



PETCO Intermediate Collectors¹ Guide

Aim: To assist intermediate collectors in building a sustainable PET collection business.

Introduction

PET recycling means different things to different people:

- To consumers and households, PET recycling means to recover PET (typically together with other mixed recyclables) and putting them all out for separate curbside collection or alternatively to bring them to a drop off or buy-back centre.
- To a producer of goods or a manufacturer of raw materials—it means including recycled PET (rPET) content in the process.
- To National and Provincial Government and South African Municipalities it means establishing regulations that encourage, incentivise and govern the recovery, collection and recycling of recyclable materials including PET bottles in order to reduce the volume of waste that need to be disposed of at landfill sites.
- For waste pickers, it means retrieving recyclable materials from landfill sites, temporary waste storage sites (e.g. on business premises) and waste bins and selling them to recycling depots.
- **To medium-sized collection service providers, recycling means providing cost-efficient collection, sorting and transporting services, and deriving maximum revenue from the sale of the recycled materials to ensure sustainable business practice.**

¹ The term “medium sized collector” typically defines a collection service provider who is operating in a structured, formalised manner, owning his/her own temporary storage premises and utilising a motorized vehicle (and trailer) to collect recovered PET materials.



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There are 3 options when considering setting up a collection business:

1. Set up your own **drop-off point** (people bring you the materials for free and you sell on to the recycler)
2. Set up your own **buy-back centre** (people bring, you pay them and sell)
3. Set up an **onsite separation at source operation** at a shopping centre, residential complex or a business that regularly produces feasible amounts of recyclable waste.

What to ask recycling companies (as prospective buyers of all your recyclables including PET bottles):

Contact recycling companies for advice and ask them:

- What recyclables do you buy? Tip: Collecting all material types of recyclables (plastics and other materials) will be more feasible but it is unlikely that one recycler is interested to buy all recycling fractions from you. Typically you will have to deal with a few at any time to find markets for ALL your collected and sorted recyclables.
- Do I need to clean or sort recyclables in any specific way?
- Do I need to compact (e.g. bale) recyclables?
- Where can I deliver?
- How much do I need to store in order for you to collect?
- Where can I drop off recyclables if I have my own transport?
- How much do you pay per kg or ton (both when you collect and when I bring to you)?
- What sorting equipment do you supply (bulk bags, racks, sorting table, compactors etc.)?

On that note: another very important thing to keep in mind is to make sure (before you collect) that what you plan to collect gets actually **bought** by someone and that there is **stable buyers market** for the items you collect:

- The buyer should offer you a price for your recyclables that is fair and market related
- The best prices as a collector of recyclables are normally obtained when delivering the materials to the gate of the respective end-use recycler
- If your collection area is remote from a recycler you might have to work through a “middle-man” who facilitates temporary bulk storage and final delivery. Make sure that the price he is prepared to pay you still warrants financially your own collection efforts.
- The buyer of your recyclable materials should be committed to a long-term buying relationship (not just a once off interest). You might initially fetch a higher price if you chose dispatch your collected plastics to Asia BUT in the quest to build a sustainable and robust LOCAL recycling economy with lasting business relationships it is a better strategy to harness and strengthen local demands.



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- It is strongly advised that you invest in an industrial type scale to be able to weigh recyclables delivered to you and removed from your storage/handling site. This is important so you can complete keep track on the volumes you are delivering later either to a middle-man or the actual end-use recycler and you should compare your data and their data to avoid getting deliberately or accidentally underpaid.
- The buyer you choose needs to run a licensed and registered operation otherwise he operates ILLEGALLY and the buyer must not break the law in any way (e.g. by burning cables or dumping toxic waste components). If you as a collector client know about such practices but you choose NOT to tell authorities you could be also implicated in an arrest if found out.
- If you are in doubt what you should be able to financially expect (given the intrinsic value of the materials you collect and typically given for materials readily sorted, prepared (baled) and delivered to the end-use recycler please contact the relevant recycling industry organisation for guidance (see table below)

Getting started:

What you need:

- Unused, enclosed and secure (lockable) space (guideline: at least the size of a double garage)
- Space that is accessible to the public and collectors and for pickup from recyclers
- Sorting tables (if recycling more than one material), scales and storage bags/containers
- Waste bins for the non-recyclables that need disposal
- Access to a telephone
- Security
- Education and advertising for collectors
- Signage
- Health and safety practises in place
- Check for possible environmental risks e.g. fire
- Decide who is to keep the site clean, neat and tidy, monitor containers, phone for collection, keep record of payments received, etc.

Do your homework:

As with any business, success depends on good research and planning. It is important to do your homework and ask the right questions. Most importantly: is there a demand for your envisaged services in the targeted collection areas? Can you secure the support of some bulk recycling material generators that are willing to regularly supply you with their materials?



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After you get answers to all your questions, decide what you need. Then you will be ready to prepare your business plan. There are many templates for business plans on-line. try nipmo.dst for a business plan template that suits your needs or approach a small business development agency in your area to ask for help.

Identifying a site:

Identify a possible site in your area suitable for sorting and temporary storage of any materials you will collect. You may want to contact your local municipality or an estate agent operating in a close-by industrial or commercial area about a suitable site. Ask recyclers for advice on the preferred layout of your site [to ensure optimal material quality and specs (e.g. delivered in bales)] and prepare a rough floor plan.

1. Consider:

- A central and convenient position
- Availability of recyclables in that area
- Accessible to public and collectors
- Existing building or a vacant site
- Building site needing alterations
- Buy or lease a site
- Access to water and power
- Safe and secure area

2. Estimate your space requirements based on:

- Volumes and type of recyclables to be stored
- Period of time to be stored
- Offloading, sorting and storage areas
- Containers (type, size and quantity)
- Office area
- Ablution facilities
- Turning space and headroom for vehicles

3. Source of recyclable materials

- Community brings in waste
- Collection from households and open spaces
- Collection from high consumption areas e.g. taverns, restaurants, hotels, stadiums, sports fields, outdoor events, shopping centres, schools, picnic spots, offices and factories

Best Practice in PET Collection

Aside from running a sustainable business, it is important to ensure that your business operates within the realm of the law and that you manage your environmental and social impacts effectively. See our - Guide to good housekeeping for collectors



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A “Good Practice Guide” for the Storage, Collection, Transportation and Handling of PET Bottles and Other (Packaging) Recyclables in our digital library- this fact sheet outlines the areas that should form part of your “housekeeping plan”.

There are six basic principles that should be maintained to ensure best practice in the collection of PET bottles for recycling:

1. Only PET bottles and containers with screw-neck tops should be collected for recycling.

PET bottles and containers can be identified by looking for the “number #1” resin identification triangle-shaped code found on the bottom of PET bottles and containers. Any non-bottle PET items, like shampoo containers or microwave trays, should be excluded. These materials introduce contaminants and create technical and economic problems in the PET recycling process.

2. Only PET containers that are transparent, clear blue tinted, clear brown tinted, and clear green tinted in colour should be collected for recycling.

PET containers of any other colour should be excluded. Pigmented PET bottles other than those listed can cause technical or economic problems in the recycling process and limit the recycling of acceptable PET bottles and containers into new products.

3. Where possible, lids, caps and other closures should be removed from PET bottles and containers collected for recycling.

This is because caps and lids are made from different plastic type material such as Polypropylene (PP) and other types. They can be sorted and sold separately.

4. All PET bottles and containers that are collected for recycling should be dry, completely free of contents and rinsed clean.

This reduces logistical difficulties such as odour and attraction of insects at recycling facilities due to the presence of food residues on bottles and containers.

5. Collectors should flatten PET plastic bottles and containers.

The simple act of flattening containers decreases collection costs by increasing the amount of materials collected or placed into containers at collection points. It has been estimated that by simply flattening PET bottles and custom containers, truck collection volumes can be increased by as much as 50%.

6. PET bottles should never be mixed with other recyclable materials.

Mixing PET bottles with paper, glass and other types of plastics results in contamination to the recycling process or introduces materials that could cause injury to personnel or damage to equipment at recycling processing facilities.

Best Practice in PET intermediate processing

Bale Specifications:



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The lack of standardization and the resulting variability of the quality and content of baled post-consumer PET bottles and containers add economic costs to the PET recycling process. It also limits the efficiency of the PET recycling process.

The proposed best practice for post-consumer PET bale specifications in this guide are the ones that have been agreed upon with the PETCO contracted recyclers. They have been analysed to represent a standard that will be acceptable to most PET buyers and to ensure a quality standard that can reduce the costs involved in the PET collections and transportation.

It is however important to note that every PET recycler has his/her own requirements when it comes to bale specifications. It is therefore up to the collector to make sure that those requirements are met from the outset and before any collection delivery takes place. Bale specifications include two very important factors namely:

- **Physical Characteristics**
- **Quality Characteristics**

PHYSICAL CHARACTERISTICS

These refer to bale size, bale density, levels and types of contamination etc.

- The physical properties are those that influence operating mode, handling, and safety factors such as ease and efficiency of truck loading and unloading, and ease of in-plant storage.
- Physical bale characteristics can also impact the efficiency and throughput of some “automated sorting” technologies which are used by intermediate processors, Material Recovery Facilities (MRFs), Reclaimers and end-users who process baled PET plastic bottles and containers.

QUALITY CHARACTERISTICS

- The quality of the bale impacts the technical and economic ability to reclaim PET resin from the post-consumer waste stream and remanufacture it into new products.

A good quality bale’s physical and quality characteristics will be:

- **Weight:** between 100 – 250 kilograms.
- **Quality:** colour sorted and cleanly baled.

There are three types of bales:

- 1. Colour-sorted bale**
This is the ideal bale which contains PET bottles of the same colour.
- 2. Mixed bale**
This contains PET bottles of different colours.



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3. Dirty bale

This contains contaminants like stones, car batteries and sand.

It is important to note that there are ~~three~~ different prices for the different bales. The colour-sorted bale pays the best; mixed bales pays 'an acceptable amount' and the dirty ones will not be bought at all. Please ensure that you empty all water and sand from the bottles. You are busy building your business and you must ensure that you keep your reputation intact. If the Recyclers / Buyers know that you provide bad quality to them, they will stop buying from you.

Maximising truck loading and transportation of PET bales

One of the major costs in PET collections for recycling is the transport both to collect materials at source and then to deliver them after sorting and baling to the down-stream recycler. Properly loaded trucks of PET bales and bulk bags of loose PET bottles can help maximise truck space and hence ensure lower transportation costs. Based on the actual bale density and the particular truck's legally permitted gross shipping weight, the truck can be loaded to its capacity.

Bales are inspected thoroughly by trained personnel when they get to the recycling plant. This is done to pick up any contamination and dirty bales. The recycler can turn a loaded truck away if the quality of bales is poor. This can mean a waste of money used to transport the load to and from the recycler's plant, not getting paid AND the cost of having to dispose of otherwise.

Contamination Issues

PET recycling processors receive plastic bottles (primarily in baled form, but in some cases loose) that have been separated from other recyclable materials at landfills, MRFs, buy-back or drop-off centres, and then process them to sell the recyclate retrieved from the recycling process to the respective end-users.

Contamination limits the ultimate marketability of the full range of PET plastic bottles collected. It also reduces the value of recyclable PET; it hinders processing and causes unproductive downtime and clean-up expenses for PET processors. In addition it results in unnecessary manufacturing waste from the PET recycling process.

The following are the major contaminants in the PET recycling process:

Polyvinyl chloride (PVC)

The primary contaminant in the PET recycling process is any source of polyvinyl chloride (PVC) plastic material labelled with "number #3" resin identification code. The presence of PVC when reprocessing and remanufacturing post-consumer PET resin may cause one of several problems, even at very low concentrations.



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PVC can form acids when mixed with PET during processing. These acids break down the physical and chemical structure of PET, causing it to turn yellow and brittle. This will render the PET material unacceptable for many high-value end-use applications. In addition, the presence of PVC may result in out-gassing of chlorine vapours during certain stages of PET reprocessing. This can increase the cost of control systems or regulatory compliance for the facility operator.

There are three primary sources of PVC contaminants that can enter the PET recycling process. The first are PVC “look-alikes,” that is, PVC bottles that resemble PET bottles. While it is possible to distinguish transparent PVC bottles from transparent PET bottles by the presence of white “crease” marks, or by the molding mark on the bottom of the bottle, looking for these distinguishing characteristics can be time-consuming and limit processing throughput in manual sorting systems.



The second is PVC safety seals that are used on certain product containers, such as mouthwash. Every effort should be made to remove safety seals, if they are present, prior to baling PET bottles and containers. Safety seals should absolutely be removed prior to granulating.



The third source is PVC labels that are affixed to some PET containers. Please remove the labels otherwise you will be paid less for your bottles.

Be aware- do not collect

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| <p>Dark (non-transparent, purple, navy blue, black) or neon coloured bottles</p> | <p>Bottles with print directly on the plastic</p> | <p>Multi-layered bottles ie number 7's, or wine bottles</p> |

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| <p>PVC/ PET shrink wrap labelled bottles unless those labels are easily removable (you must take them off!)</p> | <p>PET trays and punnets (they are <u>currently</u> not being recycled yet in South Africa on a large-scale).</p> | <p>PET bottles with metal caps/lids and closures. These must be removed!</p> |

Collected PET pricing

The prices paid for collections depend on the quality of PET bottles collected, the proximity to the local recycler and other global economic trends including the oil price and resulting demand for recycled plastics. As previously highlighted – to obtain the best price at any time PET bottles must be colour sorted, cleanly baled and delivered to the recycler. The different PET bottles have different prices; the highest paying is clear transparent then clear blue, followed by clear brown and then clear green.

To maximise the pay-out of your materials, the following have to be adhered to:

- Colour sort PET bottles,
- Make sure that bales are neat and heavy,
- Deliver to the recycler where possible.

A note on triggering environmental authorisations

Be aware of the legal requirements, Norms and Standards for Waste Storage or and legal thresholds that apply to Waste Management Licences (WMLs)

- **Temporary (once-off) storage of recyclables** - You are allowed to store up to 100 m³ of recyclables (or non hazardous waste) on suitable secured premises. This is equivalent to no more than 3 shipping containers. Anything more than this is permitted for no more than 90 days.
- **Sorting and Preparation for Transport of Recyclables**- if your facility / building is bigger than 500 m² in size (the footprint of a small warehouse) AND/OR has the capacity to process more than 10 tons of waste and/recyclables DAILY (the equivalent of about 10 bakkie loads) you WILL require a Waste Management Licence to operate legally and you will have to have a licence BEFORE you START any operation.



For a download of the South African Storage Norms and Standards please go to <http://sawic.environment.gov.za/documents/2530.pdf>



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How PETCO Might Be Able to Support YOUR Business

PETCO is a Producer Responsibility Organization (PRO) responsible for managing the PET industry's Extended Producer Responsibility (EPR) in South Africa. Our mission is to grow the collection and recycling of PET bottles after consumer use. We have done this for over 15 years and are funded by a mandatory EPR fees paid by Producers on the PET plastic that they place on the market². We invest all our funds in ensuring and encouraging visible recycling, through:

- Contracting and financing PET recyclers who collect bottles, process them into rPET in preparation for the manufacture of new products
- Consumer education and awareness (including schools and community groups)
- Training and joint venture projects (including those with municipalities)
- Equipment support and sponsorship (for collectors), and
- Providing guidance relating to Design for Circularity (for industry).

We do this by way of partnerships and working to a five to ten-year plan with clearly-defined targets

PETCO assesses projects on an annual basis with a view to providing assistance. Our ability to assist depends on the merits and viability of a project, its sustainability, the need in the area that the project operations from, as well as how it fits in to the PETCO strategic objectives and budget available at the time. All potential projects are assessed internally and then tabled with the board for approval.

We can assist you and your business in providing:

- Educational support and skills development- to grow your business
- Infrastructural support – scales, trailers, baling machines, bins, bulk bags, Plastic Recovery Cages, bag frames, shipping containers, signage and protective clothing and equipment
- Linkages- linking you to collection networks and buyers as well as local authorities

To find a drop-off site/buy-back centre near you: <https://petco.co.za/find-a-recycling-drop-off-site/>

To download the latest application for support and training: <https://petco.co.za/start-a-recycling-business/>

Contact PETCO for further information

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| Call toll free: | 0860 147 738 (0860 1 is PET) |
| Email: | info@petco.co.za |
| Twitter | PETCO_SA |
| Facebook: | PETPlasticRecyclingSA |
| Instagram: | PETCO_SA |
| LinkedIn: | PETCO, the South African PET Plastic Recycling Company |

² For more information on Section 18 Legislation: <https://petco.co.za/section-18-everything-you-need-to-know/>



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YouTube: PETCO South Africa
Website: www.petco.co.za

Useful contacts

Visit www.petco.co.za for a list of collection points, drop off sites and buy-back centres.

You could also contact some other industry bodies for general assistance or information about other material streams. Here are some of them, but you could also visit PETCO's website to download a fact sheet with useful contacts:

- Institute of Waste Management www.iwmsa.co.za
- National Recycling Forum www.recycling.co.za
- Packaging SA www.packagingsa.co.za
- Recycle Paper ZA www.recyclepaper.co.za/
- Polystyrene Packaging Council (PSPC) www.polystyrenepackaging.co.za/
- ROSE Foundation www.rosefoundation.org.za
- SAVA www.savinyls.co.za
- Tetra Pak www.tetrapak.com/za
- The Glass Recycling Company www.glassrecyclingcompany.co.za
- Collect-a-Can www.collectacan.co.za



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