PETcore Annual Conference2021

Session 1 "2019 PET Market, Collection & Recycling Rates"

Recycling PET thermoforms working group.

02-03 June 2021

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Agenda

1

Context

2

Working Group

3

Roadmap to success

Why PET thermoforms recycling is a business opportunity

It's more than regulations and policies

There is an **increasing demand** of PCR from bottle industry after **SUP implementation**

Thermoforms, that have been one of the major consumers of rPET bottle flakes, are now looking for **alternative sources of PCR** with the aim of a true close loop

Change in life style requiring more Packaging

Consumers are demanding a change

Major brands respond with 'sustainable packaging pledges'

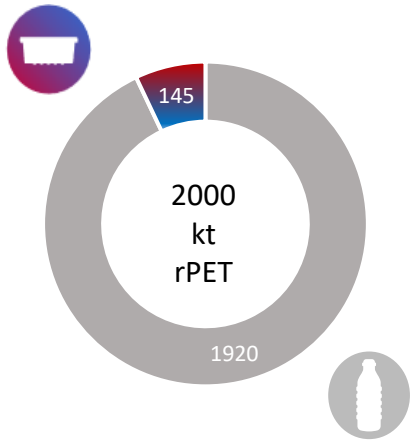
Recycling thermoforms is the final step in closing the already successful PET recycling loop.

Higher PCR recyclate content demand

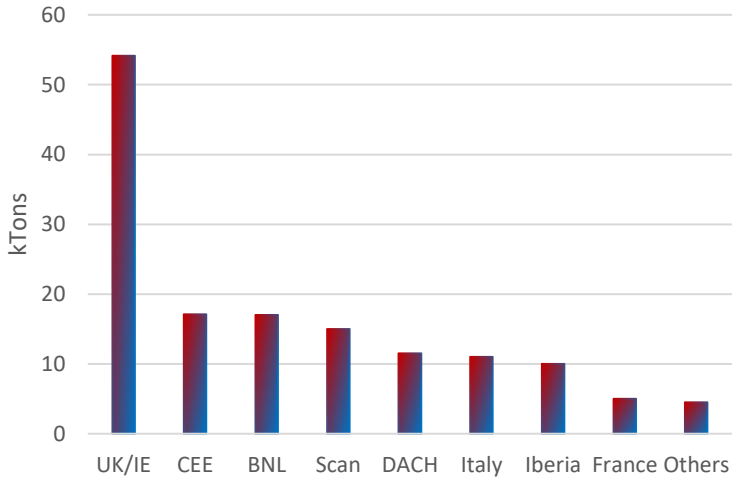
Landscape of PTTs recycling

Out of 1MTons PET sheet consumed inEurope just 15% is collected

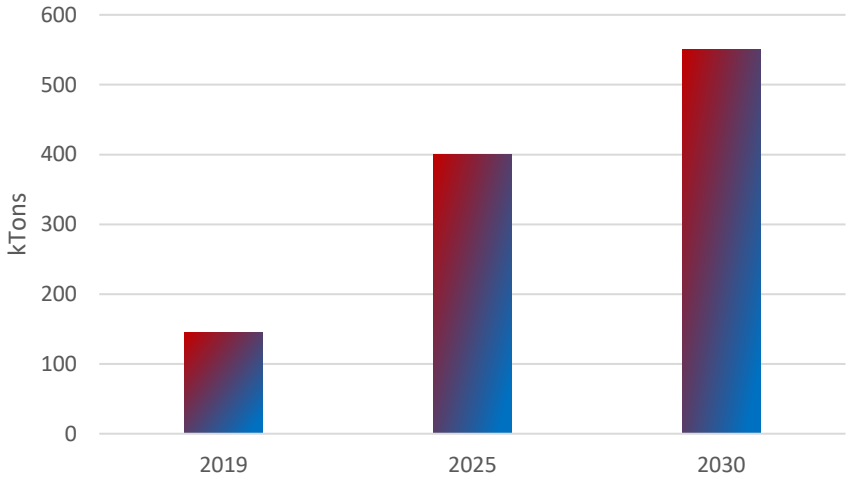
PET products collected & sorted (1)



PTTs collected in Europe (1)



PTTs collected for recycling projection (2)



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

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

The roadmap to success

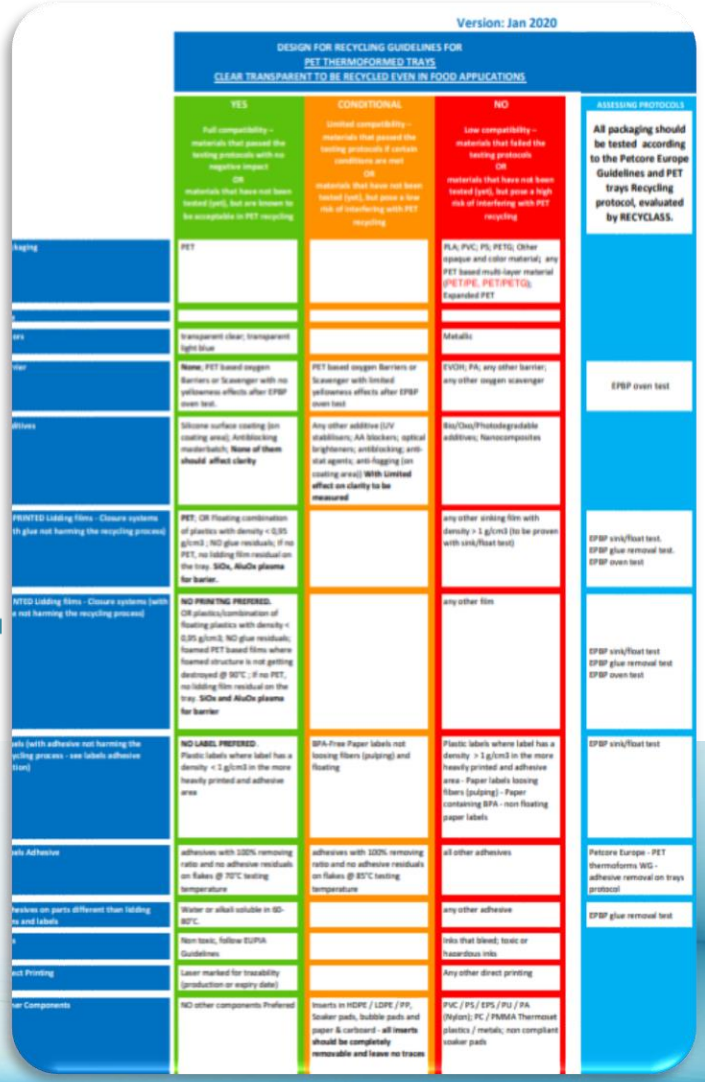
Design for sorting and recycling is the major tool for boosting trays circularity.

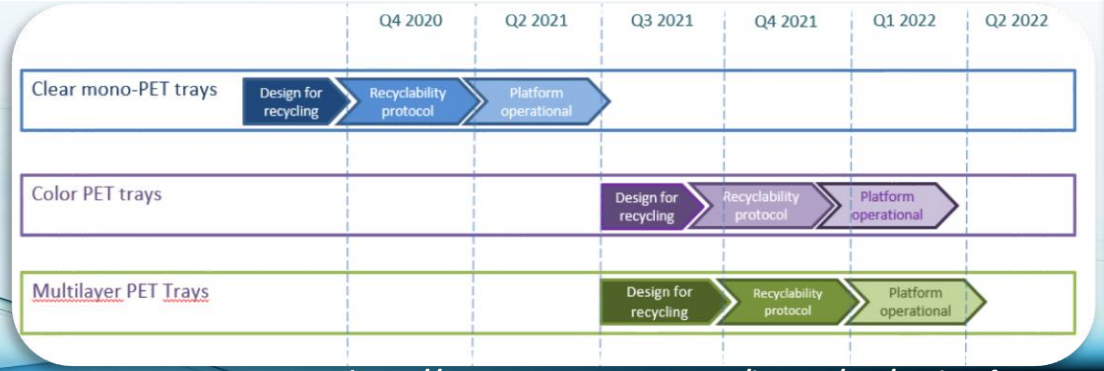
Design for recycling **guidelines** developed given existing recycling technologies but continuously updated by TASK FORCE 1 experts.

Different organizations publishing guidelines have to be **aligned.**

Full pack elements have to be taken in count.

Don't stifling innovation.





https://www.petcore-europe.org/images/pet/Design_for_Recycling_Guidelines_PET_Trays_Clear_Transparent_Jan_2020.pdf

The roadmap to success

Design alone not enough to enhance quality.

Bales specifications must facilitate PTTs recycling.

Sorting must be **improved.**

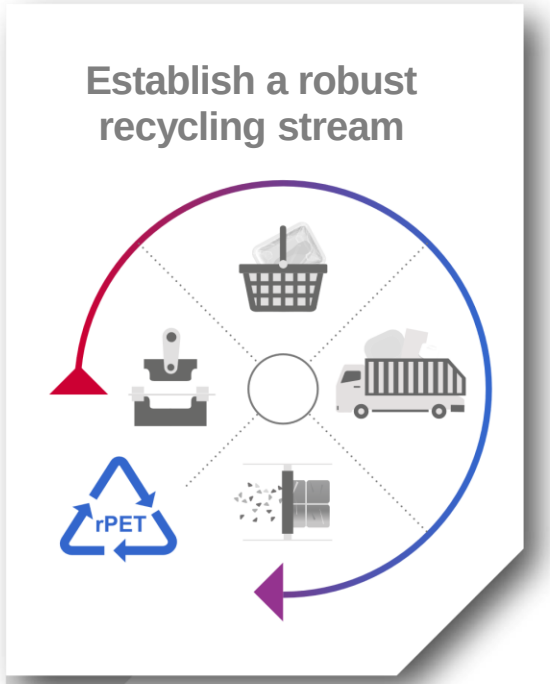
Separate collection or post-selection.

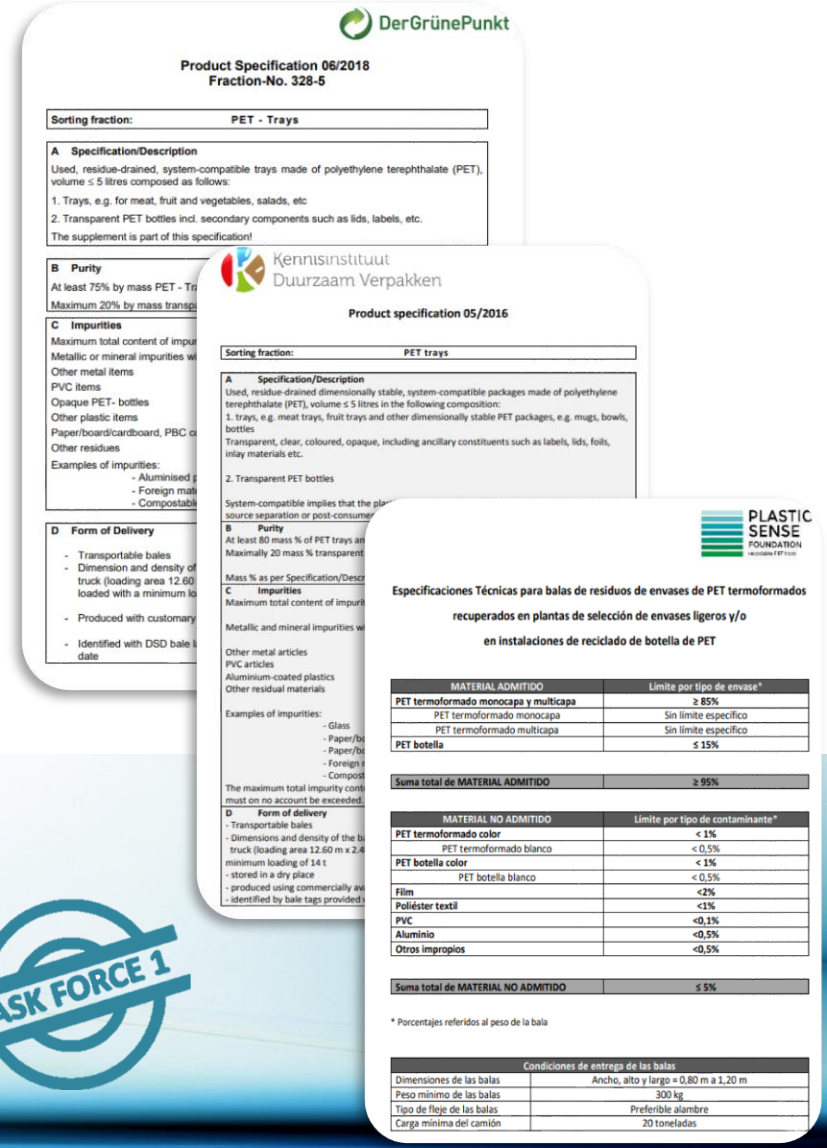
- Food/non-food
- Mono/multi
- Colors

Watermarks or other **identification** alternatives have to be implemented.

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

Major challenge lies in the ability for collection and sorting systems to capture enough pc PET trays of consistent quality going forward

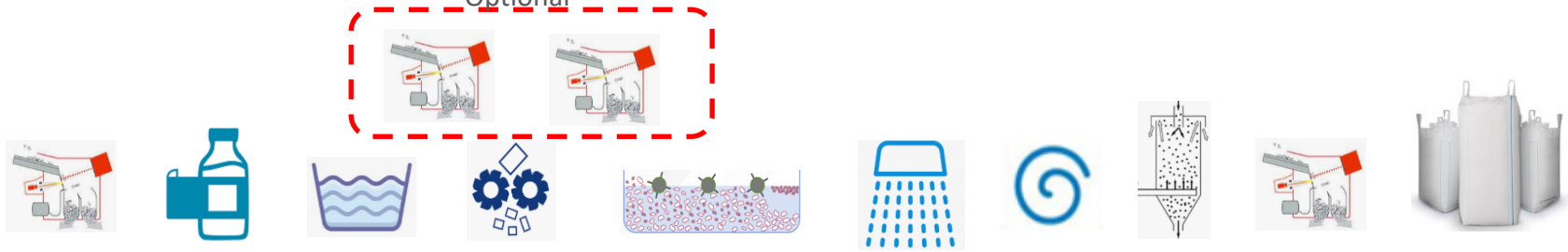




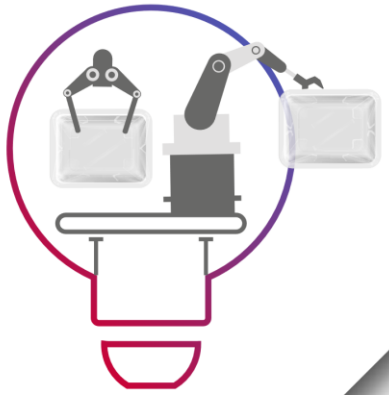
TASK FORCE 1

The roadmap to success

Optional



Innovate to overcome quality and technical challenges



PET Recycling process must be adapted

To ensure that most PET trays sorted for recycling are, in fact, recycled, trays need to be sorted from PET bottles for separate reprocessing in dedicated lines.

The roadmap to success

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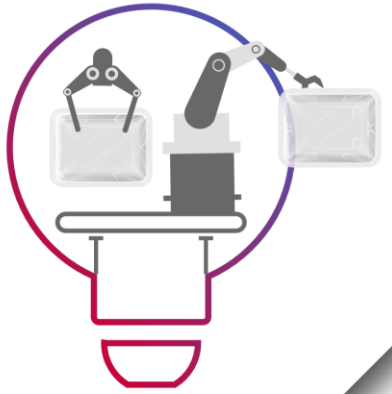

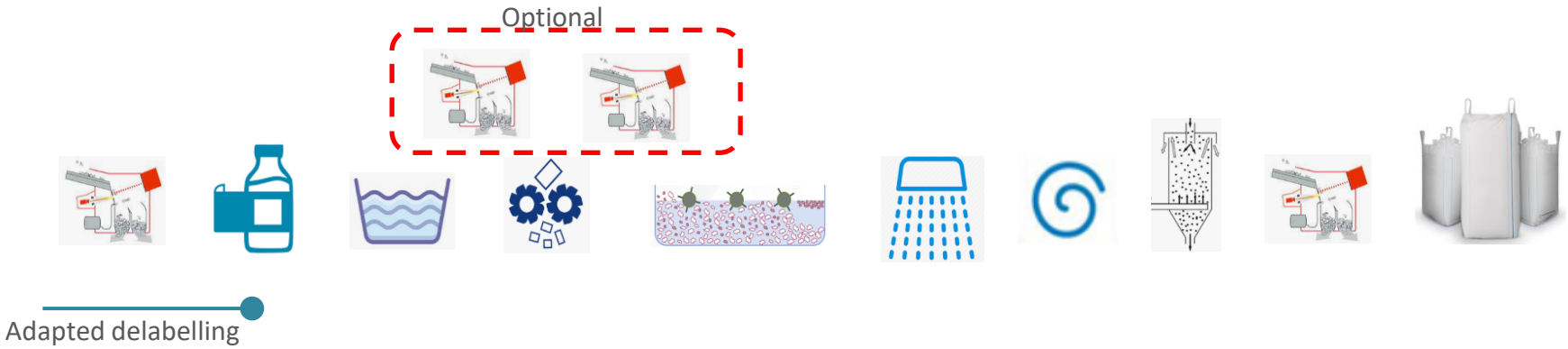

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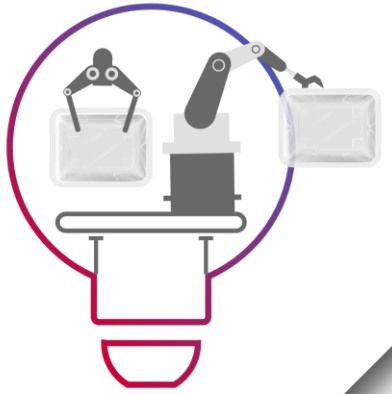

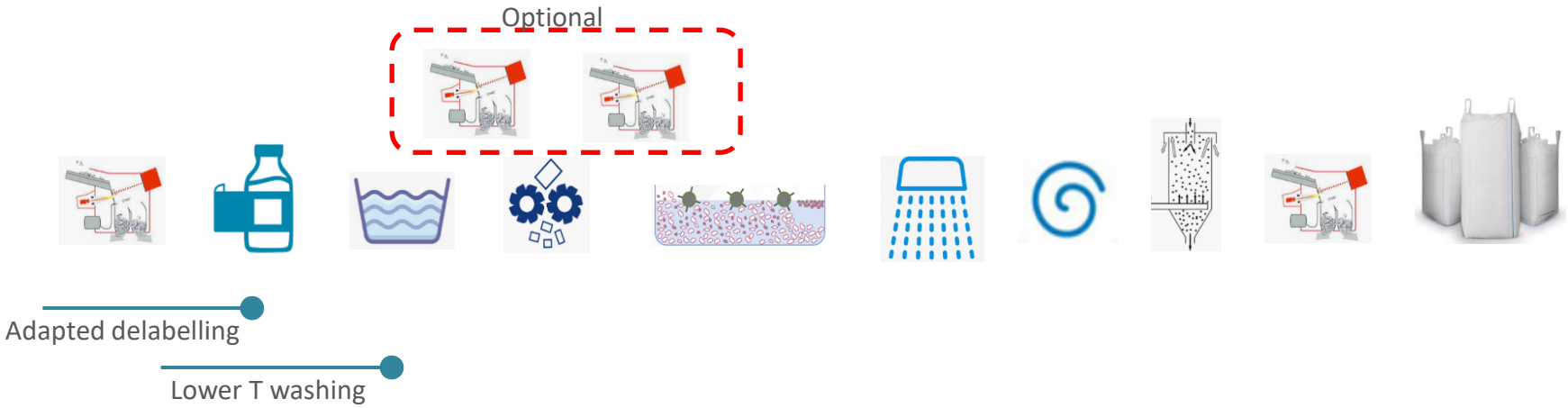

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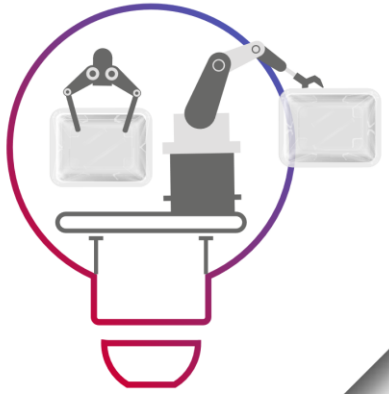

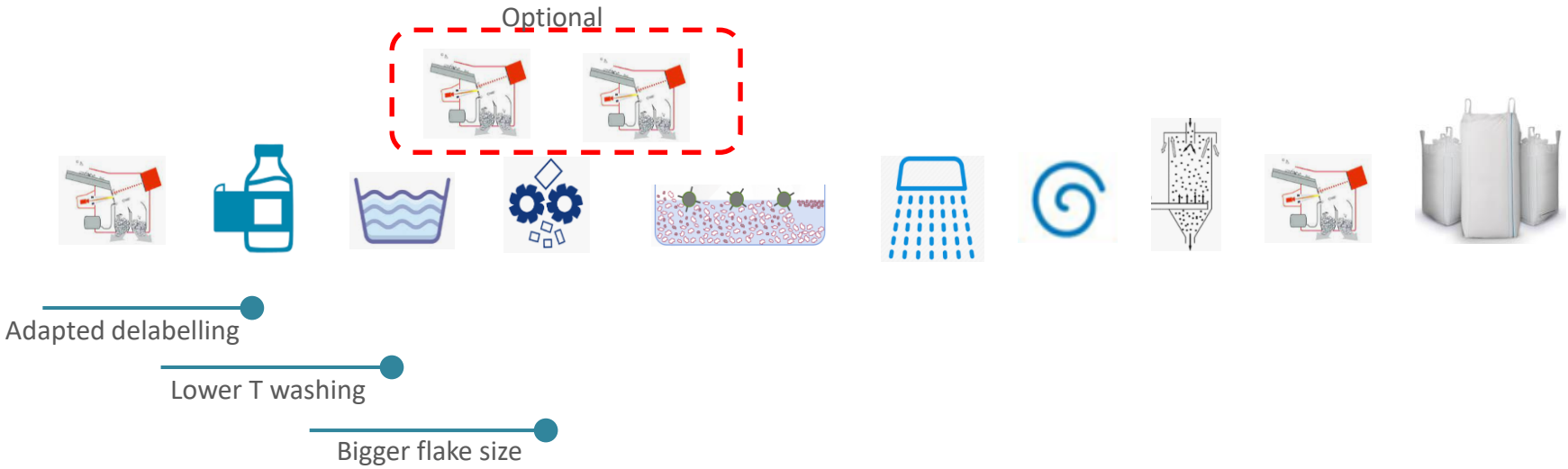

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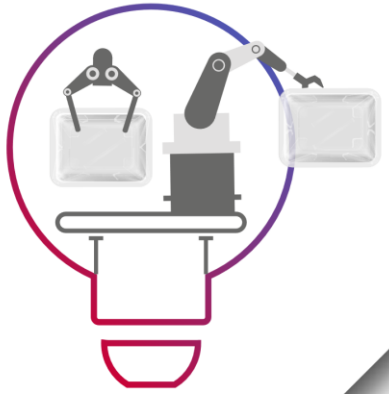

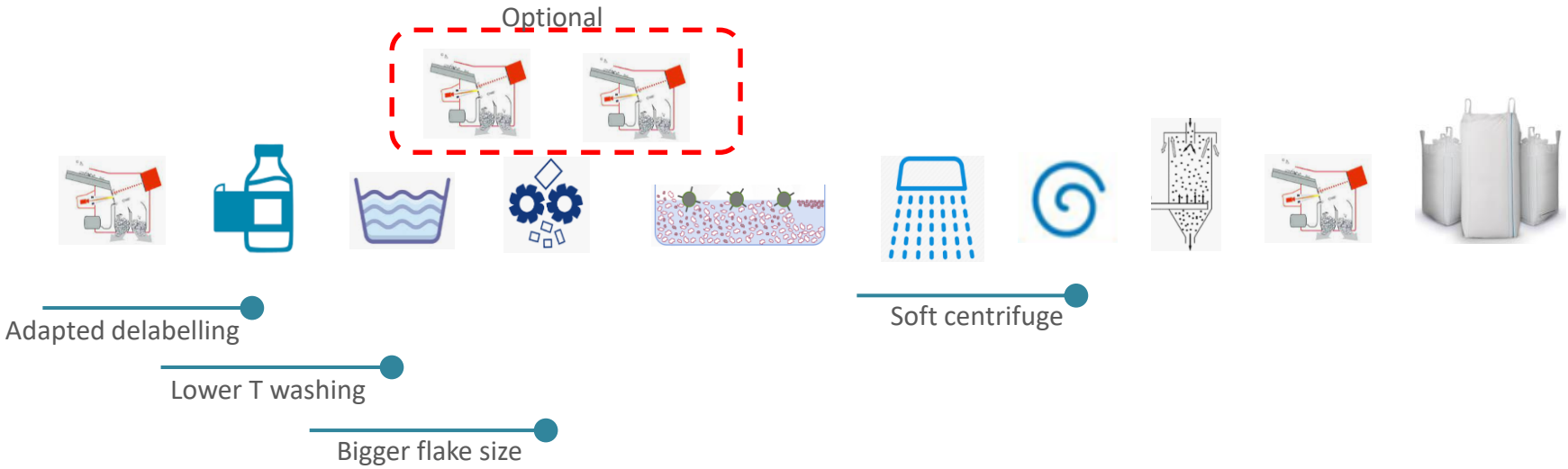

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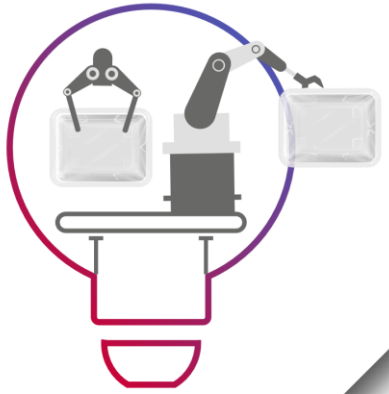

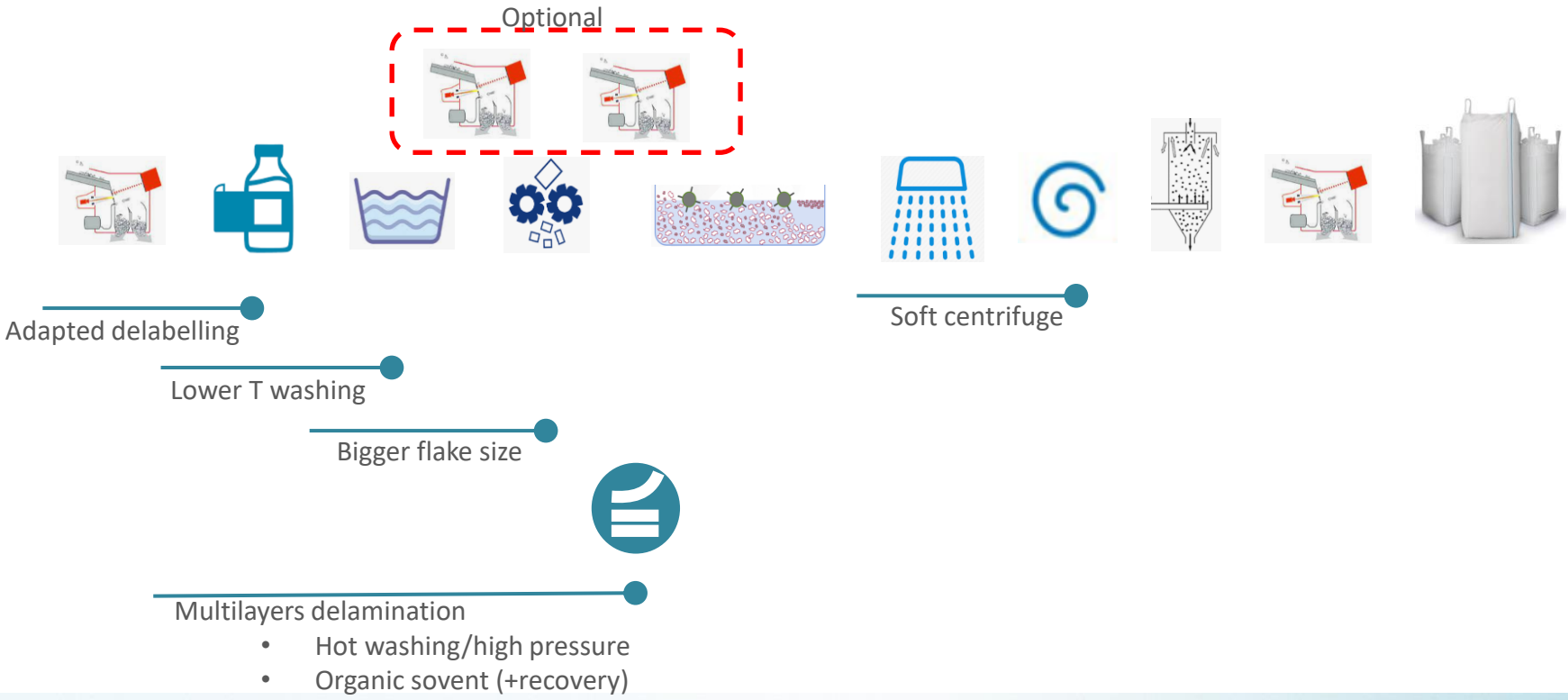

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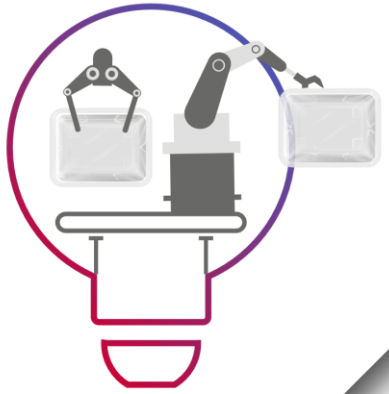
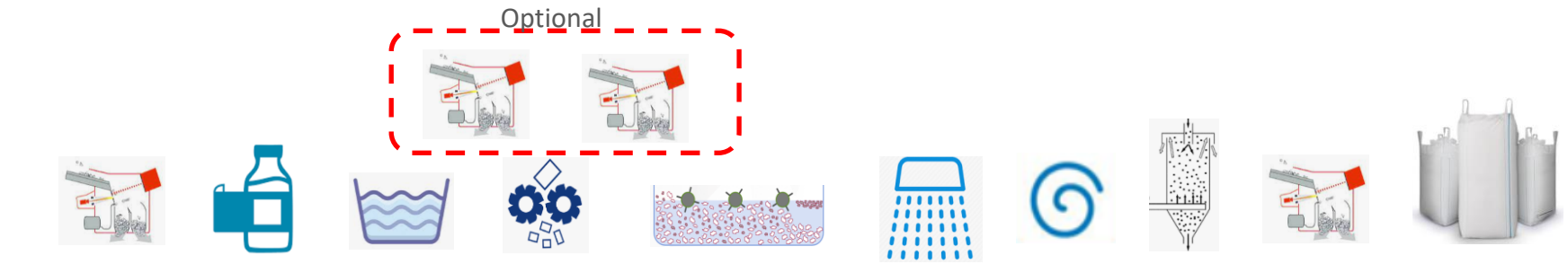




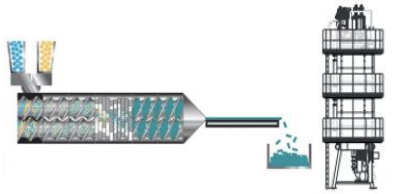
Adapted delabelling

Lower T washing

Bigger flake size

Multilayers delamination
- Hot washing/high pressure
- Organic sovent (+recovery)

Soft centrifuge



Optional Pelletization and IV increase

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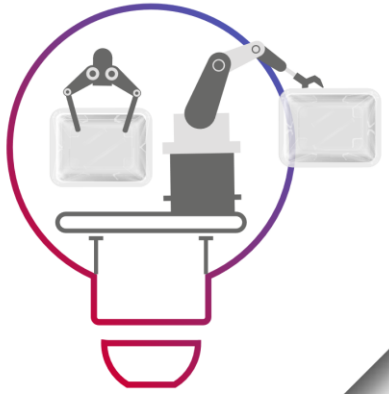

More tan 10.000 Tons of trays recycled using those technologies

Multilayers delamination

Hot washing using high pressure and friction.

Chemically assisted delamination: use of reactants to degrade, dissolve or minimize bonding capabilities to make possible the separation of the different layers.

Thermolaminated, coextruded and laminated with specific adhesives structures can be recycled with these processes.

Delamination allows recyclers to work in a PET mechanical recycling process without pre-sorting (mono/multi) needs.

PET Recycling process must be adapted

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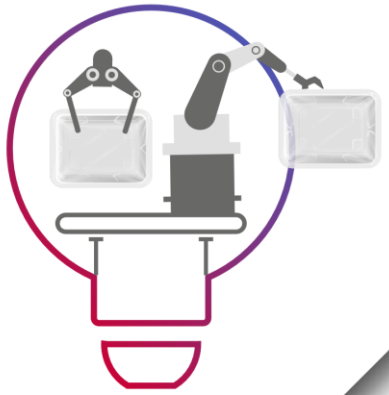
TASK FORCE 1

The roadmap to success

EPTP Protocol



PET trays recyclability evaluation protocol

Evaluation of the impact on recyclability of any **existing product**, **new design** or **innovation**.

To ensure:

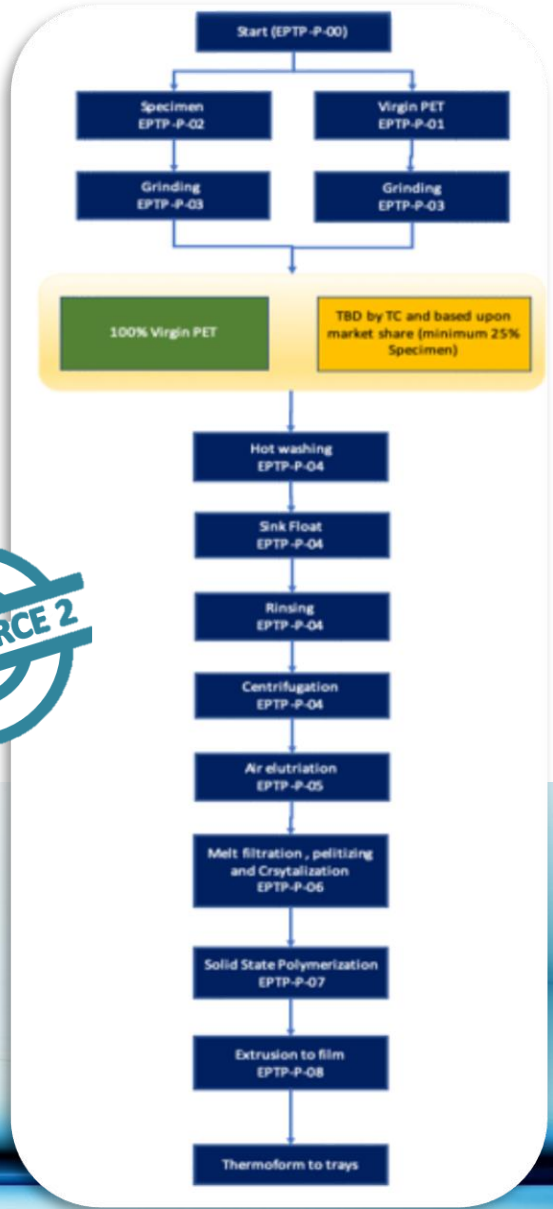
Thermoform **is compatible** with collection, sorting and recycling capabilities installed.

Properties of the new product.

Aligned with recycling guidelines.

Several labs will be homologated across Europe.

Application form and Modus Operandi already available.



TASK FORCE 2

Send your applications!

The roadmap to success

Demonstrate Food contact compliance

FOOD SAFETY

Regulation 282/2008 and **EFSA Criteria** for Safety Evaluation do not distinguish between bottles, trays, sheets, etc. Rather it applies to recycling of food contact materials into new food contact materials

EFSA opinions :

“ 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”.*

DG Santé clarified:

Materials and articles that have been manufactured in accordance with the European Union legislation on food contact materials could theoretically consist of 100% material originating from food trays

Functional barrier contribute to reduce potential risk

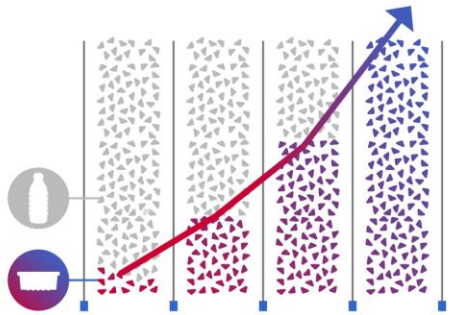
Dedicated **NIAS** risk assessment to manage uncertainty

TASK FORCE 3

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

The roadmap to success

Generate demand of rPET tray flake



Different **tax** and **legislative** initiatives are coming into force to increase recycled content.

EPRs support is basic for **boosting demand.**

Ecomodulation offering **cost 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.

Several projects across Europe looking for incorporation of recycled content from PTTs in food packaging and other products

The roadmap to success

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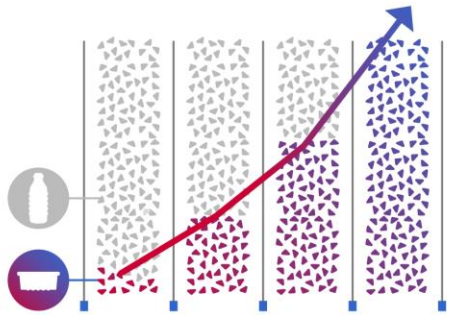

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target is to reach 30% Tray2Tray by 2025

IK Industrievereinigung Kunststoffverpackungen e.V.
PET Trays Working Group of the German Plastic Packaging Industry Association

CITEO
Recyclage PB PET
Wellman, Valorplast, Klockner Pentaplast, Paccor, Guillin, Indorama Ventures, Ioniqa

RePETitio
Erweiterung der PET Circular Economy

ecoembes
PET Trays Recycling
Klöckner Pentaplast, Sulayr, other converters & recyclers

Several projects across Europe looking for incorporation of recycled content from PTTs in food packaging and other products

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

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