



# PET CONTAINER SPECIFICATIONS

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## 1. Purpose

In order to maximise the recycling rate of post- consumer PET containers and maintain a quality standard that can achieve the most cost- effective PET recycling process, it is critical to ensure a uniform and consistent composition of the containers sourced from Material Recovery Facilities (MRFs). These specifications cover the following:

- Contaminants
- PET bale standards
- Delivery
- Auditing procedure

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 use it 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.

As each PET processor has specific requirements based on their processing systems and the intended end- use application for the recycled PET it is necessary for suppliers to always determine the levels of contamination that the purchaser accepts, as well as other specific purchase specifications.

## 2. Plastic 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 the product or packaging. The symbols are normally embossed on the bottom of the plastic containers and bottles, or at the back of packages.

The voluntary Plastic 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 its artwork is that consumers may confuse the use of the code as disposal instructions.

The identification coding symbol for PET is number “1” inserted in a triangle and clearly embossed on the base.

for Coding Industry 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.

## 3. Contaminants

### 3.1. Allowable Materials

Allowable materials are considered as non- PET substances that are attached to PET containers that can be sorted, separated and/ or removed easily during the recycling process. These contaminants include:

- Non- soluble pressure sensitive labels
- Minor residue (i.e. seals and sleeves) that are attached on the bottles and can be removed during washing process.

### 3.2. Prohibited Materials

Prohibited materials are considered as non- PET substances that are attached on PET containers that cannot be sorted, separated and/ or removed during the recycling process. Once these materials mix with PET resin, they cause adverse impacts on the end- products and may damage the recycling facilities. For instance, PVC is a critical contaminant in PET recycling. If PET is heated with PVC, black specks are generated in the PET resin.

Prohibited materials for PET recycling include, but are not limited to the following:

#### 3.2.1. Metal

- Aluminium cans, closures and caps
- Steel cans; and,
- Any other metals

#### 3.2.2. Plastics

- PVC, PLA and other degradable plastics that contaminate the PET recycling process and end products ;
- Polymers with specific gravity equal to or greater than 1;
- Polystyrene containers;
- Any household chemical plastic bottles, including kerosene, solvents and poisons; and,
- Any kinds of plastic bottles or containers that are used to contain oil, including industrial oils, lubricants and cooking oil.

#### 3.2.3. Glass

- Any glass bottles, containers, or fragments.

### 3.2.4. Inks

- Water soluble inks;
- Inks contains heavy metal pigments;
- Inks containing hazardous aromatic solvents.

### 3.2.5. Others

- Bottles or containers that are used to contain sand or glass;
- Composite and barrier bottles or containers;
- Hypodermic syringes;
- Bottle or containers that are used to contain liquids or food residues;
- Dirt, mud, concrete or stones.

Non- PET Material	Maximum Contaminate Level (%)	Notes
PVC	< 0.10	Critical Contaminant
Prohibited materials	< 0.15	Refer to section 3.
Allowable materials	< 0.15	Refer to section 3
HDPE or LDPE	< 0.30	Specific gravity < 1.00
All contaminants in shipment or batch	<0.30	---
Colour PET, e.g. amber or green	< 0.20	Not included in 'All contaminants in shipments or batch'

## 4. Bale Quality

<b>Bale size and weight</b>	Should be of a uniform size within a single consignment. Generally, processors accept bale that is weight up to 600kg.
<b>Bale density</b>	The density of each bale should be as small as possible.
<b>Bale wire</b>	Bale size greater than 250kg may have up to ten wires or straps. Bales sizes greater than 600kg should have five to ten wires or straps.
<b>Bale integrity</b>	Sellers should take the responsibility to make sure the bales are free from damage or breakage. Bales should be maintained throughout loading, shipping, unloading and storage. Bales should be free from damage or breakage.

## 5. Delivery

### 5.1. Delivery Arrangements

- Agreements must be made between the seller and the buyer.
- Processors should be notified promptly about the details of delivery, including the scheduled delivery date, bale weight, collection time and date, and other information that is related to the delivery.
- Sellers should take the responsibility to identify each consignment and segregate them prior to processing
- Processors should arrange for the delivering company to contact the supplier to confirm a collection date and time.

### 5.2. Documentation

All deliveries must be well- documented and must include delivery dockets and consignment notes. Certified weighbridge documents may also be accepted.

### 5.3. Weighing of Bale

- Vehicles delivering to the processor's site may be weighed prior to unloading.
- Vehicles leaving the processor's site may be weighed.
- If a weight discrepancy is detected, processors may notify the supplier in writing.

## 6. Auditing Procedure

### 6.1. Manual Inspection

- Manual sorting (visual) should be carried out to separate non- PET materials from the PET bale prior processing.
- Quarantine may be required for further assessment if high levels of contamination are detected.
- Automated detection equipment may be used to further assess the contaminants if a high level of contamination is detected.
- If it is confirmed that the bale is highly contaminated, processors must send a contamination report to the supplier.

## 6.2. Reporting

### 6.2.1. Purpose

- Encourage information sharing between the seller and the buyer in order to improve the quality of post- consumer PET recycling.
- Increase the transaction transparency.

### 6.2.2. The use of reporting

- Contamination reports may be used for recording supplier history and/ or continuous improvement.
- Processors may reserve the right to suspend or reject consignments that continuously exceed the quality standards.