## Biodegradable, Degradable, Compostable, Food Waste; What's the Difference?

It can be tricky to know the difference between these terms. With people becoming more environmentally conscious it is important to understand the difference in materials, how they are reused and how they/if they decompose. This can help consumers dispose of their products via the correct waste stream.

### Product Labelling

**Biodegradable:** These materials can break down naturally by living things including bacteria without the need for added chemicals. Plant or animal-based microorganisms are used in the production of the material. Warmth and moisture help with the decomposition. However, being **biodegradable does not mean that the product is compostable** as biodegradable products may take a lot longer to decompose. The waste left at the end may not be beneficial to the composted soil.

**Oxo-biodegradable:** Plastic labelled as oxo-biodegradable typically doesn't break down fully in landfill unlike straight biodegradable products. This is because oxo-biodegradable products **need metal salts to start degradation** before further degradation by living organisms. **Small fragments of plastic are often left in the environment** due to a lack of oxygen. In addition, due to the addition of cobalt to some oxo-degradable plastics, the breakdown of these plastics **can produce chemical pollution**.

**Degradable:** Degradable materials do not contain the natural microbes found in biodegradable materials. These materials **do not decompose naturally**. In order to decompose **a chemical additive is needed** the help the material break down faster than your usual plastic bag. This will only decompose at a faster rate when the material is exposed to sunlight and oxygen. Degradable material which is sent to landfill or littered will be around for as long as plastic material. Degradable material is **not recyclable** and will ultimately just be broken down into tiny pieces instead of returning to the Earth.

**Compostable:** Material must **decompose in under 12 weeks** in order to be considered compostable and must enhance soil quality with non-toxic products. Composting is an accelerated form of biodegradation. Compostable materials are made from organic matter which microorganism decomposers can break down completely to form a highly nutrient-rich soil or compost. Products and packaging labelled compostable are not necessarily suitable for home composting and may need processing in an industrial composting facility. Most industrially compostable products will not biodegrade or disintegrate in the lower temperatures found in a home composting heaps. Compostable material includes leaves, grass clippings and non-animal food scraps. These would be suitable for your home compost.

**Vegware** items are considered compostable but only under **commercial composting conditions** – these are not suitable for your home composting.

**Compostable plastics cannot go in with your dry plastic recycling.**

**Food Waste:** Food waste (incl. animal waste) varies slightly from compost; as food waste decomposes it releases large amounts of biogas (methane and carbon) which

can have a damaging impact on the environment. Our food waste is taken to an anaerobic digestion site called GenEco at Avonmouth. These plants use a controlled process to decompose at food waste at an accelerated rate using a sealed container heated at around 40°C. This method harnesses the biogas into a sealed container, these gases can then be used for fuel, electricity, heat, etc. The remaining material is a nutrient rich fertiliser.

## Plastic Labelling

The number of types of plastic available in the UK is increasing which can create confusion regarding which types can be recycled.

**Bio-based plastic:** Bio-based plastics are so called as they are produced from biological sources for example sugar cane. These plastics can be biodegradable or compostable however confusingly, they are **not necessarily biodegradable**. For a product to be labelled bio-based, not all of the product needs to be bio-based.

**Biodegradable plastic:** Biodegradable plastics can be broken down naturally by microorganisms but do not necessarily have been produced from biogenic (produced by living organisms) sources – they can also be made from fossil-based materials.

**Only non-biodegradable plastics can be recycled.** Some non-biodegradable bio-based plastics such as BioPE and BioPET can be recycled with standard dry plastics. Unfortunately, the biodegradable and bio-based plastics are mostly incinerated or landfilled in the UK as they are difficult to recycle. In addition, plastics labelled compostable often can't be composted domestically and will need to be processed in a composting facility.

## Compostability Labels

**Compostable =** A material which must break down within 12 weeks either under a domestic or commercial composting environment.

The European EN13432 and the American ASTMD 6400 certificates are the most widely used compostability standards both covering the same 4 core elements:

1) Biodegradation

2) Disintegration

3) Eco-toxicity – broken down material is useful for plant growth.

4) Heavy metals – broken down material is safe to go onto land.

## Certification Bodies

Within the UK, products and packaging are primarily certified through two European certification bodies: **TUV Austria (formally Vincotte) and DIN Certco**. DIN Certco issues certificates for compostable material based on the EN 14995 (or ISO 17088) and for compostable packaging based on the EN 13432 (or ASTM D6400) standard. TUV Austria issues certificates for compostable plastics based on EN 13432, as well as certificates for plastics that can be composted in home composting in addition to plastics that biodegrade.

**TUV Austria** (authorised by European Bioplastics) have multiple certificates covering compostability, biodegradability and products being biobased.


The OK compost industrial label guarantees that the **whole product** can be composted in an industrial compost plant and follows the European standard for compostability and biodegradation (EN13432).


The OK compost home certification guarantees that a product can be composted within home compost heaps.


The OK biodegradable soil certificate guarantees that a certified product will completely biodegrade in the soil without adversely affecting the environment.


The OK biodegradable water certificate guarantee biodegradation in a natural fresh water environment- this certificate however does not guarantee biodegradation in marine waters.


The OK biodegradable marine certificate guarantees biodegradation in a marine environment.


The OK biobased certificate guarantees that a product is made from renewable materials as opposed to fossil-based raw materials. Products are labelled as being either a one-, two-, three- or four-star bio-based product depending on the percentage of renewable raw material used.

TUV Austria is also authorised by NEN (Dutch Standardization Network) who certify bio-based products using the European bio-based certification scheme. This scheme specifies the proportion of biomass used in the production of a bio-based solid, liquid or gaseous products.

**DIN Certco** is a German certification body.


Both DIN Certco and TUV Austria can award the Seedling logo if the product is in compliance with the European standard EN13432 as they are authorised by European Bioplastics. The Seedling logo awarded in combination with an OK compost label enables compostable products to gain recognition throughout the European market. The certification DIN Certco can also award the seedling logo.


The DIN-Geprüft test mark for industrial compostability is also awarded by DIN Certco and guarantees that a product is biodegradable in soil.

**The Biodegradable Products Institute** is North America's leading certifier of compostable packaging and products.


Products displaying this logo have been independently tested and verified as compostable through municipal or industrial composting facilities – not domestic composting facilities.

**The Compost Manufacturing Alliance** is another certification body from North America who test the suitability of products to be processed in industrial composting facilities.


Products displaying this logo have been thoroughly tested to prove their suitability for industrial composting facilities.