

Plastic Alternatives and Terminology

Summary

The best solution is not to use plastic in any form.

For In-house service: use reusable dishware, glassware and utensils. Provide straws only upon request. If a straw is requested, provide eco-friendly alternative straws that are plant-based. **For taking home leftovers, encourage customers to bring their own reusable containers.**

For take-out service: **First encourage customers to utilize their own reusable cups, straws and utensils for take out orders.** If reusable takeout cups, straws or utensils are not an option, then which products should you purchase:

- **Paperboard Compostable products** that are [BPI - Certified Compostable \(bpiworld.org\)](https://www.bpiworld.org/) and meet the [ASTM Standard D6400](https://www.astm.org/standards/D6400).
 - **BPI Certification** also ensures the product is [free of PFAS chemicals](#).
 - Paperboard containers are an excellent option with no chemicals, cheaper than plastic, and are compostable in all environments.
 - Example: **Paperboard** \$0.17
- **Aluminum Containers** are highly recyclable and can be recycled multiple times. Market demand is what drives recyclability. Aluminum containers are less expensive than plastic. Example of 8" size:
 - **Aluminum w top** \$ 0.23 vs.
 - **Plastic** \$0.40 (made with petroleum contaminates soil, water, and food sources)
 - **Black bottomed plastic** \$0.37 (black can't be recycled)
 - **Styrofoam** \$0.16 (is not recycled and lasts forever)
- **Plant-based products** are derived from plants and other renewable agricultural, marine, and forestry materials. They contain a high percentage of plant-based materials. They are compostable in a commercial compost facility and free of PFAS if BPI certified.
 - One example is **Compostable Fiber Clamshell** \$0.27
- **Bioplastic products** that are classified as **PLA** or **PHA**.
 - **PLA Plastic Containers:** look like and feel like petroleum based products **without the petroleum**. PLA (polylactic acid) plastic is made from the sugars in corn, cassava, or sugarcane.
 - The FDA recognizes it as a food safe packaging material.
 - They are compostable in a commercial compost facility and free of PFAS, if BPI certified.
 - Example: **16 oz. Container with Flat Lid** \$0.20
 - Example: **16 oz. Cup** \$0.11
- **Beware of the term "Biodegradable"** when not used in conjunction with BPI certified. Only BPI certification ensures the product meets proper compostability standards.



Terminology

Biodegradable

Biodegradable items refer to just any material which breaks down and decomposes in the environment.

“Biodegradable” is not an appropriate marketing term or claim for describing end of life behavior because it lacks specificity on timeframe and environment. More importantly, the term is often used to describe non-compostable products intentionally made to look similar to certified compostable products. These products are commonly referred to as “lookalikes” and are a leading cause of contamination at compost facilities.

The terms biobased and biodegradable are not synonymous nor are they interchangeable. If a material is biobased, it comes from plants or animals, but it does not necessarily follow that it is biodegradable. A material is biodegradable only if microbes in the environment can break it down and use it as a food source. Only BPI certification ensures the product meets proper compostability standards.

Bioplastic

Bioplastic simply refers to plastic made from plant or other biological material instead of petroleum. Since there are different types of bioplastics each has a different breakdown process and timeline.

Bioplastic products are classified as:

PLA or

- PLA(polylactic acid) is a bioplastic derived from plant sugars. It can be made from the sugars in corn, cassava, or sugarcane.
- PLA plastic looks like and feels like petroleum based products **without the petroleum**.
- The FDA recognizes it as a food safe packaging material. It is typically used to create eco-friendly containers and cups for food and beverages, and it is also used as a liner in paper hot cups and containers to keep the paper from getting soggy.
- Ensure they are BPI certified. If they are BPI certified, they are also PFAS free.
- Unfortunately, most bioplastics don't break down in home composts, landfills, or loose in the environment. *Breaking it down must be done in a commercial compost facility.*
- They may have low levels of plant-based materials and could contain some plastic. Look for high levels of plant-based materials.
- *While they contain plant-based material, they may contain other polymers to make them stronger and therefore may break down slowly in the environment and into micro pieces similar to plastic.*

PHA

- **PHA** mostly used in straws (not as strong)
- PHA are bio-derived polymers that are **entirely biodegradable at end of life (EOL)**. They are **nontoxic** and leech nothing harmful into soil or water. They are **compostable at home or commercially**. They can be made from entirely renewable sources.
- They take a **fraction of the time to decompose** than other biodegradable plastics, i.e. one year for a plastic bottle instead of 100-1000 years.

Compostable

Compostable goods are specifically organic matter which breaks down, the end product having many beneficial uses which include fertilizing and improving soil health. Most importantly compostable items don't leave toxic residue behind because it's already organic. **Compostable products will break down easily despite external environmental factors.** Materials that meet either the European or US Standard will break down effectively in virtually all commercial composting systems.

Prominent and consistent use of the term [“compostable” instead of “biodegradable”](#) on all products, packaging and marketing materials will help consumers and others begin to understand the difference between legitimate compostable products and their non-compostable counterparts – a critical first step in the effort to send contamination free organics streams to composters accepting compostable products.

Currently, in the U.S., there is *no official way for ensuring biodegradability*. When it comes to **compostable items, however, they must pass testing before being labeled as such:**

- [Biodegradable Product Institute](#): BPI independently tests products to verify they meet ASTM standards in the US. They ensure that a product can safely contribute to soil after processing at a [commercial composting facility](#). Search for BPI products at [BPI - Certified Compostable \(bpiworld.org\)](#) Look for this BPI symbol on products. If they are **BPI certified they have no PFAS chemicals**.
- **ASTM Standards**
 - [ASTM Standard D6400](#): For a product to be labeled “industrially compostable” or “commercially compostable,” it must meet standards established by the American Society for Testing and Materials (ASTM). Standard D6400 indicates that breakdown occurs within 180 days and that the final product is not toxic to the environment.
 - [ASTM Standard D6868](#): ASTM D6868 indicates products that can be composted in industrial aerobic composting facilities without negatively affecting the environment. This standard is used for products with a film or coating made with biodegradable plastic.
 - [TÜV AUSTRIA OK compost HOME](#): Certifies that a product can be Home Compostable and can break down in the lower heat of a home composting environment in less than a year.



Plant-Based Compostable

- All-natural composition and does not require special composting equipment to dispose of it.
- Stick to compostable items made from “earth digestible” materials.
- There are a lot of these, including wood, paper, cardboard, bamboo, bagasse, miscanthus, seaweed, hay, and other fiber-based materials. Some are made from wastes left over from industrial processes, which makes them less expensive. Bagasse, for example, is a byproduct of the sugarcane industry. Because such items are not produced from virgin materials they may have a lower production footprint, and are therefore more sustainable.

Plastic

Plastics are made from petroleum and chemical additives. These chemicals can leach from food containers into the food we eat. Plastic takes 100s of years to break down and during this process leaches chemicals into the environment. Plastics break down into micro-plastics which are small pieces of plastic that enter into our soil, the air we breathe, our water, and landfills. The farm animals and fish consume these micro-plastics when they are feeding on farm land or in our rivers and oceans. We consume these micro-plastics as we eat our meals. On average we are ingesting 5 grams of plastic every week, the equivalent of a credit card. Some plastics like styrofoam, never decompose. **Recycling of plastics is not the answer. Reducing production and consumption of plastics is needed.** Where plastic-like containers are required, BPI Certified or plant-based alternatives should be considered.

- Plastic bottles/cups/containers last 450 years.
- Styrofoam lasts FOREVER!
- Plastic straws last 200 years.
- Plastic utensils last 100+ years.
- Plastic bags last more than 20 years.

Sources:

- [BPI World](#)

- [Beta Analytic Inc.](#)
- [Columbia Climate School](#)
- [CNN](#)
- [USC.edu](#)
- [Health Research Funding](#)
- [National Geographic](#)
- [Treehugger](#)
- [Utopia](#)
- [Good Start Packaging](#)
- [Web Restaurant Store](#)