



**Decision on
End of Waste Criteria relating to
Recycled Low Density Polyethylene (LDPE) pellets
for use by
Irish Packaging Recycling
Ballymount Road Lower, Dublin 12**

**Decision establishing End-of-Waste Criteria
under
Article 28 of the European Communities (Waste Directive)
Regulations 2011**

**for recycled Low Density Polyethylene (LDPE) pellets
produced by
Irish Packaging Recycling
Ballymount Road Lower
Dublin 12**

ENVIRONMENTAL PROTECTION AGENCY

An Ghníomhaireacht um Chaomhnú Comhshaoil

PO Box 3000, Johnstown Castle, Co. Wexford, Ireland, Y35 W821

Telephone: +353 53 916 0600 Fax: +353 53 916 0699

E-mail: info@epa.ie Website: www.epa.ie

© Environmental Protection Agency 2018

Table of Contents

1. Introduction & Background	3
2. Decision and Reasons for the Decision.....	4
3. Glossary of Terms	4
4. End-of-waste criteria	5
5. Compliance.....	5
6. Non-Compliance	5
7. Waste Inputs & Controls.....	5
8. Quality Management System.....	6
9. Records.....	6
Annex 1.....	7

1. Introduction & Background

- 1.1. Article 6 of the Waste Framework Directive, 2008 was transposed into Irish law by the European Communities (Waste Directive) Regulations 2011. The Regulations assign responsibility to the Environmental Protection Agency to make certain decisions regarding end-of-waste. This responsibility is assigned under Article 28(3) and states that the Agency may decide case by case whether certain waste has ceased to be waste.
- 1.2. End-of-waste is a means of determining the point at which, for the purposes of waste regulation, a material need no longer be classified as waste after it has undergone a recovery, including recycling, operation and complies with specific criteria to be developed in accordance with the following conditions:
 - i. the substance or object is commonly used for specific purposes;
 - ii. a market or demand exists for such a substance or object;
 - iii. the substance or object fulfils the technical requirements for the specific purposes and meets the existing legislation and standards applicable to products; and
 - iv. the use of the substance or object will not lead to overall adverse environmental or human health impacts.
- 1.3. The purpose of this document is to set out end of waste criteria for the production and use of recycled plastic pellets from low density polyethylene (LDPE) film which is collected as waste pallet film and recovered from dry mixed recycling waste. Compliance with these criteria is sufficient to ensure that the recycled (LDPE) material may be used as a secondary raw material without the need for waste regulation or control.
- 1.4. This document indicates how compliance should be demonstrated.
- 1.5. The Environmental Protection Agency will be responsible for the enforcement of these criteria where the recycled material is produced at a facility authorised by the EPA.
- 1.6. The local authority will be responsible for the enforcement of these criteria where the recycled material is produced at a facility authorised by a local authority.
- 1.7. These end-of-waste criteria are applicable in Ireland. Countries of transit and/or destination may take a different view and the end-of-waste criteria may not be recognised. If the competent authority in the country of transit and/or destination considers the material to be waste, the shipment may, if required by that competent authority, be subject to the controls set out in the Waste Shipment Regulation.
- 1.8. The end-of-waste criteria may be reviewed and updated by the EPA at any stage based on the experience of practical applications, technological developments or legislative amendments. The EPA reserves the right to depart from the position outlined and to take appropriate action to avoid overall adverse environmental or human health impacts.
- 1.9. If at any time the European Commission publishes generally applicable end of waste criteria for LDPE plastic, those criteria may supersede these criteria and the EPA may withdraw this decision.

2. Decision and Reasons for the Decision

The EPA has decided, in accordance with article 28(3) of the European Communities (Waste Directive) Regulations 2011, that the following recycled material (as defined in section 3 below):

- translucent LDPE pellets, and
- grey or dark LDPE pellets

the subject of the application made by Beauparc on behalf of Irish Packaging Recycling (IRP) on 1st February 2018 and produced at an authorised waste facility operated by IRP will cease to be waste if it complies with the end-of-waste criteria set out in section 4 of this document.

The EPA is satisfied, based on:

- the information provided by the applicant;
- a submission from the Health and Safety Authority in relation to the REACH Regulation;
- National Standards Authority of Ireland (NSAI) Standard IS EN 15344:2007: Plastics. Recycled plastics. Characterization of Polyethylene (PE) recyclates; and
- Joint Research Council, 2014 Technical Report on “End-of-waste criteria for waste plastic for conversion”,

that, subject to compliance with the end-of-waste criteria below, the recycled material conforms with the requirements of article 28(1)(a) to (d) of the Regulations and its use as a raw material in the manufacture of plastic products will not lead to overall adverse environmental and human health impacts.

3. Glossary of Terms

Applicant	Beauparc on behalf of Irish Packaging Recycling
Authorised waste facility	A facility which has been granted a waste authorisation in the form of an Industrial Emissions licence, a waste licence, a waste facility permit or a certificate of registration
Consignment	Each load of recycled material that leaves the waste facility.
Facility	Any site or premises used for the purpose of the recovery or disposal of waste.
Producer	Irish Packaging Recycling
Recovery	As defined in the Waste Management Act 1996 as amended
Recycled material	LDPE pellets that meet the end-of-waste criteria set out in this document. The recycled materials are: <ul style="list-style-type: none">a) translucent LDPE pellets, recycled from transparent film; orb) grey or dark LDPE pellets, recycled from dark-colour film.
Recycling	As defined in the Waste Management Act 1996 as amended
Waste	As defined in the Waste Management Act 1996 as amended

4. End-of-waste criteria

- 4.1. Recycled LDPE plastic pellets shall cease to be waste if, upon transfer from the producer to another person, all the following conditions are fulfilled:
- i. the waste used as input for the recovery operation complies with the criteria and self-monitoring requirements set out in section 1 of Annex 1;
 - ii. the inputs have been treated in accordance with the criteria and self-monitoring requirements set out in section 2 of Annex 1;
 - iii. the recycled material resulting from the recovery operation complies with the criteria and self-monitoring requirements set out in section 3 of Annex 1.

5. Compliance

- 5.1. The recycled material may be deemed to have ceased to be waste when conformance with the end-of-waste criteria set out in section 4 is demonstrated, verified and recorded.

6. Non-Compliance

- 6.1. Recycled material shall remain classified as waste and subject to waste regulatory controls if:
- i. the recycled material is not compliant with the end-of-waste criteria in section 4;
 - ii. it is discarded or there is an intention or requirement to discard, for example if it is disposed of;
 - iii. it is stored indefinitely with little prospect of being used;
 - iv. it is mixed with other waste materials; or
 - v. the producer cannot provide an audit report showing compliance with the certified quality management system.

Failure to manage waste in accordance with waste regulatory controls is an offence.

7. Waste Inputs & Controls

7.1. Waste Inputs

- 7.1.1. Inputs shall be restricted as set out in Annex 1.
- 7.1.2. Where non-LDPE waste or any other non-conforming waste is delivered, these shall be immediately moved to a designated quarantine area and stored pending consignment to an authorised waste management facility.
- 7.1.3. Waste containing or which has been contaminated by any substance listed in Annex IV of Regulation (EC) No. 850 of 2004 (on persistent organic pollutants) shall be immediately moved to a designated quarantine area and stored pending consignment to an authorised waste management facility for disposal or recovery in accordance with Annex V, part 1, of the Regulation.

8. Quality Management System

- 8.1. The producer shall implement an environmental management system suitable to ensure the demonstration of compliance with the end-of-waste criteria in section 4 of this document.
- 8.2. The management system shall include a set of documented procedures concerning each of the following aspects:
- i. training of staff;
 - ii. acceptance control of waste used as input for the recovery operation;
 - iii. monitoring of the treatment processes and techniques;
 - iv. monitoring of the quality of recycled material resulting from the recovery operation (including sampling and analysis);
 - v. feedback from customers concerning the product quality;
 - vi. record keeping of the results of monitoring conducted under points (b) to (e); and
 - vii. review and improvement of the management system.
- 8.3. The management system shall be certified to ISO 9001:2015 and EuCertPlast by an appropriate certification body.
- 8.4. The producer shall provide competent authorities including EPA, the relevant local authorities and the HSA access to the management system upon request.

9. Records

- 9.1. The producer shall keep and retain the following records a minimum of five years.
- 9.1.1. Records of all recycled materials leaving the production site, including:
 - i. Date of supply;
 - ii. Customer name, contact details and nature of business; and
 - iii. Quantity supplied by weight/volume.
- 9.2. Declaration of Conformity:
- 9.2.1. Each consignment of recycled material shall be accompanied by a completed "Declaration of Conformity".
 - 9.2.2. The producer shall retain a copy of each Declaration of Conformity for at least five years.
 - 9.2.3. The Declaration of Conformity may be issued and copies retained electronically.
 - 9.2.4. The Declaration of Conformity shall state that the recycled material is intended exclusively for the manufacture of plastic products.
 - 9.2.5. The Declaration of Conformity shall state that the relevant provisions of REACH and CLP regulations have been complied with.
 - 9.2.6. The Declaration of Conformity shall be accompanied by or contain a link to an electronic copy of the safety data sheet for the recycled material.

*End of Waste Criteria
and
Self-Monitoring Requirements*

Criteria	Self-monitoring requirements
1. Waste used as input for the recovery operation	
<p>1.1 Inputs shall be restricted to:</p> <ul style="list-style-type: none"> i. non-hazardous waste LDPE film used to wrap pallets of packaged goods in transit; and ii. non-hazardous, post-consumer waste LDPE recovered from dry mixed recycling waste. <p>1.2 Plastics used in health care and in products of personal hygiene shall not be used as input.</p> <p>1.3 Plastic hazardous waste or plastic containers used for hazardous waste shall not be used as an input.</p> <p>1.4 Waste containing or which has been contaminated by any substance listed in Annex IV of Regulation (EC) No. 850 of 2004 (on persistent organic pollutants) shall not be accepted as an input</p> <p>1.5 Upon off-loading each bale shall be inspected by an appropriately trained operative to confirm the waste materials are as outlined above.</p> <p>1.6 Where bales of non-LDPE materials or any other non-conforming materials are delivered, these shall be immediately moved to a designated quarantine area and stored pending either return to the supplier, or consignment to an authorised waste management facility.</p>	<p>All waste deliveries shall be weighed at the on-site weighbridge and the following details recorded;</p> <ul style="list-style-type: none"> i. hauliers name ii. vehicle registration plate number iii. weight iv. date of delivery v. List of Waste code vi. source of the waste <p>Acceptance control of all waste by visual inspection¹ and inspection of the accompanying documentation shall be carried out and documented by qualified staff² who are trained on how to recognise plastic that does not fulfil the criteria set out in this section.</p> <p>The procedure for recognising prohibited waste streams shall be documented in the management system.</p> <p>A record shall be made of any quarantined or non-conforming loads; this record shall include details of actions taken and corrective actions to prevent any such recurrence. The Acceptance Procedure shall be amended to conform with the requirements of a grant of authorisation under the Waste Management Act 1996 as amended.</p>

¹ "visual inspection" means inspection of consignments using either or all human senses such as vision, touch and smell and any non-specialised equipment. Visual inspection shall be carried out in such a way that all representative parts of a consignment are covered. This may often best be achieved in the delivery area during loading or unloading and before packing. It may involve manual manipulations such as the opening of containers, other sensorial controls (feel, smell) or the use of appropriate portable sensors.

² Qualified staff is defined as: staff who are qualified by experience or training to monitor and assess the properties of the waste plastic.

Criteria	Self-monitoring requirements
2. Treatment processes and techniques	
<p>2.1 Waste plastic used as input shall be kept permanently separate from any other waste, including other waste plastics.</p> <p>2.2 All processes (such as de-baling, sorting, separating, size reducing, cleaning, melting, filtering, re-granulating and grading) which are required in order to obtain the recycled material shall be completed in accordance with waste regulatory controls.</p>	<p>Procedure for on-site waste treatment and storage arrangements shall be documented in the environmental management system.</p>
3. Quality of recycled material resulting from the recovery operation	
<p>3.1 The recycled material shall comply with a customer specification and relevant industry standards for direct use in the production of plastic substances or objects by re-melting in plastic manufacturing facilities. The customer specification shall, as a minimum, include the requirements of the relevant industrial standard. The following standards on characterisation of plastic recyclates shall be used:</p> <ul style="list-style-type: none"> • IS EN 15343: Plastics. Recycled plastics. Recycling traceability and assessment of conformity. • IS EN 15344: Plastics. Recycled plastics. Characterization of polyethylene (PE) recyclates. • IS EN 15347: Plastics. Recycled Plastics. Characterisation of plastics wastes. <p>3.2 The non-plastic component in the recycled material shall be less than or equal to 2 % of moisture-free weight. A non-plastic component is any material that is not plastic but is present in waste plastic before recycling. Examples of non-plastic components are metals, paper, glass, natural textiles, earth, sand, ash, dust, wax, bitumen, ceramics, rubber, organic matter and wood except when these materials are integral constituents of the plastic structure before it is re-melted, including materials such as</p>	<p>Qualified staff shall verify and document that each consignment complies with the appropriate standards and specification.</p> <p>The procedure for completing customer specifications as required by this document shall be documented in the environmental management system.</p> <p>Qualified staff shall carry out and document a visual inspection of each batch of recycled material.</p> <p>The non-plastic component content of $\leq 2\%$ of moisture-free weight shall be verified by suitably qualified staff, using a suitable and documented method, after the fine shredding stage and before thermal treatment is applied.</p> <p>At appropriate frequencies, representative samples of the moisture-free waste plastic shall be analysed gravimetrically after mechanical or manual separation of non-plastic components and before thermal treatment to measure the content and nature of non-plastic components. The results of such analysis shall be documented.</p> <p>At appropriate frequencies, representative samples of recycled material shall be analysed to measure the content and nature of non-plastic components. Complementary analytical techniques may be used in the determination of the</p>

Criteria	Self-monitoring requirements
<p>talc, limestone, glass fibre or wood fibres used as fillers and structural or mechanical reinforcements.</p> <p>3.3 The frequency of testing to confirm the non-plastic testing shall take into account;</p> <ul style="list-style-type: none"> i. the requirements of the IS EN 15343, IS EN 15344 and IS EN 15347 standards; ii. the expected pattern of variability (for example as shown by historical results); iii. the inherent risk of variability in the quality of the input, and any subsequent processing, for instance the higher average content of metals or glass in waste plastic from multi-material collection systems; iv. the inherent precision of the monitoring method; and v. the proximity of results to the maximum of 2% of moisture-free weight. <p>3.4 The recycled material shall:</p> <ul style="list-style-type: none"> i. comply with relevant provisions of the CLP regulation; and ii. comply with relevant provisions of the REACH regulation. <p>3.5 Recycled materials shall be suitable for use, without further processing, as a raw material in the manufacture of plastic products.</p> <p>3.6 Recycled materials shall not be supplied or used for:</p> <ul style="list-style-type: none"> i. combustion, including as a fuel or for energy recovery; or ii. reprocessing into materials that are to be used as fuel. 	<p>non-plastic component content, such as chromatography or infrared spectroscopy, especially for the purpose of inspection. The results of such analysis shall be documented.</p> <p>The process of determining monitoring frequencies shall be documented as part of the management system and shall be available for auditing.</p> <p>The producer shall maintain documentary evidence, for assessment by the competent authority which demonstrates compliance with relevant provisions of the CLP and REACH regulations.</p> <p>The producer shall ensure these matters are addressed in customer supply contracts and documented in the Environmental Management System (EMS).</p>