

Waste decomposition times

The break-down of waste depends on a number of factors including the availability of air, moisture, light and microorganisms, and the type of waste. Biodegradable, or organic waste, typically originates from plant or animal products and includes food scraps, garden waste and paper. Organic waste generally breaks down quite quickly into naturally occurring substances if air, light and moisture are present.

Non-biodegradable or inorganic waste includes manufactured products, such as plastic or glass, that take much longer to break down. Non-biodegradable waste is generally made from non-renewable sources such as minerals and oil. This waste is not broken down by microorganisms into naturally occurring organic products, but will eventually break down into smaller and smaller pieces over time.

The following image shows the time it takes for litter items to break down naturally. These times are based on the assumption that items are exposed to air, light, moisture and microorganisms. Note that, even though the plastic bags, bottles, six-pack holders, disposable nappies and polystyrene cups are listed as breaking down in the times indicated, they are all petrochemical products which **never truly break down, instead they break down into smaller and smaller pieces and always remain in the environment.**

Item	Timeline
Banana Skin	3 to 4 weeks
Paper bag	1 month
Cardboard	2 months
Wool sock	1 year
Orange peel	Up to 2 years
Chewing gum	Up to 5 years
Cigarette butts	Up to 12 years
Plastic bags	Up to 20 years
Polyfilm wrapping (cling wrap)	25 years
Leather Shoe	Up to 45 years
Tin cans	50 to 75 years
Plastic bottle	450 years
Plastic 6 pack holder	500 years
Disposable nappies	500 years
Polystyrene cups	More than 500 years
Aluminium cans	1 million years / forever
Glass	1 to 2 million years



Did you know?

It is estimated that Australians consume more than 4 billion plastic bags a year. Worldwide, it is estimated that more than between 500 million and 1 trillion plastic bags are consumed annually. This trend of using plastic bags instead of bringing your own bag is having a disastrous effect on our environment as many find their way into oceans and waterways.

In 2018, Queensland banned the use of lightweight single-use plastic bags in all retailers. By eliminating the single-use plastic bag, we will remove up to 900 million single use plastic shopping bags from our landfill and we will prevent up to 16 million plastic bags from becoming litter in Queensland, including our precious Moreton Bay and Great Barrier Reef areas.

Decomposition in landfill

In a landfill, where the waste is compacted and buried, there is very little air, moisture or microbes. Under these conditions, rubbish breaks down very slowly. An archaeological dig of a landfill in America, 50 years after waste was buried, found perfectly preserved heads of lettuce, 40-year-old hot dogs, and completely legible 50 year old newspapers. These items are all organic and would normally break down in less than 6 months if exposed to all the elements needed for decomposition.

When organic waste is buried in landfill, decomposition occurs anaerobically, that is, in an environment free of oxygen. This process creates landfill gas made up of methane and carbon dioxide, which are potent greenhouse gases. These gases are captured using pipes and either flared off or converted to electricity to reduce the effect on our environment. Landfill sites need to be monitored for landfill gas for 30 years after dumping has stopped to continue to manage and control these greenhouse gases.

When non-organic waste is buried in landfill such as plastic, metals and glass decomposition occurs so slowly that it is likely that they will remain buried in landfill indefinitely. At this stage, it is not known how long these materials will take to start to decay, or even if items like glass jars will ever decay.

Did you know?

Every disposable nappy ever buried at Rochedale Landfill is still there - many parts of the nappy will never break down completely.