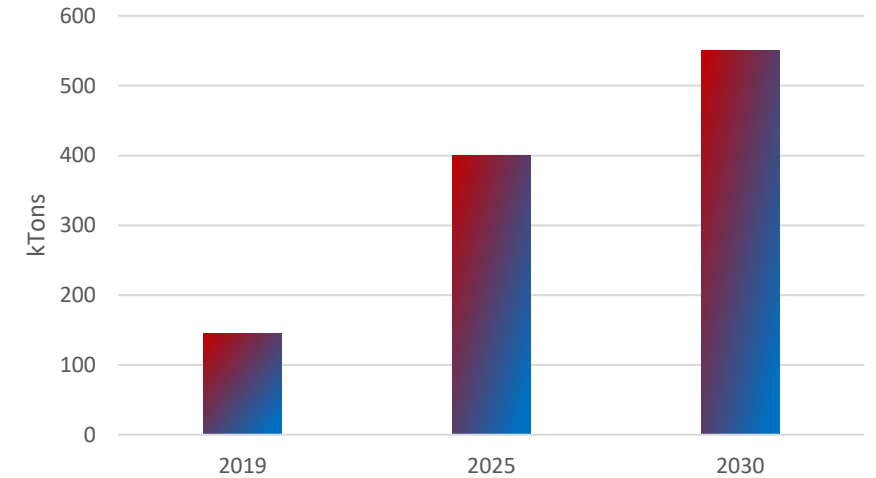
Collected & sorted for recycling (1)



PTTs collected in Europe (2)



PTTs collected for recycling projection (3)



Greater transparency of EPRs reporting is required in order to further improve the level of data confidence

Collection and sorting rates for trays will need to increase across Europe for them to be considered recyclable

Sources:

(1) PET MARKET IN EUROPE STATE OF PLAY 2022. Eunomia

(2) EPR schemes reporting CITEO, COREPLA, RECOUP, FOSTPLUS and others

(3) PET Market in Europe. State of play. Eunomia



PETcore Recycling PET thermoforms WG



Demonstrate recyclability of PET thermoforms.

Maintain and possibly **increase the market share** of PET thermoforms in the European market.

Improve the image of **PET thermoforms as best-in-class** by promoting a value-chain approach by end users (retailers, brand owners, consumers).

Provide **sustainable and reliable end of life options** for PET thermoforms.

TF1.Sorting & Recycling: reports about the status of the art in collection, sorting and recycling technologies of PET thermoforms

TF2.Recyclability technical committee of the platform (SC and TC)

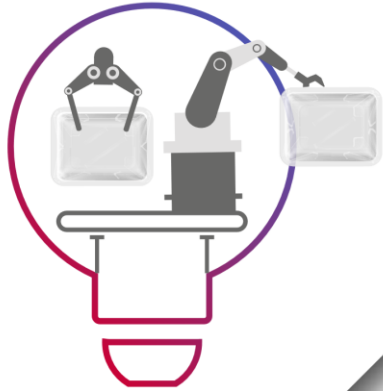
TF3.Demonstrate food contact compliance of rPET from trays: Both Direct contact and functional barrier technologies.

TF4.Other end applications



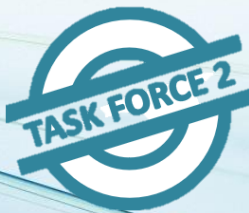
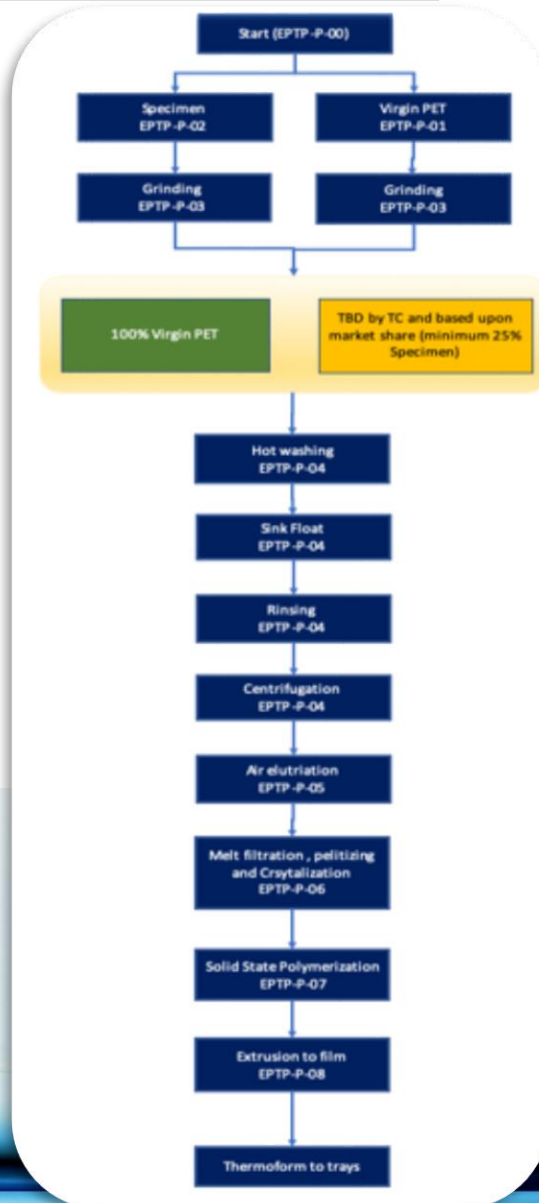
Tray circularity evaluation platform (TCEP)

TCEP Protocol



Driving Force: To drive and promote the circularity in the PET tray value chain, providing to industry design guidelines and package – technology assessments.

- Give support to the value chain of thermoformed PET trays to improve recyclability of thermoforms and strive to circularity.
- Technical experts in the field of PET thermoforms design, production and recycling:
 - Evaluation of existing technologies and innovations
 - Independent and confidential assessment of their impact on the PET recycling processes across Europe.



Send your applications!



TCEP Expert Teams



Steering Committee

Technical Committee

EPRO	Paul East (Recoup) Luca Stramare (EPRO)	Vincent Colard (CITEO) Luca Stramare (EPRO) Helene Legrand (Valorplast)
PETCORE	Christian Crepet Raphaël Jaumotte	Raphaël Jaumotte Argiris Dabanlis
Brand owners	Rafael Graterol (Lactalis)	Rafael Graterol (Lactalis) Mateusz Adamiuk (Danone)
Manufacturers	Nicolas Lorenz (Paccor) Ana Fernández (kp) Mark Dawes (Dupont Teijin)	David Constant (Paccor) Samuel Pardo (kp) Matthias Mazurelle (TPL)
Recyclers	Herbert Snell (Veolia) Paolo Glerean (Aliplast)	Fabrizio Di Gregorio (PRE) Willem Christiaans (Wellman)

Steering Committee

- Sets the Vision and the Mission
- Adjusts the structure and assessment procedure of the TCEP
- Defines priorities of the Platform (strategic level);
- Reviews and validate the recommendations of the Technical Committee;
- Approves the external communication.

Technical Committee

- Assesses the impact on recyclability of new PET thermoforms concepts
- Creates, recommends and publishes harmonized European guidelines for PET tray recyclability and develops testing protocols
- Issues technical opinions following a review of and summarizing the test results, conclusions and recommendations (incl. communication)
- Manages the communication with the Applicant

Send your applications!



Tray circularity evaluation platform (TCEP)

What's been done:

- Develop and continuously evolve Design guidelines: https://www.petcore-europe.org/images/evaluation-platform-test-procedures/dfrguidelines_final_version.pdf
- Develop the Recycling testing protocol and related Quick Tests: <https://www.petcore-europe.org/recyclability-evaluation-platforms/395-evaluation-platform-test-procedures.html>
- Set up the evaluation application procedure: <https://www.petcore-europe.org/recyclability-evaluation-platforms.htm>
- Authorize laboratories for testing applications based on the testing protocols
- Test several innovative proposals by the applicants related to recyclability compatibility,
- Develop a LinkedIn TCEP webpage:

Next deliverables - considerations:

- Define design guidelines for Coloured and Multilayer (end of Q2 2022)
- Evaluation of lidding film impact (both floatable and non floatable options)
- Validate alternative laboratories

Send your applications!



Version: Jan 2020

	YES	CONDITIONAL	NO	ASSESSING PROTOCOLS
	<p>Full compatibility – materials that passed the testing protocols with no negative impact</p> <p>OR</p> <p>materials that have not been tested (yet), but pose a low risk of interfering with PET recycling</p>	<p>Partial compatibility – materials that passed the testing protocols if certain conditions are met</p> <p>OR</p> <p>materials that have not been tested (yet), but pose a low risk of interfering with PET recycling</p>	<p>Low compatibility – materials that failed the testing protocols</p> <p>OR</p> <p>materials that have not been tested (yet), but pose a high risk of interfering with PET recycling</p>	<p>All packaging should be tested according to the Petcore Europe Guidelines and PET Trays Recycling protocol, evaluated by RECYCLASS.</p>
Testing	PET		PA, PVC, PS, PETG, Other opaque and color material; any PET based multi layer material (PETPE, PET/PETG), Expanded PET	
Colors	transparent clear; transparent light blue		Metals	
Barriers	None; PET based oxygen barriers or scavenger with no influence effects after EFBP oven test.	PET based oxygen barriers or scavenger with limited influence effects after EFBP oven test.	EVOL, PA, any other barrier; any other oxygen scavenger	EFBP oven test
Adhesives	Adhesive surface coating (in coating area); Anti-blocking masterbatch. None of them should affect clarity	any other additive (UV stabilizers; AA blockers; optical brighteners; anti-fogging; anti-couling agent) with limited effect on clarity to be measured	UV/UVI/Photodegradable additives; Nanocomposites	
PRINTED Lidding films - Closure systems (in glue not harming the recycling process)	PET, OR floating combination of plastics with density < 0.95 g/cm3, NO glue residuals; if no PET, no lidding film residual on the tray. SdOs, MsdOs plasma for barrier.		any other printing film with density > 1 g/cm3 (to be proven with sink/float test)	EFBP sink/float test, EFBP glue removal test, EFBP oven test
NTSD Lidding films - Closure systems (with or not harming the recycling process)	NO PRINTING PROHIBITED: OR plastics/combination of floating plastics with density < 0.95 g/cm3, NO glue residuals; foamed PET based films where foamed structure is not getting destroyed @ 90°C; if no PET, no lidding film residual on the tray. SdOs and MsdOs plasma for barrier.		any other film	EFBP sink/float test, EFBP glue removal test, EFBP oven test
Labels (with adhesive not harming the recycling process - see labels adhesive test)	NO LABEL PROHIBITED: Plastic labels where label has a density < 1.2 g/cm3 in the more heavily printed and adhesive area	BPA free Paper labels not losing fibers (pulling) and floating	Plastic labels where label has a density > 1.2 g/cm3 in the more heavily printed and adhesive area - Paper labels losing fibers (pulling) - Paper containing BPA - non floating paper labels	EFBP sink/float test
Labels Adhesive	adhesives with 100% removing rate and no adhesive residuals on flasks @ 70°C testing temperature	adhesives with 100% removing rate and no adhesive residuals on flasks @ 85°C testing temperature	all other adhesives	Petcore Europe - PET thermoforms WG - adhesive removal on trays protocol
Resins or parts different than lidding in end labels	Water or alcohol soluble in 60-80°C		any other adhesive	EFBP glue removal test
Labels Printing	Non toxic, follow GMPA Guidelines		Inks that bleed; toxic or hazardous inks	
Labels Printing	Laser marked for traceability (production or expiry date)		Any other direct printing	
Labels Components	NO other components PROHIBITED	Inserts in HDPE / LDPE / PP, rubber pads, bubble pads and paper & cardboard - all inserts should be completely removable and leave no trace	PVC / PS / EPS / PU / PA, (Polym); PC / PMMA Thermoform plastics / metals; non compliant color pad	



Food contact compliance

Demonstrate Food contact compliance



Draft recast of EC 282/2008

Suitable technologies for Direct contact “ The input of all the processes is hot caustic washed and dried PET flakes originating from collected post-consumer PET containers, **mainly bottles and trays**, containing no more than 5% of PET from non-food consumer applications”.*

Functional barrier considered a novel technology

Dossier demonstrating capability /safety of FB has to be sent to EFSA 6 months after new regulation enters into force.

Cooperation Agreement between PET SHEET EUROPE and PETCORE EUROPE

SCOPE: creating an entity that will work as association umbrella to comply with the assessment requirements in the incoming food-contact regulation for the functional barrier technology on PET sheet applications.

Should you want to join
Contact us!!



*RECYC031, RECYC032, RECYC045, RECYC046, RECYC048, RECYC049, RECYC059, RECYC077, RECYC100 , RECYC103 among others



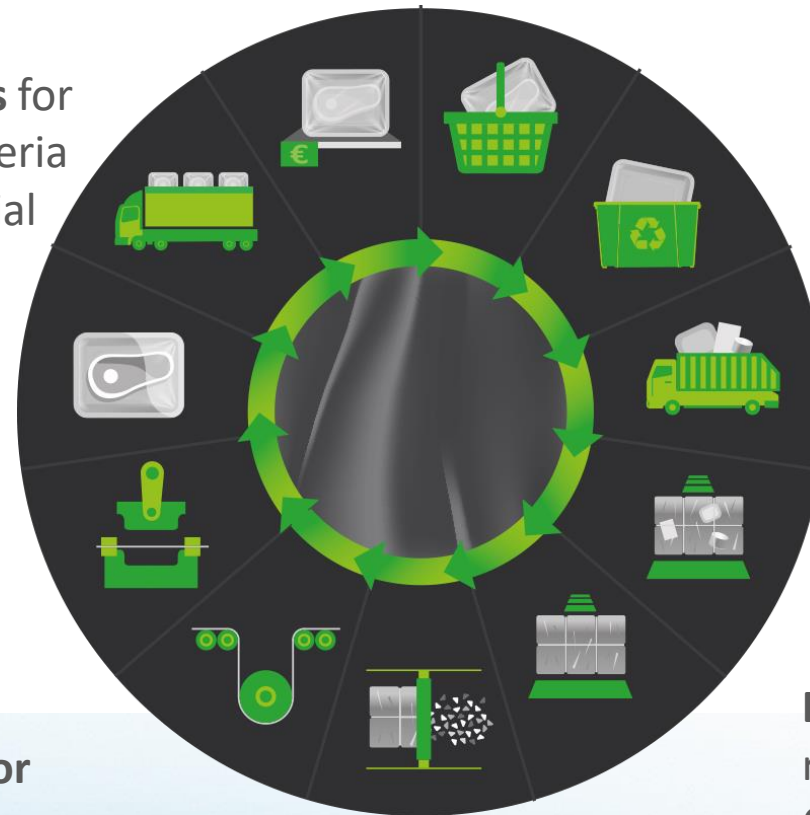
Roadmap to Circularity

Ecomodulation offering **incentives** for products meeting recyclability criteria and incorporating recycled material

Packers & Retailers have to ask for **closing the loop** by using PCR from thermoforms.

Converters have to set **targets** around PCR from trays

Complete pack **designed for sorting and mechanical / chemical recycling.**



Recyclers have to adapt process to PTTs recycling requirements.

Final consumer has to be **educated** to understand the value of waste and **collaborate**

Sorting must be **improved**. **Watermarks** or other **identification** alternatives must be implemented.

Separate collection or post-selection: Food/non-food, Mono/multi, Colors

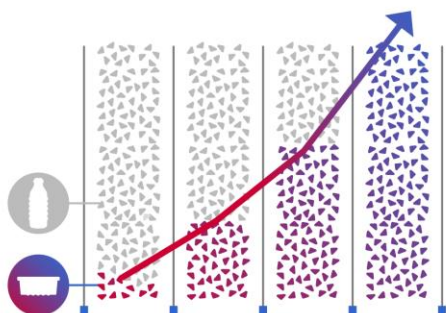
Bales specifications must facilitate PTTs recycling. Standardization / Transparency Chain of custody

Major challenge: ability for collection and sorting systems to capture enough pc PET trays of consistent quality



On going projects

RPET from PTTs availability



- Several dedicated Tray to Tray recycling industrial projects across Europe*
- Expected PET tray recycling capacity around 100ktpa
- 10% of commercialized volume
- Specific T2T recycling capacity has to increase x 4-5 times in Europe for trays to be considered fully recyclable.



* Based on public information



**Call to action!! We need your contribution.
Join TGW!**

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