

PLASTIC RECYCLING

From Waste to New Products

Recycling plastic waste into new products is a piece of the puzzle in a sustainable waste management. There are two main categories of technologies for plastic recycling:

MECHANICAL RECYCLING

During mechanical recycling, plastic waste is recycled into new material without altering the chemical structure of the polymer.

CHEMICAL RECYCLING

In chemical recycling, sorted plastic waste undergoes a process where polymers are broken down into individual building blocks. These can then be transformed back into new plastic products.

These factsheets summarise the mechanical recycling processes.

HERE'S HOW IT WORKS:

1. COLLECTION

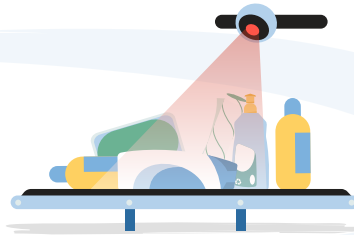
After a plastic product is used, it is collected – either separately, with other plastic or mixed with metal or paper.

Separate collection is one of the most effective systems as it guarantees a recycling rate up to 13 times higher than mixed collection.



2. SORTING

Current technologies like Near-Infra-Red (NIR), Visual Inertial System (VIS) or Artificial Intelligence (AI), sort the waste by material and product type. During this process, the plastic is placed on a conveyor belt, just like the one at a cash desk of a supermarket.



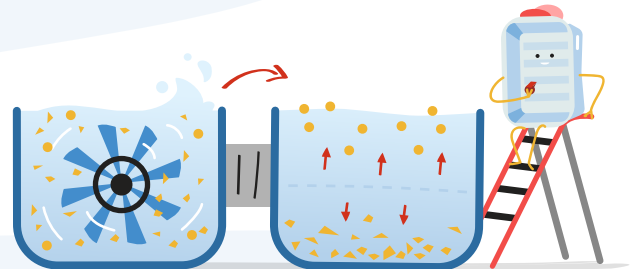
3. SIZE REDUCTION

Plastics are shredded into smaller pieces – called flakes – to ease reprocessing in the following stages.



4. WASHING & DENSITY SEPARATION

Flakes are washed in a tank to remove unwanted materials like food residue or dirt, as in a washing machine. They are also separated by density in a float-sink tank, where each type will either float if its density is lower than that of water or sink if it's heavier.



5. EXTRUSION

Plastic flakes are melted – just as wax melts – filtered to remove any unwanted materials, and turned into a material ready to be shaped into new plastic products!



6. QUALITY CHECK

Quality of recyclates is checked to ensure the highest technical and regulatory standards are met.

