

Are biodegradable plastics better for environment than ordinary plastics?

Yes. Biodegradable plastics decompose into natural components, such as **water, carbon dioxide, and biomass** and **do not degrade the environment** in the long term. This ensures that plastics follow the natural cycle in the same way as tree leaves. Such natural cycles are possible, if biodegradable plastics are processed together with organic waste. If biodegradable plastics find their way into landfills, however, these cycles **are broken** as modern landfills are isolated from nature. Some biodegradable plastics are based on renewable resources (e.g. starch), which means that a renewable resource in biodegradable plastics participates in the natural cycle ("from nature to nature") and minimally burdens the environment with greenhouse gasses and comes very close to the ideal of **sustainable usage of goods and resources**.

Can I dispose of biodegradable plastics in natural environments?

No. Biodegradable plastics decompose optimally under the conditions of industrial organic waste processing. In nature, this process is **slowed down**. Waste, disposed of directly into nature, degrades the environment and is **dangerous to animals** in the same way as non-biodegradable plastics.



Do biodegradable plastics contribute to sea pollution?

They definitely contribute if **disposed of irresponsibly into the nature**. However, biodegradable plastics do decompose in nature and are not a long-term threat to the environment. In water environments and seas lower temperatures and low concentrations of microorganisms **slow down the decomposition** compared to land or compost heaps. Despite that, the decomposition is much faster than with non-biodegradable plastics, which represent a serious threat to biological diversity and organisms in water environments.

design: lukatarina

Where can I buy biodegradable plastics bags and how much do they cost?

Biodegradable bags can be bought at all **larger and better stocked stores**. Biodegradable bags are more expensive than traditional plastic bags as the scale of manufacturing is smaller, making these products more expensive (including bags).

Can I avoid using biodegradable plastics?

Certainly. You can **store household organic waste in permanent containers** and empty them directly into the trash bin for organic waste. Be careful to separate non-biodegradable bags and plastic packaging and dispose of them properly. This way, your environmental footprint will be almost ideal, at least in terms of plastics. Whenever possible use permanent products and **avoid unnecessary usage of goods**.

This information leaflet is a part of the international project **PLASTICE**:

Innovative value chain development for sustainable plastics in Central Europe drives the use of sustainable plastics, particularly biodegradable plastics and renewable resource-based plastics. The project is designed to promote the understanding of these materials within different communities. We contribute to creating an ordered regulatory environment and encourage collaboration and knowledge transfer between research and the industry.

The project is being implemented through the CENTRAL EUROPE programme (www.central2013.eu) co-financed by the ERDF (European Regional Development Fund).

Visit our website at: www.plastice.org

plastice

Innovative value chain development for sustainable plastics in Central Europe

Biodegradable plastic:
What is it?





The leaflet in your hands will introduce you to biodegradable plastic and answer some frequently asked questions about these new materials.

What are biodegradable plastics?

Biodegradable plastics are plastics that are recognized as food by microorganisms and are metabolized into compounds such as carbon dioxide, water and biomass.

How does biodegradation work?

Biodegradable plastics will decompose under the combined influence of **abiotic** ("non-living", e.g. UV light, water, heat) and **biotic** ("living", e.g. organisms such as bacteria, fungus, algae) factors. During the first stage, the material loses its cohesion and **disintegrates into fragments**. In the second stage, organisms will **metabolize the fragments**.

Does disintegration mean that a material is biodegradable?

No. Disintegration or fragmentation is the first stage in the degradation process and merely results in **small particles**. Materials that are not certified as biodegradable are not metabolized by organisms and may **pollute the environment for longer periods of time**.



How can I distinguish between biodegradable and ordinary plastics?

Biodegradable plastics are **not visibly different** from ordinary non-biodegradable plastics. To identify them properly, we depend on product markings. They must clearly denote that a material or a product is biodegradable or designed for composting. This is unambiguously attested by a **special certification logo** (see picture) that must carry a **certificate number**. Markings without a certification logo, such as "environment-friendly", "100% degradable" and similar, signal that the material has **not been proven to be biodegradable** and is not appropriate for composting. We recommend that **you avoid** purchasing such products.

Right: The most common certification logos for plastics suitable for composting.



Biodegradable plastics carrying certification markings are suitable for composting.

Are biodegradable plastics manufactured from renewable resources?

Not necessarily. Biodegradable plastics may be manufactured from **fossil (non-renewable) resources as well as from biomass (renewable resources)**. Biodegradability is not determined by raw materials but by the nature (**structure**) of the material. However, the majority of biodegradable plastics on the market are made from renewable resources.

Which products are made from biodegradable plastics?

Biodegradable plastics may be used to make **the majority of plastic products**. The most common products are **biodegradable bags** that are used for organic household waste. Biodegradable plastics are also used widely to **manufacture packaging**, disposable plates, glasses and cutlery, diaper parts, products used in farming, etc. We also find them in many eco products and their use is consistently **spreading**.



Does a biodegradable plastic bag decompose, if it gets wet?

No. Biodegradable plastic bags have the **same characteristics** as traditional plastic bags. The decomposition process starts after a longer period of time, particularly under the conditions of **industrial composting**.

What do I do with biodegradable plastics once they become waste?

Biodegradable plastics can be disposed of together with organic waste. The proper handling of biodegradable plastics includes **aerobic** (composting) or **anaerobic** (biogas) decomposition. Do not dispose of biodegradable plastic with other packaging waste (packaging, plastics, etc.). Its different processing characteristics may cause problems, when recycled with other, non-biodegradable types of plastic. Some biodegradable plastics will need more time to decompose in domestic compost heaps as the speed of decomposition is adjusted for industrial composting with higher temperatures.

