



Highlights PET Thermoforms Working Group

5th Working Group Meeting
06 December 2016 - Brussels

I. WG membership and set-up of its five Task Forces

The PET Thermoforms Working Group, led by the two chairmen Wim Hoenderdaal from Indorama and Paolo Glerean from Aliplast, is comprised of in total 37 companies from the complete PET value chain. The WG is further set up in five different Task Forces with the following compositions:

PET Thermoforms Working Group

- **Task Force 1, Markets**
Luca Stramare (TFL) - Corepla, Jordi Garriga - KP, Wim Hoenderdaal - Indorama, Benoit le Dreff – Valorplast
- **Task Force 2, DfR**
Paolo Glerean (TFL) - Aliplast, Carsten Lauridsen - Faerch, An Vossen - EPRO, Xander van der Vlies – Avery Dennison, Jordi Garriga - KP, Bernard Chase – WRAP
- **Task Force 3, Collection/Sorting/Recycling/best practices**
Herbert Snell (TFL) - Multipet, Francois Lagrue - Wellman Recycling, Tadeusz Nowicki - ERGIS, Damien Vincent - FPR, Mark Ruesink - Morssinkhof, Dario Previero - Sorema, Andreas Pechhacker - Starlinger, Thomas Etien - Danone, Benoit le Dreff – Valorplast
- **Task Force 4, New applications**
Bernard Chase (TFL) - WRAP, Wim Hoenderdaal - Indorama, Xavier Bories-Azeau - Dupont film, Damien Vincent - FPR, Mark Ruesink - Morssinkhof, Dario Previero – Sorema
- **Task Force 5, Communication**
Wim Hoenderdaal (TFL) - Indorama, Eva Schneider - Petcore Europe, Paolo Glerean - Aliplast

II. Task Force 1: Market Data

- Luca Stramare summarised the available data on PET thermoforms in Europe:
 - There are 1 Million metric tons of PET thermoforms packaging on the European market per year including imports.
 - These thermoforms are produced out of 50% post-consumer r-PET, 40% virgin PET and 10% industrial waste. The amount of virgin is increasing while the amount of r-PET is decreasing (due to attractive virgin price).
 - In total, 40% of the 1 Million metric tons is mono-material PET (including blisters), 30% PET/PE sealable trays and 30% high barrier multilayer PET.

- Finally, it is very difficult to get market data. Companies are not willing to share their data.

III. Task Force 2: Design for Recycling

- Task Force 2 is working on the basic information for “Design for Recycling (DfR) PET Thermoforms”. This information has to be reliable and based on facts.
- There are initiatives in several EU countries to develop a DfR tool for the local stakeholders. This is good in the sense that they can help a far more direct communication with packaging producers and users. The information provided in these tools has to be correct and consistent. National guidelines should be always in line / cooperating the European EPBP guidelines.
- Karen van der Stadt (KIDV) gave an update on the Dutch initiative; the focus is on simple and quick communication with packaging developers.



Kennisinstituut
Duurzaam Verpakken

How to improve the recyclability of Thermoform PET trays



- **Update on labels**
UPM and Avery Dennison are working on the topic of “Best Labels” for PET Thermoforms. The label producers are preparing trials, first finalising the right test procedure and then comparison of different label trials will start.
- Black PET trays could follow different recycling circles: r-PET from black trays for industrial applications, r-PET from transparent trays for food-contact applications.

IV. Task Force 3: Collection, sorting & projects/best practices

- **France**
Francois Lagrue, Benoit Le Dreff & Damien Vincent gave an update on the PET

thermoform collection in France. The objective in France is to collect all PET trays together with the PET bottles and to sort out the multi-material trays. PET bales could consist of up to 10% mono-material PET trays. Trials are more or less successful, depending on the recycler the amount of PET fines generated by friction is between 1 and 8%. These PET fines however can be recycled into PET granulate. Apparently PVC flakes do not so easily create fines and stay in the flake stream until the flake sorter.

The recyclers in France prefer to receive bales of 100% bottle and 100% trays in order to be able to mix themselves to a quality fit for purpose.

- **Belgium**

An Vossen presented the progress in ongoing collection trials, covering 0,5% of the Belgian consumers:

SCENARIO 1 = PMD + ALL PLASTIC PACKAGING

SCENARIO 2 = PMD + RIGID PLASTIC PACKAGING & BAG FOR PLASTIC FILM

SCENARIO 3 = PMD + RIGID PLASTIC PACKAGING (NO PLASTIC FILMS)

- **The Netherlands**

In NL all collected plastics should be recycled, incineration is not allowed. Since PET trays are not tolerated in the mixed plastics fraction due to the high melting point of PET, thousands of tons of PET trays are waiting for their final destination. The problem is getting more and more serious and no immediate solution is available.

V. Task Force 4: New applications - Bernard Chase

- **Update WRAP and UK programme** - Bernard Chase

The latest WRAP report includes full analyses of PET tray recycling, new technologies and an assessment of the economical attractiveness.



Final report

Development and optimisation
of a recycling process for PET
pots, tubs and trays



The complete WRAP report “Development and optimisation of a recycling process for PET pots, tubs and trays” can be found online here:

<http://www.wrap.org.uk/sites/files/wrap/Development%20and%20optimisation%2>

[0of%20a%20recycling%20process%20for%20PET%20pots,%20tubs%20and%20trays.pdf](#)

- **Results Sorema/Starlinger** - Paolo Glerean
PG presented the results of the WG internal trials involving Sorema and Starlinger and showed pellet samples.

Feedstock Sorema trials



- **Update Morssinkhof trials** - Mark Ruesink and Wim Hoenderdaal
MR and WH presented the Morssinkhof recycling trials for which a market mix of mono- and multi-layer trays were used in a standard washing process. They showed pellets, preforms and bottle samples, as well as multifilament's BCF made out of 100% r-PET from trays.
Test bars were produced for measuring tensile properties and modulus. PET preforms were produced for making bottles.

Conclusion: Mechanical properties of filaments, test bars and bottles are good.

Mechanical properties test bars:

| | Virgin PET | Thermoform r-PET |
|------------------|------------|------------------|
| Tensile Strength | 59 | 58 |
| Tensile Modulus | 2530 | 2250 |

The tensile modulus of PET with some percentages of modified polyolefins is slightly lower than 100% virgin. For some applications this might be an advantage. Preforms made with r-PET mono- and multi-layer thermoforms do not crystallize and can be blown in good bottles. But it is evident that the colour will be a compromise.



VI. The next Petcore Europe Thermoforms Meeting will be organised first half of 2017. Interested companies to contact Eva Schneider, Petcore Europe Communications Officer, at eva.schneider@petcore-europe.org.