

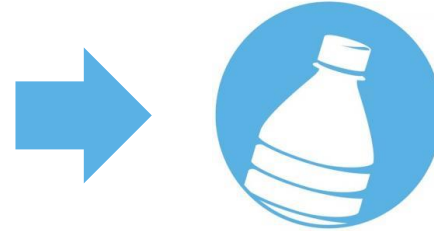


PET Thermoforms Workshop – Webinar Collection, Sorting & Recycling Trials in Belgium

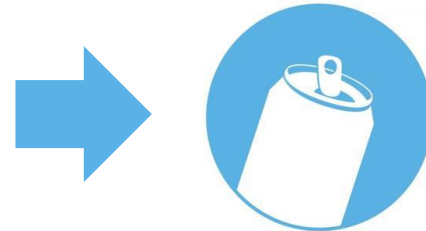
An Vossen
Executive Manager

19 September 2017

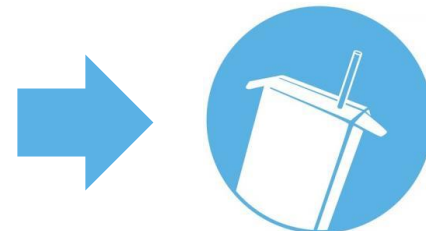
Current collection system



Plastic bottles



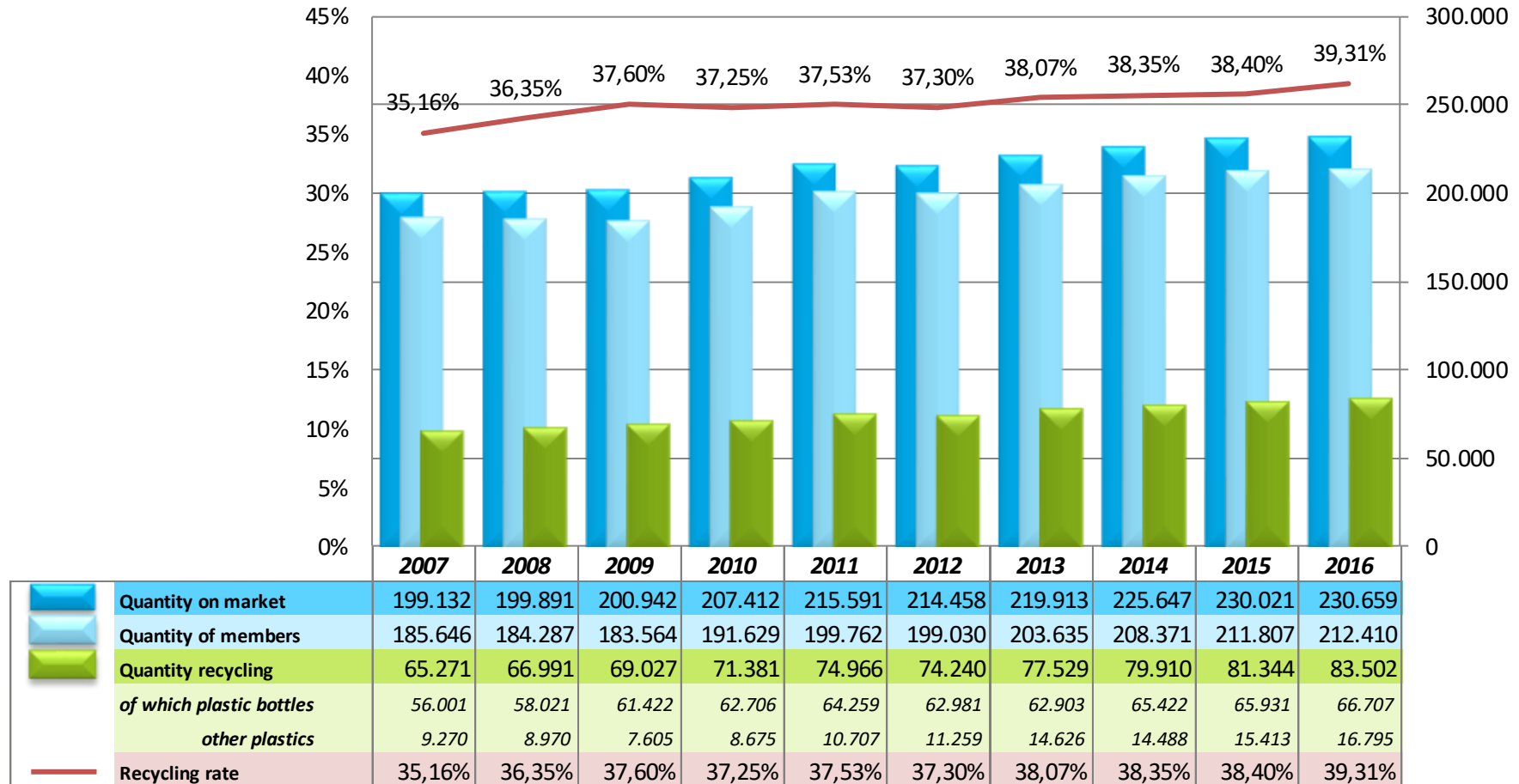
Metal packaging



Drink cartons



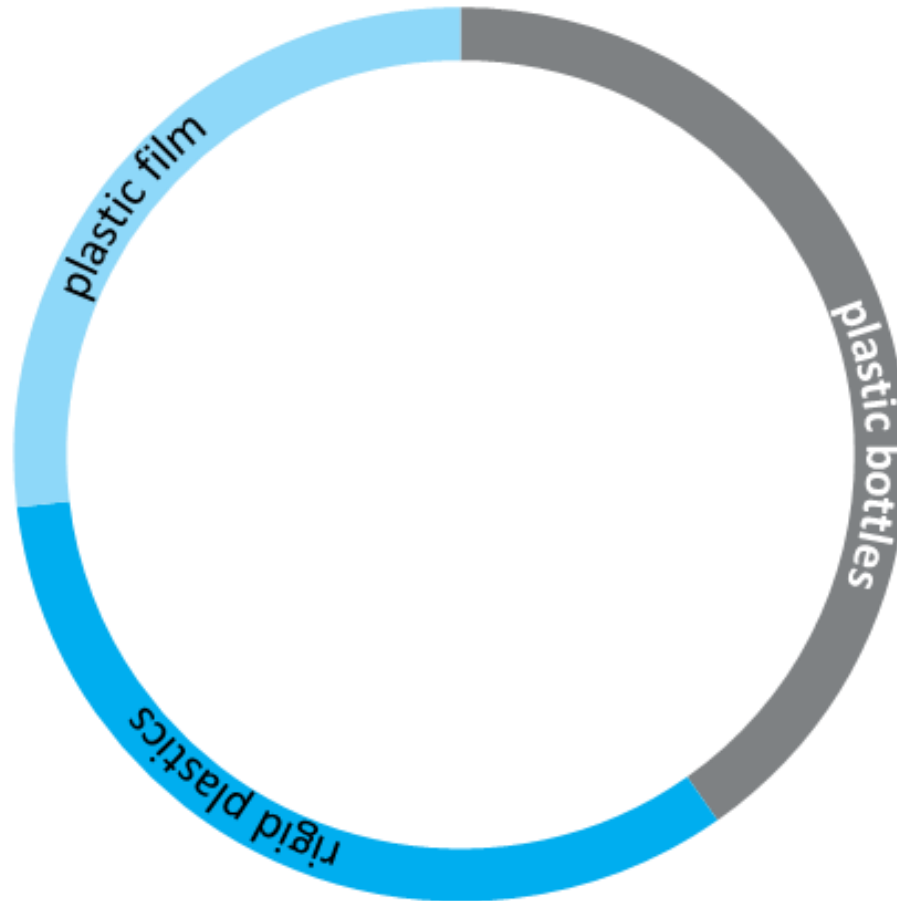
Recycling rate 2007-2016



What about other plastic packaging?



What about other plastic packaging?



Agreement Fost Plus 2014-2018



- Fost Plus must - for at least 0.5% of the Belgian population - establish and finance **pilot projects** approved by the competent Region, having as their object **to test the extension of the P-fraction of the PMD**.
- Each pilot project should be realised within two years after the adoption of the Region.
- Each project must be reviewed at the latest **by the end of 2017**.
 - In case of positive evaluation, the pilot project can be continued.
 - In case of negative evaluation, the pilot project can be stopped.

Pilot projects P+MD

Increased recycling of plastic packaging



Collection scenarios

 <p>PMD</p> <p>C1</p> <p>+ article 8</p>	 <p>C2</p> <p>+ article 8 (EPS and hazardous)</p> <p>All plastic packaging</p>	  <p>C3</p> <p>+ art. 8</p> <p>rigid plastic packaging flexible plastic packaging</p>	 <p>C4</p> <p>+ article 8 (EPS and hazardous)</p> <p>rigid plastic packaging</p>
 <p>C5</p> <p>PMD</p>	 <p>C6</p> <p>All plastics</p>	  <p>C7</p> <p>rigid & flexible plastic packaging</p> <p>PMD container park</p>	  <p>C8</p> <p>flower pots plastic films</p> <p>PMD container park</p>

Communication P+MD

PROJET TEST P+MC Suivez le guide de tri des emballages ménagers
Pas d'emballages embollés les uns dans les autres

Emballages en Plastique	Emballages Métalliques	Cartons à boissons	Interdits
Bouteilles, flacons, barquettes, ravers et pots en plastique - Bouteilles d'eau, jus, lait, ... - Flacons de gel douche, lessive, produits d'entretien, ... - Barquettes et ravers de beurre, fruits, légumes, fromage, charcuterie, ... - Pots de fleurs, glace, yaourt, ...	Films, sacs et sachets en plastique - Films entourant les paquets de boissons, les rouleaux de papier toilette ou essuie-tout, les dépliant publicitaires, ... - Sacs et sachets en plastique ayant contenu des aliments (salade, crudités, sandwichs, pâtes, ...) - Sacs de terreau (bien vidés), granulés pour animaux, ... - Sacs de casse	Canettes et conserves - Aérosols alimentaires et cosmétiques - Couverts et capsules - Barquettes et barquettes en aluminium - Briques de lait, jus de fruit, ... - Briques de soupes, sauces, ... - Berlingots	Interdits - Frigolette alimentaire et non alimentaire - Sachets, pochettes, plaquettes en plastique avec une couche d'aluminium (ex. paquets de chips, café, biscuits, boissons, médicaments, ...) - Sacs, sachets et barquettes biodegradables - Films agricoles, horticulture, films de matériaux de construction, bâches en plastique, ... - Les autres objets en plastique qui ne sont pas des emballages ménagers (ex. jouets, seringues, seringues plastifiées, ventes de pluie, ...) - Les emballages avec bouchon de sécurité enfant (ex. déboucheurs corrosifs, diluants corrosifs pour toilettes) - Les emballages d'insecticides, d'herbicides, d'antimousses, de pesticides, d'huile de moteur, de peintures, laques et vernis - Les emballages avec au moins un des pictogrammes suivants:

A déposer dans votre sac mauve P+MC

Pour faciliter le recyclage:

- Emballages bien ravis, bien essorés et/ou bien vidés
- Pas d'emballage avec une contenance supérieure à 8 L
- Pour le fromage et la charcuterie, séparer le film en plastique de la barquette rigide
- Ajoutez les bouteilles en plastique, remettez le bouchon et gagnez de la place dans le sac P+MC

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U bent hier: Startpagina → Nieuwsverzicht → De paarse P+MD-zak: een stand van zaken

trefwoord

De paarse P+MD-zak: een stand van zaken

Sinds 2016 werd de blauwe PMD-zak vervangen door de paarse variant, met de bedoeling om meer plastic verpakkingen in te zamelen. Sindsdien is er al 337 ton P+MD opgehaald (cijfers januari 2017). Het proefproject gaat dan ook verder in 2017!

Afvalbeheerder IVM en de andere Oost-Vlaamse afvalintercommunales willen de paarse P+MD-zak zo snel mogelijk introduceren in alle gemeenten. Het proefproject in Aalter bewijst dat er door de nieuwe zak meer plastic verpakkingen ingezameld worden.

De plastic verpakkingen zorgden voor discussie en ongenoegen bij veel inwoners wanneer bleek dat weer eens een verpakking niet in de blauwe zak thuishoort, ook al gaat het om een plastic verpakking die naar aard en samenstelling niet verschilt van de toegelaten plastic verpakkingen. De P+MD-zak maakt hier komaf mee.

Meer plastic in P+MD-zak

Ook andere soorten plastic verpakkingen mogen via de P+MD-inzameling aangeboden worden: harde plastic (yoghurtpotjes, botervlootjes, bloempotjes en groenteschaaltjes) en ook zachte plastic (folies en zakjes).

Positieve evolutie

Er werden veelbelovende resultaten geboekt met het project:

- verhoogde selectieve inzameling (+ ca. 6 kg/ inwoner)
- vermindering van het restafvalcijfer (- ca. 8 kg/ inwoner)
- minder hinder door afgekeurde zakken

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Frameries: bilan positif pour le projet pilote du sac mauve P+MC

Les premiers enseignements de l'utilisation du sac mauve P+MC dans la commune de Frameries - © Marie-Anne Brilot

À la mi-janvier 2016, les habitants de Frameries expérimentaient un nouveau système de tri sélectif. Choisis pour participer à un projet pilote, les 21 600 habitants de la cité de Bosquétia ont dû se familiariser à l'utilisation de **sacs mauves**, un contenant destiné à recueillir une gamme plus large de déchets (voir les trois clips Fost Plus) que celle prévue pour finir dans les sacs bleus (P+MC).



Laat ons samen meer verpakkingen recycleren
Verlenging van het proefproject P+MD in 2017

Wist u dat deze verpakkingen ook P+MD zijn?

Ensemble, recyclons plus d'emballages
Saviez-vous que ces emballages sont aussi des P+MC ?

PROJET TEST P+MD Plus d'infos sur fostplus.be

Fostplus
HYGEA

HLN NIEUWS REGIO SPORT SHOWBIZZ NINA MEER HLN

Ruim 90 procent van deelnemers proefproject tevreden met paarse PMD-zak

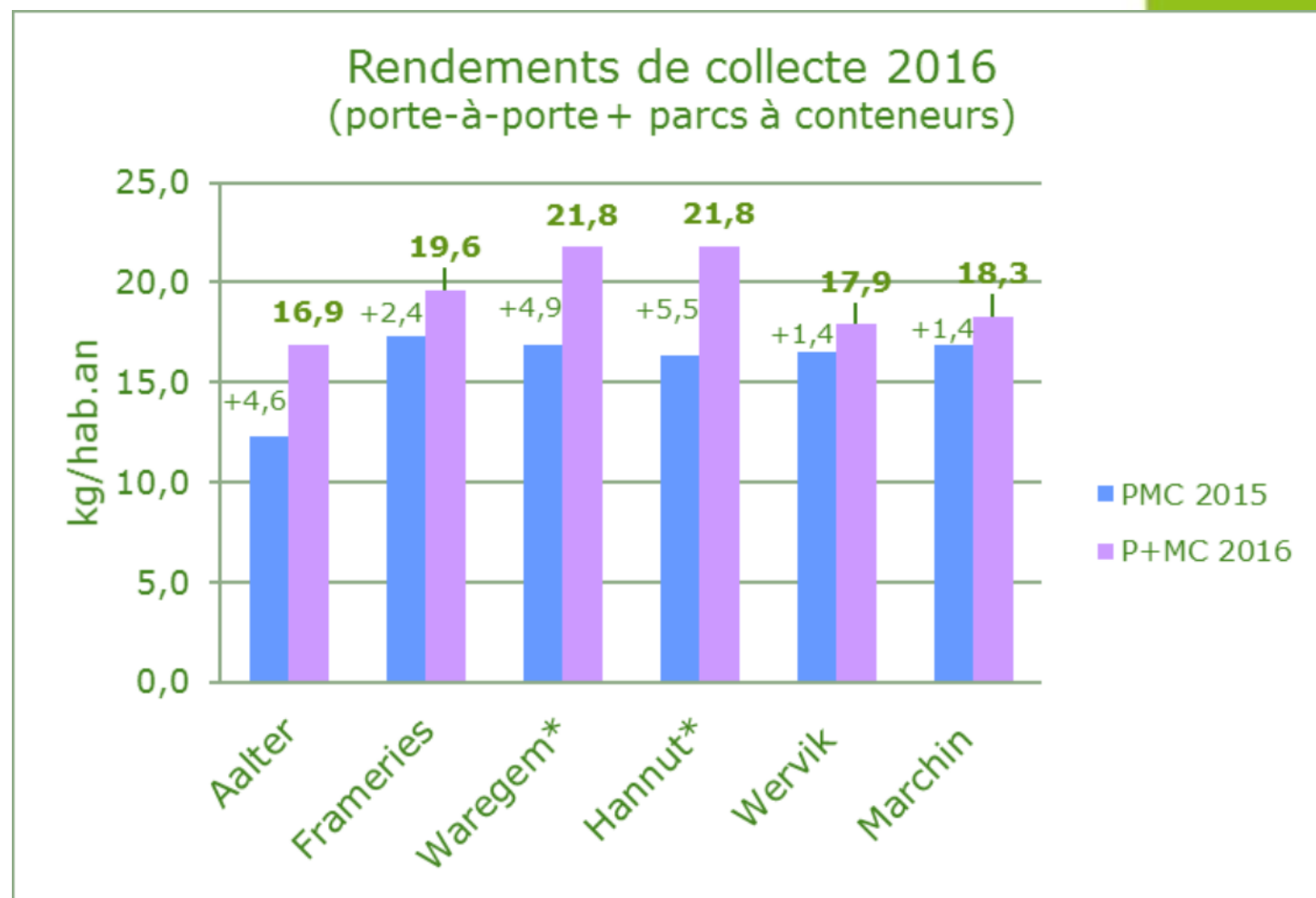
Uit een eerste conclusie van een consumentenstudie bij de deelnemers van het proefproject met de paarse PMD-zak, blijkt een overwegend positieve houding. Maar liefst 92 procent verklaart het scenario van de verruimde inzameling te waarderen, tegenover 86 procent bij het begin. Dat zegt Fost Plus, de vzw die instaat voor de inzameling en recyclage van huishoudelijk verpakkingsafval.

P+MD collection

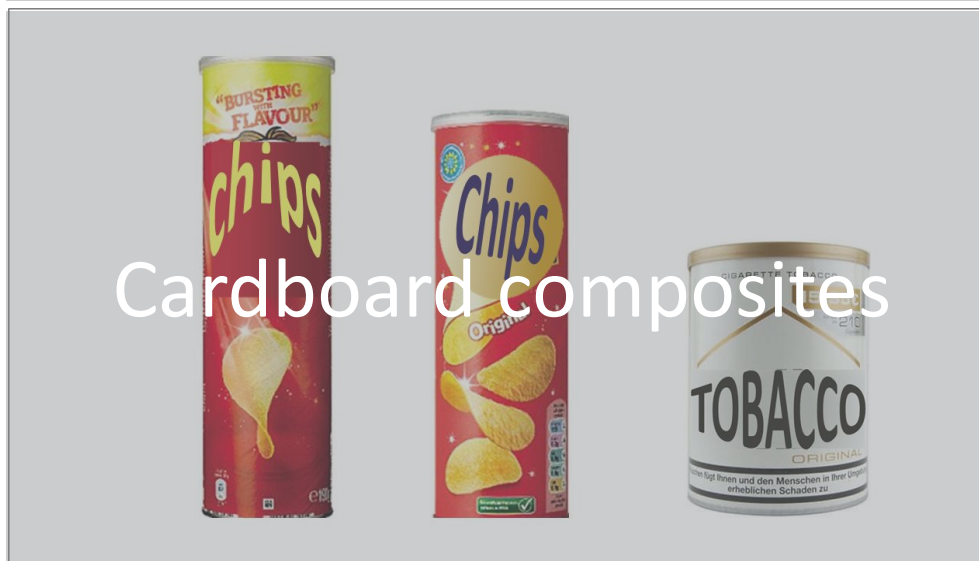


Pilot projects P+MD – Collection

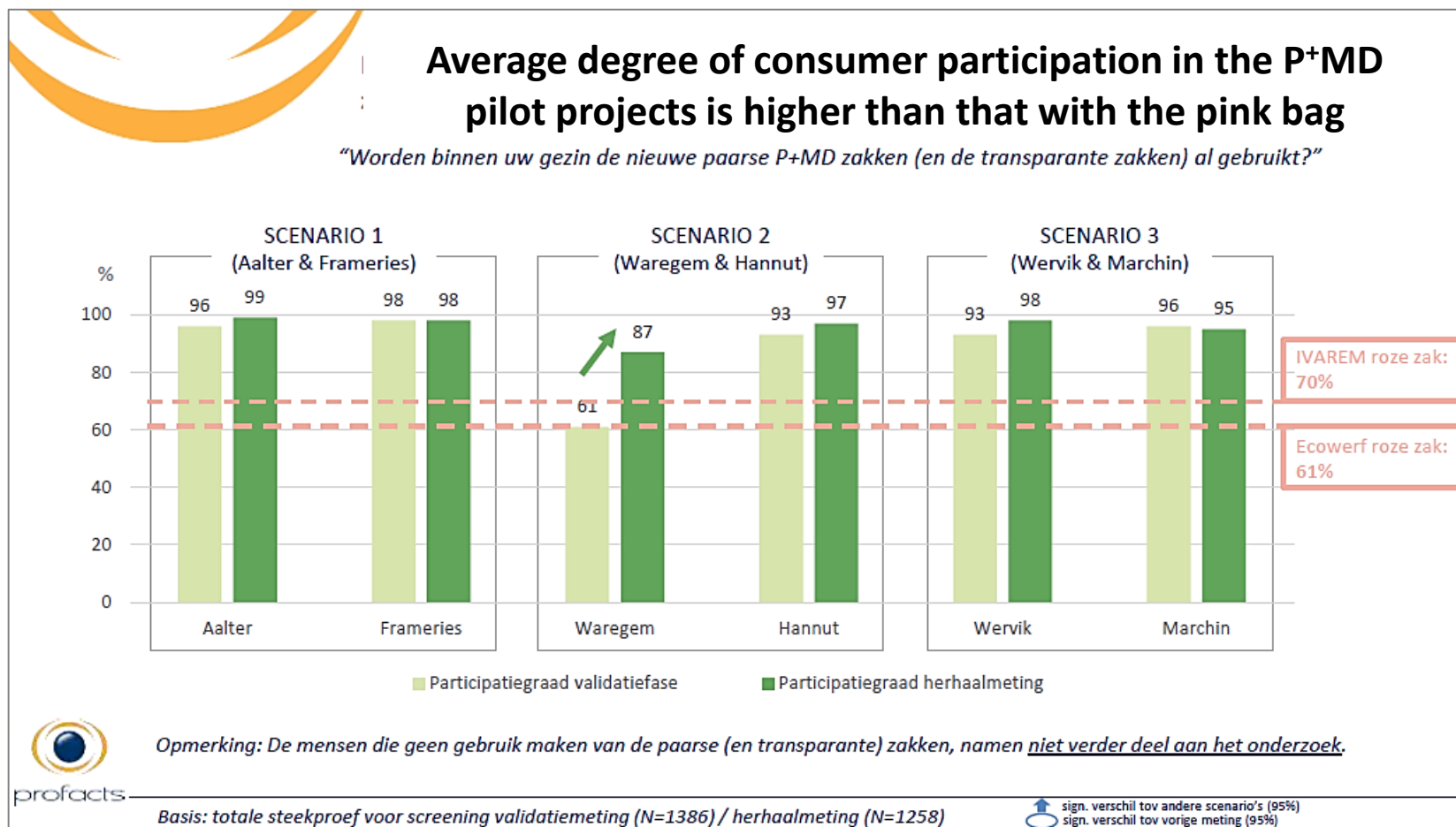
- Estimations:
65% capture rate or
+4,0 kg/inh. for rigids and
+7,5 kg/inh. for all plastics
- Results based on our experience in 2016:
+3,5 kg/inh. for S1 (30% capt.)
+5,2 kg/inh. for S2 (45% capt.)
+1,4 kg/inh. for S3 (23% capt.)



Pilot projects P+MD – Collected ‘mistakes’



P+MD collection



P+MD collection

- **A unique sorting message for the entire country.**
 - Simplify communication
 - Less sorting errors
 - Provides significant economies of scale for sorting
 - Simplifies follow-up and control
 - More efficient OOH collection
- **Transition period with a mix of different scenarios.**
- **Conclusions study:**
 - One bag solution, especially in metropolitan areas
 - Opt for scenario with both rigid & flexible plastic packaging
 - Continue with kerbside collection
 - Discontinue collection through container parks
- **Potential extension to non-packaging collection.**

P+MD sorting



Pilot projects P+MD – Sorting

Current PMD

PET bottles and flasks (clear tr.)
PET bottles and flasks (blue tr.)
PET bottles and flasks (green tr.)
HDPE bottles and flasks
Steel packaging
Aluminium packaging
Drink cartons
Bags
Residue

Pilot projects P+MD

PET packaging (clear & l. blue tr.)
PET packaging (mixed tr. colours)
HDPE packaging
NEW: PP packaging
NEW: PS packaging
NEW: Plastic film (scen. 1 only)
Steel packaging
Aluminium packaging
Drink cartons
<i>Bags (scenario 2 and 3 only)</i>
Residue

PET trays are sorted
together with PET bottles

Short-term P+MD sorting

PET bottles and flasks (clear tr.)
PET bottles and flasks (blue tr.)
PET bottles and flasks (other tr.)
HDPE packaging
PP packaging
PS packaging
NEW: Mixed plastics (hard)
NEW: Mixed plastics (flexibles)
Plastic film & bags
Steel packaging
Aluminium packaging
Drink cartons
Residue

PET trays are not sorted
(in 'mixed' and 'residue')

Long-term P+MD sorting

PET bottles and flasks (clear tr.)
PET bottles and flasks (blue tr.)
PET bottles and flasks (other tr.)
PET bottles and flasks (opaque)
HDPE packaging
PP packaging
PS packaging
NEW: PET trays (clear tr.)
NEW: Black plastic packaging
Mixed plastics (hard)
Mixed plastics (flexibles)
Plastic film & bags
Steel packaging
Aluminium packaging
Drink cartons
Residue

Pilot projects P+MD – PET specifications

PET packaging
clear and light blue



PET bottles and flasks



PET trays, punnets, pots and lids



Not accepted



Other transparent or opaque colours PET



PET trays with lidding film, aluminium or cardboard



Flexible PET packaging



Jammed packaging



Pilot projects P+MD – Sorted PET packaging



Pilot projects P+MD – Sorted PET packaging

	SC 2 Aalter (1) Wervik (3)	SC 3 Hannut (2) Marchin (3)	SC 4 Waregem (2)	SC 1 Frameries (1)
• monolayer PET trays	5,791%	2,813%	7,042%	3,154%
• multilayer PET trays	0,477%	0,696%	1,990%	0,887%
• other transparent colours	0,035%	0,749%	0,000%	no colour sorting
• opaque colours	0,051%	0,097%	0,000%	0,636%
• glass, stones	0,000%	0,000%	0,000%	0,000%
• metals	0,077%	0,241%	0,020%	0,061%
• paper & cardboard	0,026%	0,000%	0,000%	0,021%
• drink cartons	0,019%	0,125%	0,000%	0,035%
• PE and PP packaging	0,000%	0,856%	0,042%	0,123%
• other non-polyolefin packaging	0,031%	0,165%	0,072%	0,126%
• plastic films	0,076%	0,018%	0,000%	0,396%
• other plastic objects (non-packaging)	0,026%	0,015%	0,000%	0,000%
• others	0,010%	0,769%	0,013%	0,205%

purely indicative

P+MD sorting

- **Investment in new sorting plants required.**
 - Known composition input, but evolving over time
 - High throughput
 - Flexibility in sorting
 - Long term contracts
 - Reduce the number of sorting plants
 - PET trays as a separate fraction !!!
- **Impact on transfer and temporary storage in transfer stations.**
- **Conclusions study:**
 - Maximum economies of scale
 - Medium-size sorting plants (ca. 50 kT/a)
- **Evolutions in thermoforming PET tray recycling may have an important impact on the way we sort PET, either as a separate stream, or in combination with the PET bottles.**

P+MD recycling



Recycling PET thermoforming trays

- What are PET trays?



Recycling PET thermoforming trays



Recycling PET thermoforming trays



ECO-EMBALLAGES | PLAN DE REL

> Actualités > Etude sur la recyclabilité des barquettes 100% PET

[< RETOUR](#)

ETUDE SUR LA RECYCLABILITÉ DES BARQUETTES 100% PET

25 juin 2015

Des barquettes recyclables dans le flux actuel PET clair, dans une limite de 20%

Lors de cette étude, les caractéristiques techniques de la matière recyclée ont été évaluées pour une régénération en plaques et en bouteilles, cette seconde application mettant en jeu des contraintes qualité particulièrement importantes. Les résultats de cette étude montrent en particulier qu'à 20% d'incorporation de barquettes mono-PET dans le flux actuel PET clair, les deux types de produits obtenus, plaques et bouteilles, présentent les propriétés mécaniques attendues ainsi qu'une couleur identique à celle du produit de référence. En conclusion, l'introduction de barquettes transparentes 100%-PET dans le flux PET clair ne génère pas d'impact sur le recyclage de ce flux.



Final report


Developing End Markets For PET Pots, Tubs and Trays



A project to identify and trays (PTT) rPET in these ap

Project code: 2014-01-01
Research date: February 2014

PET trays existential dilemma



Tuesday, May 13, 2014 - 10:37

In the last few years there has been a significant increase in the use of PET trays by the packaging industry. Unfortunately, this increase has not been adequately addressed in the end-of-life solutions for these trays. As a result of poor end-of-life thinking, most of these trays cannot be easily recycled.

None of the current recycling streams want to have PET trays in their incoming waste. PET recyclers cannot handle them because of their different composition (multi-layers, multi-material combinations etc.) when compared to beverage bottles. Mixed plastics recyclers do not want them because of their incompatibility with polyolefins.

This is a painful situation as the 700,000 tonnes of PET trays yearly put on the market should be a



PET-trays: op weg naar structurele oplossingen

Verkenning

Kennisinstituut Duurzaam Verpakken
6 oktober 2014

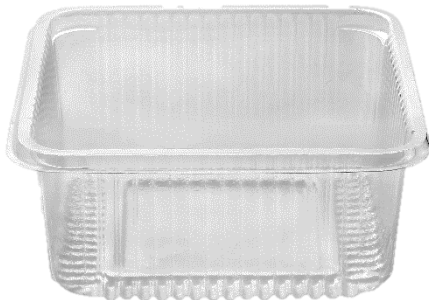
Recycling PET thermoforming trays



3,2 million
tonnes



Option 1
Bottles & trays
Effect? / Limit ?



0,8 million
tonnes

clear, monomaterial PET

coloured / multimaterial PET

Option 2
Trays
seperately
End market ?

Option 3
mixed plastics
or incineration?

Option 4
chemical
recycling ?



Recycling trials on PET thermoforming trays



- Input PET bales (quality 90/10 – monolayer only*)
- Total: 250 ton PET
- 3 recyclers participated in the recycling trials
 - 1 x mixed in with other streams (25% BE)
 - 2 x 100% Belgian material
- Additional test on 100% PET trays (mono & multi)
- Results from other tests:
 - Valorplast (FR) on mixed PET bales
 - WRAP (UK) on PET trays
 - Petcore-Europe on PET trays

* Higher percentages of multilayer PET trays in one sorting plant (no 'multilayer' software on NIR machine).

Recycling trials on PET thermoforming trays



input	<ul style="list-style-type: none">Containing 5-9% PET trays (predominately monolayer)
NIR sorting	<ul style="list-style-type: none">Removing multilayersEfficiency depending on sorting lineHighest efficiency with 2 NIR in sequence (>90%)
grinding	<ul style="list-style-type: none">No effect
washing	<ul style="list-style-type: none">No effect
floatation	<ul style="list-style-type: none">No effect
drying	<ul style="list-style-type: none">More fines (2-4%)
flake sorting	<ul style="list-style-type: none">Small increase (0,1-0,2%)
yield losses	<ul style="list-style-type: none">Higher (4-5%)
quality	<ul style="list-style-type: none">More PVC; above client thresholdOne recycler found semi-crystallised flakesExtruded pellets with lower IV
markets	<ul style="list-style-type: none">Limited to less sensitive marketsCannot be transposed to entire rPET market without additional processing and monitoring


Recycling trials on PET thermoforming trays



- Regulation EC 282/2008 on recycled plastic materials and articles intended to come into contact with foods
- Scientific Opinion July 2011 (EFSA-Q-2010-01501):
"The proportion of PET from non-food consumer applications should be no more than 5% in the input to be recycled."
- All safety evaluations for PET recycling processes contain a guarantee that the input to these supercleaning processes is washed and dried PET flakes originating from collected post-consumer PET containers, mainly bottles, containing no more than 5 % PET from non-food consumer applications.

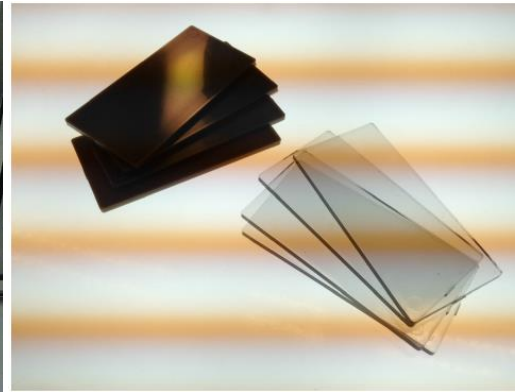
Recycling trials on PET thermoforming trays



- Additional test on 100% PET trays
- in cooperation with [morssinkhof-plastics](#) 
- Input: 5,7 ton PET trays (mono- and multilayer)



Recycling trials on PET thermoforming trays



P+MD recycling

- **High quality recycling required.**
 - Promote circular economy of plastics
 - High quality recycling processes
 - Requires flexible and qualitative sorting in many different streams
 - Requires state-of-the-art, high-speed NIR sorting system
 - Stimulate innovation
 - Additional recycling capacity
 - Local recycling
- **Removal of PET trays as a separate stream is recommended for high quality recycling.**
- **Conclusions study:**
 - Maximize recycling
 - Development of, preferably nearby, recycling markets is stimulated
- **Increase the recyclability of packaging through Design for Recycling is key !!!**

Recycling PET thermoforming trays

- Although thermoformed PET packages are made from the same PET raw materials as the PET bottles, their ability to sort and recycle is not the same.
- There are several studies concluding that the PET trays cannot be mixed with PET bottles since they disrupt the efficient and high quality recycling of PET bottles.
- In addition, we must take into account the restrictions in sorting. There has been a lot of research into the sorting technologies to enable the detection and separation of (multilayer) PET trays and PET bottles. Other research is investigating alternative sorting options, e.g. using markers and identification systems, to secure a fast, efficient and accurate automatic sorting of PET trays.
- PET trays are valuable and recyclable products if they can be recycled in a separate streams and through customised PET recycling processes.
- Additional investments may be required to enable the recycling of PET trays in the future.
- The recycling of PET trays is subject to various restrictions linked to additives, adhesives sealing films. These are materials that are known to reduce the quality of rPET. Optimizing such packaging is an important step in the development of efficient recycling processes for PET trays. There are now several (often European) projects looking into design for recycling.

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Waste Not,
Want Not
~
So don't waste
Your waste !