

Breaking down plastic

Biodegradable plastics sound like an ideal waste solution, but their environmental benefits may depend on where you live.

A greener plastic bag... or nappy?

By **Chris Doyle**

Last updated: 8th July 2015

Pick any product off a **supermarket** shelf and there's a good chance it's either made from plastic or **packaged** with it in one form or another. Not surprisingly, all this plastic adds up. Australians send more than a million tonnes of plastic waste to landfill every year, where it will sit for generations as it ever-so-slowly breaks down.

In an effort to tackle the growing waste problem, some plastic products are now being made so they break down more readily. But do these so-called 'biodegradable' plastics really give you a chance to outlive a muesli bar wrapper? Or is it just clever spin aimed at grabbing your green dollar?

More than just grocery bags

The conversation on biodegradable plastics has so far focused on supermarket shopping bags, and for good reason. As a nation we use nearly four billion of them every year, according to **Planet Ark**.

But there are many other products in which biodegradable plastics are already being used. "You can find them in almost anything out there, it just depends on the region you are in and the brands that are available to you," says Teresa Clark from US-based plastics manufacturer ENSO.

Clark says biodegradable plastics are targeted at replacing those items you usually use once and throw in the rubbish bin, like the plastic that holds your **breakfast cereal** or the packaging on kids' toys. Some products already available in Australia include bin liners, cling film, sandwich bags and **nappies**, with more products expected to roll out in the near future.

What does biodegradable mean?

Something is considered biodegradable if it can be broken down by living things, usually by microorganisms like bacteria and fungi. When it comes to plastic, however, the meaning of biodegradable gets a little more complicated.

There are certain conditions, like temperature and moisture, which affect how well a plastic breaks down. This means a biodegradable plastic will not simply break down wherever it ends up. If it is not disposed of correctly or ends up as litter, it might not break down at all.

In Australia, the term biodegradable usually refers to plastics that are 'compostable', meaning they will break down when placed in a home compost bin or commercial composting facility. When disposed of correctly, a compostable plastic will almost completely biodegrade within six months – a big improvement on the 100-plus years it would take for something like a normal plastic bag to break down in landfill.

There is an Australian standard that specifies the conditions that must be met for a plastic to be considered compostable, but it is voluntary for manufacturers to verify that their products conform to the standard. Rowan Williams, president of the **Australasian Bioplastics Association**, which administers

the verification scheme in Australia, says it's easy to know if a plastic has been verified by looking at the label (see **How do I know it's biodegradable?**). "Unless it is verified, then it may not actually be compostable," he says.

Can I put compostable plastics in my rubbish bin?

You sure can – but it will be of little benefit. Most of the general (non-recyclable) rubbish in your bin ends up at the local landfill, and the idea behind compostable plastic is to divert the plastic from landfill altogether.

"They may eventually biodegrade in landfill, but it will be very slow and there would be little point in doing that," says Williams. "It is a feel-good factor, in terms of buying the compostable plastic, but it's not something that you should do if that is where it will end up."

And if compostable plastics end up as litter, there is also no guarantee they will break down.

So where *can* they go?

If the plastic is labelled 'home compostable', then it can go in your home compost bin. But the majority of products currently available are labelled 'compostable', meaning they need to go to a commercial composting facility, where they get treated with high temperatures to create an organic-rich soil that can be on-sold.

Williams says there are around 150 of these facilities in Australia, but not many of them are in the major cities. "If you've got the place for these plastics to go then it works beautifully, but today in mainstream Australia there is no guarantee that a compostable plastic will go to a composting site because they are not that prevalent."

Some local councils provide easy access to composting facilities through their kerbside waste collections. In South Australia, for example, kerbside collection of compostable waste, including food waste, is provided in most local council areas.

If your local council allows you to put food scraps into your green organics bin along with your garden waste, then there is a chance that waste may be going to a commercial composting facility – check with your local council to be sure.

If you don't have access to a commercial composting facility, you can contact the **Australian Organics Recycling Association** to find the nearest facility that's a member of the association.

What if it's not compostable?

You may come across products that are labelled 'biodegradable' but don't claim to be compostable. These products should not be disposed of in a composting facility or in your home compost bin. The best way to dispose of these plastics depends on the product, but it should be written on the label. For example, we've come across plastic products labelled as 'landfill biodegradable', which means they can be disposed of in your general rubbish.

Also, look on the label for how long it will take for the plastic to break down and by how much (for example, 100% biodegradable means the entire product will biodegrade). Unlike for compostable plastic, there is no Australian standard for labelling a product as biodegradable, which means there is no time limit on how long it must take to break down. A product can be called biodegradable if it takes two years to break down or if it takes 10 years – just so long as it eventually happens.

'Degradable' is not biodegradable

Plastic and plastic-wrapped products have popped up on supermarket shelves carrying the label 'degradable' or 'oxo-degradable'. These products should not be confused with biodegradable plastics, as they do not require living organisms to break down. Instead, chemical additives are used in the plastic to make it crumble more quickly than it would otherwise.

Degradable plastics can help reduce the amount of plastic litter that we see, but the plastic is still there, just in smaller pieces. And smaller pieces of plastic litter can actually be hazardous to more wildlife.

For example, Dr Denise Hardesty, a research scientist with the **CSIRO**, says small pieces of plastic are having harmful effects on marine animals.

"Parts of a plastic bottle or plastic bag may be more accessible to larger marine species like turtles and seals, but those same items become accessible to more and more species in the food chain as they break down," Hardesty explains.

Fish, crustaceans and even corals are known to eat small pieces of plastic, mistaking them for food. And as these smaller animals get eaten by larger ones, Hardesty says the plastic accumulates up the food chain, affecting more and more species as it goes.

How do I know it's biodegradable?

The label should tell you all you need to know, but there can be some other confusing terms on there as well. Here's our guide to what – and what not – to look for.

Look for these terms:

- **Biodegradable** will biodegrade, but generally not as quickly as compostable plastic. Look for products that state they are 100% biodegradable and show the disposal method.
- **Compostable** will biodegrade in a commercial compost facility. Look for the Australian Standard number (AS 4736-2006) on the label.
- **Home compostable** is the best option if you have a home compost bin. Look for the Australian Standard number (AS 5810-2010) on the label.

But look out for these:

- **Bio- or plant-based** means the plastic is made from plant materials rather than fossil fuels, but this doesn't necessarily mean it is biodegradable or compostable.
- **Bioplastic** is a confusing industry term that has two meanings – it could mean the plastic is biodegradable/compostable or that it is made from plant materials. Ignore this term, as it's not reliable.
- **Degradable** is neither biodegradable nor compostable.

Reduce your plastic waste

The best way to reduce your plastic waste is to use as little plastic as possible. Here are our top tips for reducing your plastic waste:

- Say no to plastic bags, not only at the supermarket checkout but also when picking up your **takeaway** from local restaurants and food outlets. Check out our guide to **sustainable shopping bags**.
- Buy your fruit and vegetables loose and avoid pre-packaged ones. Don't put your fruit in the small plastic barrier bags at the supermarket – it might take a little longer at the checkout but the plastic you save will be significant.
- Store leftovers in a reusable container rather than covering them with cling film.
- Choose products that have as little plastic packaging as possible. For example, if you buy **rolled oats**, look for brands that use cardboard packaging rather than plastic.
- Use a lunchbox and ditch sandwich bags and cling film altogether.
- If your local council doesn't require you to wrap your rubbish, try not using a bin liner. Wrap wet

food scraps in a small amount of newspaper before putting them in the bin and hose your bin out regularly.

Also remember to **recycle your plastic waste** where possible.

CHOICE verdict

Incorporating biodegradable plastics into everyday consumer products makes sense, but they need to be disposed of correctly to be of any benefit. If you have a home compost bin or access to a commercial composting facility, then home or commercially compostable plastics are the best choice. Ultimately, however, the best way to reduce your plastic footprint is to use as little of it as possible.

The author



Chris Doyle

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How to recycle Plastic

23 July 2015



Happy99

from Gold Coast

☆ **MEMBER**

Coles have a "plastic bag recycle bin" in all of their stores and Woolworths has started to follow suit. This includes recycling bread bags, pasta bags, frozen food bags etc. etc. Even old recycled bags! Plastics are passed on to have them made into furniture and the like,

apparently.

So please promote this wonderful opportunity, for recycling the plastics we can't avoid with our purchases.

Response from CHOICE

Chris Doyle, News & Investigations

23 July 2015

Hi Happy99

Thank you for the suggestion. We have previously featured this initiative on our website. Further details can be found here <https://www.choice.com.au/shopping/...>

Was this helpful?  1  0 Report this comment 

hard plastic is now being recycled

20 July 2015



Hansbru

from Perth WA, Australia Gender: Male

☆ **MEMBER**

With all time and effort spent to create biodegradable plastic, we seem to be overlooking options to reuse hard plastic. One company in particular, has developed technology which enables them to convert hard plastic into permanent infrastructure such as beach and forest walkways and park benches, which do no harm to the environment and require no maintenance for many years. So while ever we have a need for more park benches and the like, we need not worry too much about making plastics biodegradable. :)

Was this helpful?  0  0 Report this comment 

What plastics are recyclable?

16 July 2015



TeddyBare

from Buderim QLD **Gender:** Male

★ **MEMBER**

If all plastics could be recycled the use of them would be less of a problem for landfill etc. We need much clearer guidance on what can be put in recycle bins.

Response from CHOICE

Chris Doyle, News & Investigations

26 July 2015

Hello TeddyBare

Unfortunately not all plastic products can be recycled - like nappies for example. Those products that can't be recycled are the target market for biodegradable plastics.

Your local council should be able to provide you with a comprehensive list of what can be recycled using your kerbside recycling bin. A great guide is also provided by the Victorian government's 'Get it Right on Bin Night' campaign, but this may differ slightly to what is allowed to go into your bin if you are outside Victoria. You can view the recycling guide at <http://www.getitrightbinnight.vic.g...>

You may also be interested in some more information on how to recycle 'soft' plastics that can't go into your recycling bin, like bread bags and plastic film for example, which can be found on our website at <https://www.choice.com.au/shopping/...>

Was this helpful?  2  0 **Report this comment** 

Avoid wrapping food scraps in plastic

16 July 2015



Dudjen

from Sydney Australia **Gender:** Male

★ **MEMBER**

In addition to your tips on reducing plastic waste I would suggest households keep worm farms if they don't compost. Great way to dispose of food scraps.

Was this helpful?  2  0 Report this comment 

Why is landfill plastic so bad?

16 July 2015



JustRalph

from Hopetoun, Western Australia Gender: Male

☆ MEMBER

The author has completely ignored the other side of this story. Slow-degrading plastic 'sequesters' carbon and so reduces the carbon dioxide reaching the atmosphere, just like trees, soils, unburned materials of all sorts, and indeed any carbon-containing material in stabilising conditions. Especially when they have a very limited supply of oxygen.

This property is generally welcomed in many discussions and policies on climate change but for some emotional reason landfill plastic accumulation continues to be ignored for its small but significant contribution.

The Choice recommendation should just say 'Don't burn or compost your plastic waste but just ensure it goes securely into ordinary landfill refuse'.

Green arguments really need to look at honest science rather than just popular opinions.

Was this helpful?  1  1 Report this comment 

Great article but what do compostable plastics break down into and can we be sure the products of the breakdown are safe?

15 July 2015



Janet15

from Sydney

☆ MEMBER

You have answered some key questions but a lot of other questions immediately sprang to mind. What do compostable plastics break down into? Is there any reason to be worried about the long term accumulation of the breakdown chemicals? A bit more of the chemistry would be more reassuring. Are these plastics safe for wrapping food in, for use in a microwave or in a freezer i.e. what are the limits to their use? Can we buy compostable plastics for use at home and would this be a safe option? Another article with some more specifics would be great.

Thanks for starting this conversation.

Response from CHOICE

Chris Doyle, News & Investigations

23 July 2015

Hello Janet15

Thank you for your interest in the article. You have some raised some excellent questions. With regards to the breakdown products of biodegradable plastics, the Australian standard provides a list of hazardous chemicals that must be below permissible levels in the resulting compost once the plastics have biodegraded. The Australian standard also requires the compost be tested for toxicity to both plants and earthworms, a step which is not required in overseas standards for biodegradable plastics. This is another reason to look for products that have been verified to comply with the Australian standard.

With regards to food, biodegradable plastics are subject to the same approval processes as traditional plastics. If the intended use of the product includes food contact, then it must have approval for that intended use, and there is currently no evidence to suggest biodegradable plastics are any less safe than traditional plastics.

And with any plastic product you use in the microwave, make sure it is labelled 'microwave safe' before using it.

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