



Understanding plastics and their recycling

PET is the acronym for a very versatile and sophisticated plastic called **Polyethylene Terephthalate**. For sound economic and safety reasons, it's the plastic used to make the most common container in the soft drink market today: the plastic bottle.

Successfully used in the packaging for carbonated soft drinks, bottled water, milk, juice, sports and energy drinks, jars, punnets, tubs and trays for food items, bottles for household, personal care and pharmaceutical products, and sheet and film for packaging, PET is the type of plastic labelled with the # 1 code on or near the bottom of bottles and containers.

PET is sometimes referred to as polyester and is made from mono-ethylene glycol (MEG) and purified terephthalic acid (PTA), which is derived from crude oil and natural gas.

These two crude oil derivatives are reacted under a controlled set of conditions to form a polymer. Then, in a honey-like form, this polymer is extruded through a die-plate, cast into spaghetti-like strands, and cut into pellets. These pellets are crystallised and polymerised for a second time to increase their strength and to remove volatiles. The resultant FDA compliant pellets are packaged and sent to the plastics converters to make containers.

PET is globally recognised as a safe, recyclable packaging material for food and non-food products. PET packaging is selected for a wide variety of applications because it is safe, strong, shatterproof and chemically 100% recyclable into the same PET products (fibre and bottles).

Manufacturers use PET to package products because of its strength, thermo-stability, and transparency. It is also light which reduces both the costs and carbon emissions relating to transportation. Retailers use PET because it promotes high product visibility: its lightweight facilitates shelf stacking, and its shatterproof quality ensures safety, product integrity and a reduction in breakages.

Consumers choose PET because it is portable, lightweight, re-sealable for efficient on-the-go hydration, 100% safe and 100% recyclable.

From an environmental perspective, two points are the most important:

- PET is the most recycled packaging polymer on the shelves;
- The weight of PET packaging has reduced by more than 30% over the past 10 years.

PETCO are often asked why they promote plastic packages that are recyclable rather than biodegradable. In their view it makes better sense from both an environmental and economic perspective to capture the raw material and energy contained in a plastic bottle and use it again and again, instead of losing it as it degrades. (Source used: <https://petco.co.za/>)



In South Africa, Safripol makes virgin bottle-grade PET resin. The remainder of the market is supplied from China, Southeast Asia, and the Middle East. Some 68% of the PET produced and imported was used in the manufacture of beverage bottles. Extrupet and Mpact Polymers make recycled bottle-grade PET resin.

Growth of PET usage in South Africa is approximately 8% per annum, and in 2010 140,000 tonnes was produced.

Having said this, consumers need to be aware that the black triangle of chasing arrows on plastics in SA has a number inside which shows the type of plastic from which a product is made.



This triangle is not the same as the universal recycling logo and does not mean an item is being recycled in this country. The numbers help people in the industry, such as waste reclaimers, to sort plastics. Number 1, PET (Polyethylene terephthalate), has the highest recycling rate in SA. These plastics are used for carbonated drinks bottles and so on.

Two, 4, 5 and 6 can also be recycled.

Three and 7 do not belong in recycling bins.

An item such as a bottle may show three numbers, one for the bottle and other for the sleeve and cap.

Source: Plastics: Facts and Futures. Moving Beyond Pollution Management Towards a Circular Economy in South Africa WWF-SA report

The **SA Plastics Pact 2025** aims for 100% of plastic packaging to be reusable, recyclable, or compostable by 2025. Pact members are responsible for about a third of plastic packaging in SA. WWF-SA's Lorren de Kock says: "It is an ambitious target, but you need something concrete to move the needle and it is collective commitment. "We need concrete action. Just like climate change, this is getting worse. "In 2018 about 46% of plastics were collected for recycling as compared to 32.5% in Europe. However, the collection rate does not refer to the amount of plastic that is recycled. (Source: Plastic SA report)



According to Sir David Attenborough, the renowned naturalist and broadcaster **“It is high time we turn our attention fully to one of the most pressing problems of today – averting the plastic pollution crisis – not only for the health of our planet, but for the wellbeing of people around the world.”**

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