

Disposal, Composition and Decomposition of ‘Plastic Type’ Dog Poop Bags

Dog poo isn't something much of us spend time thinking about....but it negatively affects most people and is the consistently one of the highest sources of *complaints* by the public to their MPs, local councillors and *local authorities*.

Firstly, animal feces from dogs (and cats) are classified as offensive **waste and therefore cannot be spread on land**. This means that 78% end up going to authorised landfill and 19% to an incineration plant (Encams 2006). You can contact your local council if you are unsure of how they dispose of them.

Landfill

Essentially a landfill is a huge hole in the ground where the feces and ‘doggy bags’ are tipped. But due to the absence of light and air in the landfill they are not likely to 'compost'. Instead they will either ‘mummify’ (more on that later) or if they break down with little to no oxygen they will produce methane which is a powerful greenhouse gas.

Incineration

Incineration is the process of combusting the organic elements within waste streams (in this case dog waste / dog waste bags). Industrially this process is also known as ‘thermal treatment’.

With that out of the way, we can now look at what doggy bags are made of and what happens to the three main types of doggy bags: Single Use Plastic (SUP), Biodegradable Plastic (BP) and Compostable Bioplastics (CB).

Is there such a thing as an environmentally friendly doggy bag?

There are a myriad doggy bags available to buy, but the majority of dog owners use single use plastic bags. Others prefer the ‘green’ option such as ‘biodegradable’ ‘recycled’ ‘corn starch derived’, ‘potato starch based’ ‘bioplastic’ or ‘compostable’ bags. So, what does the jargon mean?

Broadly speaking you can classify dog poop bags into two main types:

- 1) **Single Use Plastics (SUP)** and **Biodegradable Plastics (BP)**. Both contain compounds derived from Polyethylene (a resin made from petroleum).
- 2) **Compostable Bioplastics (CB)** – these are made from Polylactic acid (PLA) (usually derived from corn or potato).

it is worth noting now that:

- A) Irrelevant of the type of ‘plastic style doggy bag’ you choose, if **they are not disposed of in the correct way**, they all end up the same way. Basically, all ‘plastic type doggy bags’ that go to landfill sit in a giant whole, devoid of light and oxygen and are squashed beneath hundreds of tonnes of other waste. These conditions are not conducive to enabling them to break down and/or compost down. Therefore the bags, and their contents, can remain in their original state for hundreds of years...irrelevant of what they are made of.
- B) SUPs and BPs degrade into micro plastics that pollute both land and water (more on that later)
- C) Only CBs have the potential to be environmentally friendly, since they can degrade and compost down into carbon neutral elements such as CO₂ and O₂....**IF they are disposed of in the correct manner**– namely composting. But even that’s not as simple as it sounds...or very easy to achieve. (Again more on that later!)

Single Use Plastic (SUP)

SUP bags are made from ethylene, which is derived from petroleum or natural gas, and do not degrade easily. Infact a single plastic bag can take over 500 years to degrade in a landfill...that is if it ever fully degrades. Globally, approximately 500 million plastic poop bags are used every year.

Biodegradable Plastics (BP)

Think of BPs as pretty much the same as SUPs...but with other compounds added that cause them to disintegrate (in the presence of light and/or oxygen) into microplastics - and potentially into other toxic chemicals.

To further compound this issue, even the most scientifically proven biodegradable plastics may not degrade or decompose in a landfill (as mentioned above). This is

due to the conditions within landfill sites, where compression and a lack of light and oxygen create anaerobic conditions. These conditions can result in the bags (and contents) simply 'mummifying'. Furthermore the 'anaerobic' decomposition creates methane gas, a powerful greenhouse gas.

'Biodegradable Plastics' should not be confused with 'Compostable or Bioplastics'. This is when things start to get really confusing...and its mainly down to marketing jargon designed to make us buy into a brand.

Compostable bags (compostable bioplastic (CBs)) are made from Polylactic acid (PLA) (usually derived from corn). However, similar to Biodegradable Plastics (mini-article two)_they will only break down given the correct conditions.

It is necessary to understand a couple of ambiguous terms:

Firstly the term '**compostable**'. To most people the term 'compostable' refers to a friendly steaming pile at the end of a garden. But 'compostable' can also refer to an industrial composting unit (discussed further down). An industrial compost facility is not your back garden compost pile, unless that is you manage it carefully.

Secondly - the clarification of the term '**composting**' – full decomposition means complete '[conversion of the bag into simple substances such as carbon. dioxide and water](#)' ([Source OECD](#)) that can be re-used by microorganisms like bacteria and fungi.

So you see there is a risk that consumers might misunderstand terminology and regulations regarding bags that are labelled 'compostable'. This is because there is a problem if they are disposed of in the wrong conditions (mini-article one).

It is worth remembering that:

- Unlike SUP and BPs, when CBs decompose (and release the carbon locked in by the plant matter as co₂) they are almost carbon zero (not taking into account the manufacturing processes used to create them etc).

- CBs **do not break** down into micro particles of plastic (but any ‘plastic type bag’ can cause an entanglement danger to marine life).
- But....unless ‘compostable’ bags of dog poop are collected separately from Single Use Plastic (SUP) and Biodegradable Plastics (BP) and taken to an industrial compost facility, they will end up in landfill or go to an incinerator.

So what is Industrial Composting

Compared with home composting, an industrial composting facility operates at around 60 °C or above – when you have those high temperatures along with moisture and oxygen, compostable plastics disappear quite quickly.

[Elizabeth Royte](#), writing in *Smithsonian*, said ‘PLA (Polylactic acid) may well break down into its constituent parts (carbon dioxide and water) within three months in a “controlled composting environment,” that is, an industrial composting facility heated to 140 degrees Fahrenheit and fed a steady diet of digestive microbes. But it will take far longer in a compost bin or in a landfill packed so tightly that no light and little oxygen are available to assist in the process.’

Further, In the [Truth About Biosplastics](#) Renee Cho wrote: “...as a result, bioplastics often end up in landfills where, deprived of oxygen, they may release methane, a greenhouse gas 23 times more potent than carbon dioxide. “

Home Composting

Compost, provides an ideal environment for biodegradation. Compost contains a diverse range of organic materials that support the growth of many different varieties of organisms. There is a huge diversity of microorganisms that exist in compost. These include bacteria, fungi and invertebrates that can digest a wide range of organic materials.

There are **bags** that are designed to meet the [European home compost](#) standards. These **should** completely degrade in 90 days in a **compost** bin that maintains a minimum temperature of 45°C. Some are claimed to degrade in as little as 10-45 days depending the **composting** system used.

Two certification organisations that offer specific “home compostability” certification programmes are Din Certco and Vinçotte. Check for the words 'Home composting' and the logos (EU certification of bags are EN 13432 and the USA is ASTM D640.)

Its not advisable to use compost containing dog waste near to or on food crops.