Polymark

«Novel Identification Technology for
High-value Plastics Waste Stream»

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High-value Plastics Waste Stream»

This project has received funding from the European Union Seventh Framework Programme (FP7/2007-2013)
under grant agreement n°311777

CONTENT

- INTRODUCTION, CONCEPT AND OBJECTIVES
- PROJECT STRUCTURE: CONSORTIUM
- PUBLICATION OF PRELIMINARY TECHNICAL RESULTS
- VIDEO
- CONTACT

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Introduction

- Brand owners are under growing pressure to demonstrate the **sustainability** of their packaging choices.

- Packaging material: **PET demonstrates** outstanding performance, including **its full recyclability** and re-use of the recycled PET in close loop bottle-to-bottle and other applications.

In order to ensure food safety guarantee, the European Commission currently authorises **maximum 5% of non-food contact PET in** accredited recycling processes and **recycled PET for new food contact applications.**

This guarantee can be achieved by developing novel technology that identifies and separates mixed collected PET food containers waste from other sources

This development is also expected to benefit other polymers facing the same requirement.

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Concept and objectives

CONCEPT

Consortium represents the small and medium size enterprise and association community of polymer recyclers.

Coordinated by Petcore Europe, which represents the PET value chain in Europe, from its manufacturers to packaging converters and recyclers.

OBJECTIVES

The novel technology aim is to deliver an innovative and concrete industrial system which will identify and sort packaging polymers – primarily PET - according to original uses. This will be achieved by:

1. **Developing a range of marker substances (and subsequent methods of deactivation) to encode information regarding the properties and structure of the waste plastic packaging.**

2. **Developing an identification system that can detect the markers and decode the information in order to subsequently separate the waste plastic packaging by mechanical means.**

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Main Figures

POLYMARK: Novel Identification Technology for High-value Plastics Waste Stream

Duration: 36 Months

Start date: January 2014

End date: December 2016

Funding scheme: FP7 Research for the benefit of SME Associations.

Total Budget : 2.2 million euros

EU Funding: 1.5 million euros

Consortium: 10 Partners (3 RTD Centres, 3 SME, 4 Associations)

Coordinator: PETCORE Europe

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Polymark Consortium

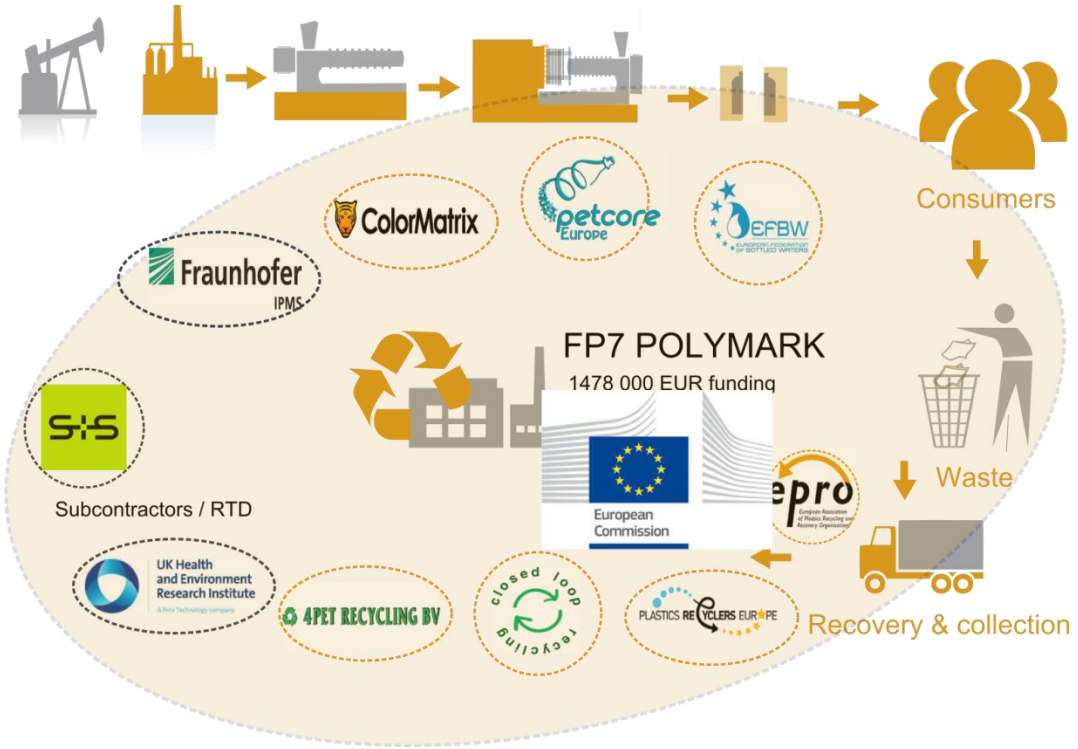
SME AG

- PETCORE EUROPE
- PRE

  Plastics Recyclers Europe
- EFBW

  European Federation of Bottled Water
- EPRO

  European Association of Plastics Recycling and Recovery Organisations



Companies

- MIKROLIN
- CLOOP
- 4PET Recycling
- COLORMATRIX EUROPE

RTD Performers

- IPMS Fraunhofer Institute for Photonic Microsystems
- SESOTEC Separation and sorting technology
- HERI The UK Health & Environment Research Institute

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Polymark preliminary results - report

Report published in September 2015:
http://polymark.org/system/files/generated/files/Polymark%20report_preliminary%20technical%20results.pdf

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Removable Identification Technology to Differentiate Food Contact PET in Mixed Waste Streams: Interim Report

Authors

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Executive Summary

The equivalent of 66 billion 1.5 L poly(ethylene terephthalate) (PET) bottles were collected and recycled in 2014, representing 57% of bottles and containers placed in the market in Europe (based on a Petcore Europe study). The EC-funded "Polymark" project brings together stakeholders from across the PET value chain with the common aim of increasing the availability of "closed-loop" recycled PET (from used bottle to new bottle) by improving identification and separation of food contact approved PET from mixed waste streams. This interim report outlines the successful development of a prototype, flexible, coating-based approach for marking PET bottles, detailing the combination of suitable food-contact approved fluorescent markers and alkali-strippable polymeric matrices used. Removal of the marker is demonstrated so that post-recycling marker accumulation and associated potential for false positive detection in the long term is minimised. Detector technology suitable for high speed sorting was developed in parallel to marking technology and initial results in this area are also reported.

Polymark preliminary results - PR

Press release published in September 2015: https://polymark.prezly.com/polymark-preliminary-results-on-novel-identification-technology-open-new-frontiers-for-differentiating-post-consumer-pet-streams#

Polymark preliminary results on novel identification technology open new frontiers for differentiating post-consumer PET streams

09/23/2015 - 09:34

The Polymark Consortium has published its preliminary technical results outlining the successful development of food-contact approved chemical markers, a marking technique of the targeted packaging and a detection technology suitable for high speed sorting.

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The three-year research project funded by the European Commission brings together stakeholders from the whole PET value chain with the aim of developing a new technology that will enable the identification and sorting of polymers, including PET, in the high-value plastics waste stream. This will help the recycling industry to more effectively distinguish between food-contact and non-food contact PET while meeting EU regulation on the use of recycled PET for food-contact applications. The technology can also be used for other purposes.

"After 18 months of work and a good project review with the European Commission in June, we are now pleased to present the first technical results of the Polymark project," explains Patrick Peuch from Petcore Europe. "Our research partners have successfully developed a complete technology package. By publically releasing these results, in agreement with our Polymark Consortium and the approval of the European Commission, we aim to raise early awareness and to give unconstrained access to the widest number of interested parties for their faster consideration and longer-term planning."

During the next 18 months, Polymark will focus on scaling up the technology to industrial conditions as well as on communicating the results and benefits to all potential users by means of workshops and trainings.

The report containing the full preliminary technical results is publicly available on the Polymark website (*www.polymark.org*). In summary, it outlines the successful development of a prototype, flexible, coating-based approach for marking PET bottles, detailing the combination of suitable food-contact approved chemical markers and polymeric matrices used. Removal of the marker following sorting is demonstrated so that marker accumulation and associated potential for false positive detection in the long term is minimised. Detector technology suitable for high speed sorting was developed in parallel to the marking technology, and initial results in this area are also reported.

Polymark final results - video

Polymark video outlining the complete project, its development and final results:
https://www.youtube.com/watch?v=YeJsW1Laab0&t=3s

Contact

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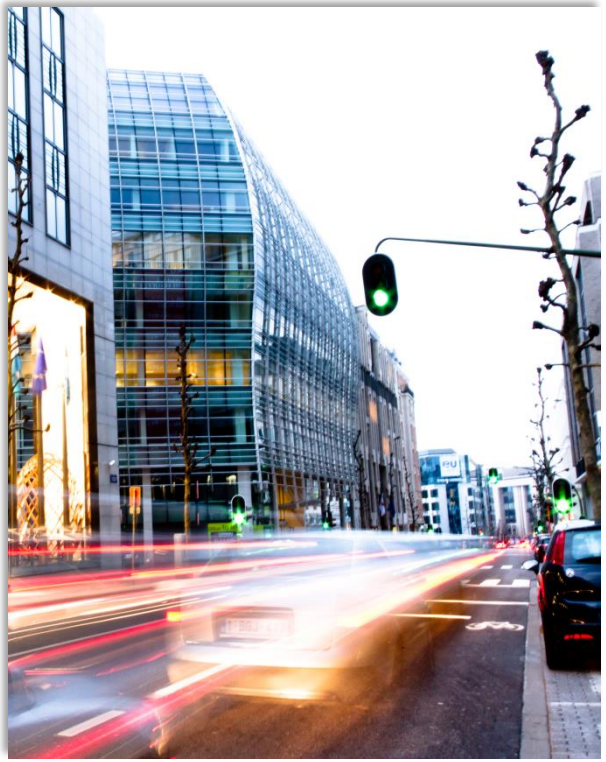

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Thanks for your attention!

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