Project Information Sheet

Enhanced recycling of post-consumer film waste from light packaging by automatic sorting of trapped improper and degradable polymers (FILMSORT)

Programme area: Materials recycling and recycling processes

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Partners:
- RTT-Steinert GmbH (RTT), Germany
- CORDOPLAS, S.A. (CORDOPLAS), Spain

Website: http://www.filmsort.eu/

Benefits
Increase of ratio and quality of the Recycled Materials derived from post-consumer waste PE Film by a new designed and marketable Film Sorting Machine

Keywords:
film sorting machine, NIR-HSI

Sector:
Recycling

Type of solution
Product

Duration:
01/09/2012 - 31/08/2015

Budget:
€ 658,790 (EU contribution: 48.65%)

Contract number:
Eco/11/304458

Summary

In response to the continuous increase of the amount of improper polymers and degradable plastics that remain mixed with the PE (polyethylene) films, that arrive to recycling sites and give lower quality to the recycled plastics, a special Film Sorting Machine (FSM) for the recycling of these post-consumer wastes will be developed and built at the FILMSORT Project.

The involved participants will merge their knowledge on applied research related to plastic wastes recycling and environmental evaluation (GAIKER), ability for the manufacture of automatic identification and sorting equipment (RTT) and experience on polyolefin recycling industry and markets (CORDOPLAS). As result of this cooperation the following physical outputs will be achieved at the FILMSORT Project:

- A new identification and sorting equipment for waste films: the Film-Sorting Machine (FSM)
- Improved grade recycled PE pellets from post-consumer waste films
- Reduced environmental impacts, in the whole recycling scheme for the post-consumer waste PE films, are initially estimated as: 10% reduction of CO₂ emissions, 8% energy savings, 10% less water demand and 40% decrease of virgin PE material consumption in applications
Expected and/or achieved results

The expected results of FILMSORT Project are:

- The main outcome is a new developed equipment for plastic recyclers, the Film Sorting Machine (FSM), including an identification system based on near infrared spectroscopy-hyperspectral imaging (NIR-HSI) for the recognition and classification of different film types and the suitable devices for sorting them suppressing turbulent eddies in order to enrich the LDPE film fraction and separate the other materials.

- Upstream the main outcome, other results are the new designed, developed and tested specific parts, the sensors and actuators which will be mounted as modules on the Film Sorting Machine (FSM), for dealing with the specific features of the waste plastic films.

- Downstream the main outcome, additional results are the upgraded, fully characterised and validated for applications recycled PE pellets from waste plastic films.

The direct market for the FILMSORT technology are the over 200-250 plants, mainly SME, that are estimated to be behind the treatment and recycling of 1,600,000-2,000,000 tonne (according to plastics facts in Europe in year 2011) of post-consumer LDPE and LLDPE waste films.

The environmental benefits identified, by improving the recycling scheme for the post-consumer waste PE films after the successful implementation of the FILMSORT technology, are the reduction on CO₂ emissions and energy consumption (primary indicators) together with the savings of water for washing and rinse operation and non renewable resources for the manufacture of virgin PE (secondary indicators).

The FILMSORT technology will be a tool supporting the achievement of recycling targets at Directive 2004/12/EC on packaging and packaging waste and/or the proper management of waste and the optimum usage of resources at Directive 2008/98/EC on waste.

The information sheet will be published in the [Eco-Innovation website](#). The EACI reserves the right to edit the information sheet for content and length.