

# Polymark

The Novel Identification Technology to  
differentiate High Value Plastics in  
Waste Streams



[www.polymark.org](http://www.polymark.org)

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## About Polymark

Polymark is a three-year research project funded by the European Commission which has developed a new technology that enables the identification and sorting of polymers, including PET, in the high-value plastics waste stream.



## Background

PET is one of brand owners' packaging materials of choice due to its outstanding performance in safely delivering products to consumers, its 100% recyclability and re-use capabilities.

Polymark aims to maximise the value from recycling and the re-use of this valuable resource, while meeting EU rules on the re-use of food contact and non-food contact PET. The technology that has been developed successfully distinguishes between food-contact plastics and non-food contact plastics in order to further optimise the high-value waste stream and ultimately increase a more valuable use of these materials.

# Polymark Achievements

## Development of the Chemical Marker

Within Polymark a chemical food-contact approved marker was identified. The marker is used for coating on a bottle or on a label. After identification and sorting, this coated marker can be subsequently removed by existing recycling plant washing.



## Development of the Spectral Identification Technology

The Polymark detection principle for sorting is based on UV-excitation and VIS-fluorescence. The detection system has been designed and successfully implemented. It is capable of sorting food-grade PET bottles at 3 m/s belt speed with spatial resolution of 10 mm. This spectral marking technology could be also used for other applications (e.g. cleaning process, composition, etc.).



## Development and Functionality of the Polymark Industrial Scale Sorting System

The marker detection setup is built from two basic units: a high energy UV light unit for excitation of the marker and a highly sensitive camera to detect the weak fluorescence signals emitted from the marker. This Polymark sorting machine is able to achieve an output purity of 98% on the major input fraction.

# Contact

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# Partners

