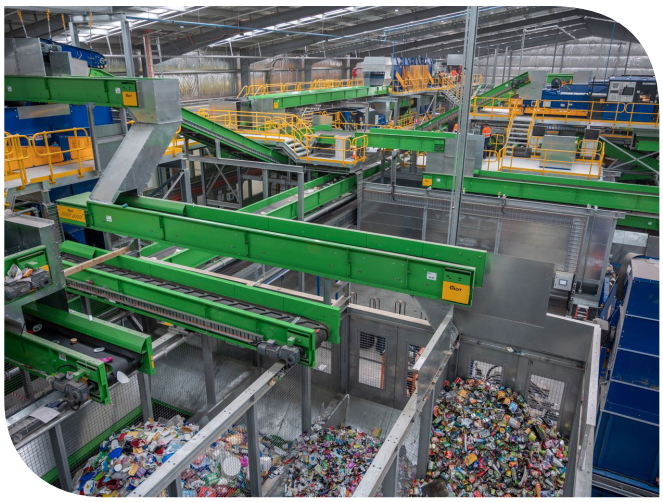
ADELAIDE'S SOUTHERN MATERIALS RECOVERY FACILITY

Resource Recovery for the Circular Economy

Re.Group specialises in resource recovery, aiming to extend the lifecycle of our everyday packaging materials and keeping them in the circular economy for as long as possible.



How does a Material Recovery Facility (MRF) work?

Mixed packaging materials are sorted into separate streams of glass, paper and cardboard, steel, aluminium, and plastic based on their properties such as size, shape, weight, density, magnetism and material type.

1 Receivals Area

Recyclable packaging materials are collected by trucks from homes and businesses and transported to the MRF where they are unloaded into the receivals area.

2 Infeed & Pre-sort

Materials are inspected for gross contamination before a front-end loader lifts the material onto the first conveyor.

Employees at a manual sorting station remove large contaminants and hazardous items.

3 Primary Screen

Materials enter a primary screening process which separates materials according to their properties such as size, shape and density.

At Adelaide's Southern MRF (SMRF) the first screen is called an OCC screen, which has different decks with spinning metal stars arranged at different angles. Small items like broken glass fall through gaps between the stars, containers and cans fall through medium sized holes, and big items like paper and cardboard go through onto another conveyor.

4 Glass Beneficiation Plant (GBP)

Broken glass and other small items from the primary screen can feed into a Glass Beneficiation Plant (GBP), or a Sand Plant. At the SMRF small pieces of glass are sent to a sand plant, which removes contaminants such as paper labels, metal and plastic caps.

5 Sand Plant

Broken glass fines that cannot be made into new bottles are crushed until they are a similar size and shape as natural sand particles, without any sharp edges. This is then made into quality sand for use in infrastructure projects.

6 Paper & Cardboard

Paper and cardboard from the primary screen pass over bounce conveyors and ballistic separators that shake out small pieces of contamination, and then through a series of advanced optical sorters to remove contaminants like film plastic. People or robots undertake a final quality inspection before the clean material goes to the paper baler.

7 Magnet

The 3D materials from the primary screen and ballistics separator pass under a magnet that removes ferrous metals such as steel and tin cans, which go to the steel baler.

8 Eddy Current Separator

Remaining 3D materials pass through the eddy current separator, which uses electromagnetic fields to excite non-ferrous metals (such as aluminium cans) and makes them jump off the belt into the aluminium baler.

9 Plastics and Containers – Polymer Sorting

The SMRF has advanced optical sorting technology, which uses Near Infrared (NIR) scanners to identify the types of plastics based on the spectrum of light they reflect, and air jets shoot out the items based on types of plastic and colours, e.g., PET clear and coloured bottles, PET trays, HDPE natural, HDPE colour, PP plastic containers and other plastics.

10 Waste

Non-recyclable waste from the sorting process is taken to landfill, while some items – like batteries and gas bottles – are too dangerous even for landfill and have to be specially collected.

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MATERIALS RECOVERY FACILITY

Recycling Process

