

Marine debris – how long until it's gone?

A one-litre soft drink bottle could break up into enough little bits to put a piece on every mile of beach in the entire world.



Credit: Archipelagos-Institute of Marine Conservation

While some marine debris degrades quicker than others, plastics can take the longest. Months and even decades in the ocean will do little to break it up.

Do plastics "go away"?

Because the ocean is a cold, dark place, any decomposition happens slower in water than on land. Even food scraps can last up to two years. Plastic is extremely durable and doesn't biodegrade. Instead, it photo degrades from exposure to the sun. This means most commonly used plastics *do not* "go away" in the ocean within a measurable time frame, but continue to break up into smaller and smaller fragments until they are too small to see with the naked eye. Every piece of plastic that ever ended up in the environment is still around somewhere.



Left: What used to be bottles, toys and containers eventually turns into plastic soup.

Credit: John Vonderlin; Alf Mertens; Ian Thomson

What are compostable plastics?

Starch-based "plastics" will biodegrade within two to four months in a home compost bin (**below**). Many plastic companies say that their plastics are compostable. However, these claims are questionable because the plastics industry operates under its own definition of compostable. Credit: Green Plastics



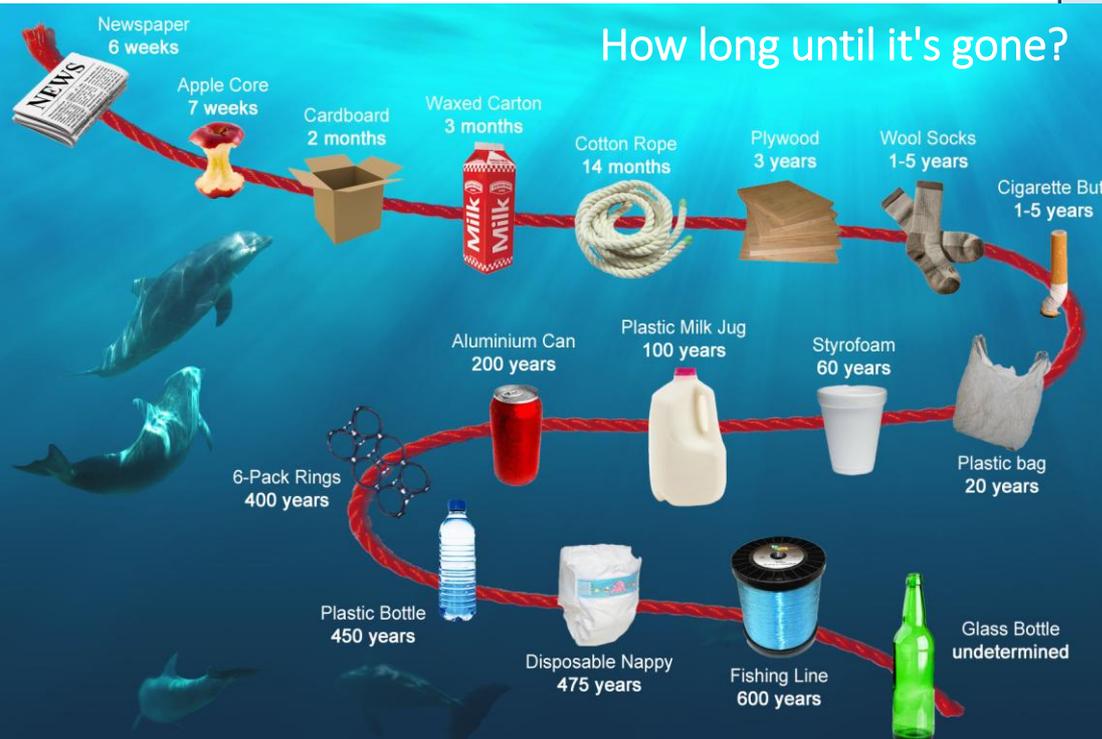
Degradable products break up through sunlight and heat into smaller pieces of plastic until they become plastic powder. The amount of plastic *does not* change.

Biodegradable products break down into their base components through naturally occurring microorganisms. These components may contain toxins or heavy metal in harmful amounts.

Compostable products take it a step further and break down into water, CO₂ and natural minerals that provide nutrients to plants within one year. No harmful residues are left behind.

How do they know how long it lasts?

Plastic items have only been around for about 60 years, so there's no firsthand evidence of their decomposition rate. To make long term estimates scientists place solid waste samples under ideal conditions in a microbe-rich compost. Over several days they then measure the carbon dioxide that the microorganisms produce when feeding on the sample and breaking it down. But with most plastics tested nothing happens, no carbon dioxide is produced. The microorganisms don't recognise plastics as food. However, it is hard to determine how long it really takes, and citing "400 years" might just be another way of saying "a very, very long time". Credit: Angelika Volz



AUSTRALIAN MARINE DEBRIS INITIATIVE



For more information or to get involved visit www.tangaroablue.org

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