



LLDPE AND LDPE FILM RECYCLATE FEEDSTOCK SPECIFICATIONS

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1. Purpose

In order to maintain the quality and the consistency of linear low density Polyethylene (LLDPE) and low density Polyethylene (LDPE) films recovered from suppliers, these specifications are designed to identify the levels of contamination that inhibit the recycling process.

The specifications cover the following aspects:

- Definitions
- Plastics identification code for polymers
- Contaminants
- Substandard quality

This specification document is a benchmark for buyers and suppliers within the Australian recycling industry. ACOR welcomes feedback on all specifications at any time to ensure they reflect the current industry best practice. Individual buyers and sellers can reference this booklet as a workbook or a reference for trading and negotiation. It is not compulsory for buyers and sellers to comply with the standards. However, buyers and sellers are strongly encouraged to work together and reach an agreement regarding terms and conditions.

2. Definitions

Out- throws: Materials that can be tolerated or removed during the recycling process.

Prohibited materials: Materials that are difficult to or cannot be removed during the recycling process.

Plastic film: A thin flexible plastic sheet that does not hold a particular shape when unsupported.

3. Plastics Identification Code for Polymers








The plastic identification code is a series of symbols that assist product designers, manufacturing and recycling industries, government agencies and consumers to identify the types of polymers used in the manufacture of a product or packaging. The symbols are normally embossed on the bottom of plastic containers and bottles, or at the back of packages.

The voluntary Plastic Identification Code ('the Code') was created by the Plastics and Chemicals Industry Association (PACIA) in 1990. The coding system consists of seven symbols (see table below).

ACOR supports the use of the Code, however one issue with the current code and the artwork is that consumers can confuse the use of the code with disposal instructions.

The identification coding symbol for LLDPE & LDPE is number "4" inserted in a triangle.

Industry Coding for Polymers

Symbol	Polymer	Applications
	Polyethylene Terephthalate (PET)	Beverage bottles, food containers, sheeting applications (e.g. cake and sandwich trays), textile fabrics and garment fibres, etc.
	High Density Polyethylene (HDPE)	Bottle caps, 'singlet' shopping bags, freezer bags, household chemical bottles or containers, milk jags, etc.
	Plasticized (PPVC) or Unplasticised (UPVC) Polyvinyl Chloride	Plumbing pipes, garden hoses, blister packs, label, seals, etc.
	Low Density Polyethylene (LDPE)	Garbage bags and bins, recycling bins, bottle closure, bottle labels, etc.
	Polypropylene (PP)	Drinking straws, microwave ovenware, plastic hinged lunch boxes, bottle closures, household chemical containers, labels, etc.
	Polystyrene or Expanded Polystyrene (PS)	Yoghurt containers, plastic cutlery, foam hot drink cups, etc.
	---	All other resins and multi-blended plastic materials that are not listed from the above.

4. Contaminants

Contamination is a problematic issue in recycling. It does not only inhibit the recycling process but also degrades the quality of the recycled products.

The ideal scenario for recycling plastic film is a closed loop service where used film is collected as new film is delivered with no contamination. In addition, to avoid and minimise the level of contamination in LLDPE & LDPE film recycling, it is important to separate the coloured film from the clear film to avoid bleeding or degrading the clear film quality.

The contamination in LLDPE & LDPE recycling is classified into two types, including: i) prohibited materials and ii) out throws.

4.1. Prohibited materials

The materials listed below are prohibited and cause moderate or serious contamination during the recycling process.

Material	Acceptable level (%)
Food particles	nil
Metal clips and strapping	Nil
Hypodermic syringes	Nil
Dirt, e.g. grit, mud and stones	<0.02
Hydraulic oil or any oil- based products	Nil
Strapping, including PET, PP and PVC	Nil
Non- soluble pressure sensitive labels	< 2.00
Any PET or PVC materials	Nil
Heavy inked films	< 2.00

4.2. Out throws

The materials listed below can be tolerated or removed during the washing process. However, they are only allowed in a certain amount. The higher the percentage of out throws, the less likely the materials will be reprocessed in Australia.

Materials listed below are classified as out throws in LLDPE & LDPE film recycling. It is important to remove or minimise these materials before baling as they will affect the end market and the value for the plastic. For instance, if the plastic contains large amounts of paper or vinyl labels, the product will be degraded and may only be suitable for export.

Material	Acceptable level (%)
Coloured films mixed with clear films	< 1.50
Dust on the film	< 1.00
Paper labels and packaging tape	< 1.50
Moisture	< 3.00

5. Substandard Quality

These specifications apply to all LLDPE & LDPE films. Recyclers are strongly encouraged to work with sellers to reach an agreement in terms of the bale quality and the level of contamination. If the level of contamination is higher than agreed or cannot be reduced, the film may be deemed unacceptable.