

Understanding Compostable Plastics






Not all compostable and biodegradable plastics are considered equal and interpreting the what the differences in green marketing jargon means in terms ranging from 'degradable', biodegradable' to 'compostable' can be challenging. Traditional plastic, the most widely used packaging material, consists mostly of polyethylene and polystyrene, which are derived from fossil fuels and take centuries to fully decompose, especially if entombed in a landfill. Biodegradable and compostable plastics utilize a base structure of conventional plastic with a starch product such as corn starch or sugar cane residual added to aid in its decomposition, as well as many more patented ingredients unique to the manufacturer.

Compostable plastics by definition have to be certified as "a plastic that undergoes degradation by biological processes during composting to yield carbon dioxide, water, inorganic compounds, and biomass at a rate consistent with other known compostable materials and leaves no visually distinguishable or toxic residues" (ASTM specification D6400-12). However, there remains a disconnect of information between the manufacturers of biodegradable polymers, the certification bodies and the scientific community with regards to acceptable degradation rates of these materials in composting facilities, and the risk of ecotoxicity of the residuals in municipal compost and by extension, our food systems.

While there are some certified compostable bags that do break down under the proper conditions at industrial composting facilities, it is important to know that despite many claims, the technology does not exist to make a plastic bag that will completely compost in backyard bins or piles, and even most certified compostable products still do not break down effectively within the designated processing time at commercial facilities. The best way to reduce waste and support our planet is to reduce the amount of plastic we use in the first place, compostable or otherwise. Although the compostable plastics industry is improving, there are still considerable energy outputs and unsustainable resources used in the manufacturing of these products. Unless your municipal kitchen scraps collection program mandates that you must use a certified compostable bag, the easiest thing to do is line your food scraps collection bucket with newspaper* or a brown paper bag (*in B.C., all black and white print uses soya or vegetable-based inks so there is no concern regarding toxic chemicals in the ink).

Below is a table that should help to explain the different types of plastics, bio-plastics and compostable plastics available and what appropriate certification to look for. To search certified compostable products visit: <http://bpiworld.org/>

| Plastic Type | Definition of Material | Associated Logo or |
|------------------------------|--|--|
| Conventional Plastics | <p>Usually synthetic, most commonly derived from petrochemicals, but may contain some natural components. Most common material for food grade containers, beverages and industrial material such as computer casings. Recyclable, but many plastics end up in landfills</p> <p>Note: "plant bottles" such as the ones made by Coca-Cola should <u>not</u> be added to your blue box as they can contaminate the recycling process</p> | <p>PLASTICS RECYCLING POLYMER IDENTIFICATION SYMBOLS</p> <p>1 PET Polyethylene terephthalate 2 PE-HD High density polyethylene 3 PVC Polyvinyl chloride 4 PE-LD Low density polyethylene 5 PP Polypropylene 6 PS Polystyrene 7 OTHER Engineering plastics</p> |
| Degradable* | <p>Consists of a mix of plastic and natural components; refers to a product that can change its chemical structure, but doesn't specify how long the change will take or what the product will change into</p> <p>*Does not mean compostable and will not break down efficiently in a landfill</p> | <p>No universal symbol-</p> <p>Covers a wide range of products, mostly conventional plastic, none of which are compostable or certified as safe for the natural environment once degraded</p> |

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| <p>Biodegradable*</p> | <p>Similar to degradable but consists of a mix of plastic and natural components such as polylactic acid (PLA), a corn based material. However to meet certification standards, the product must completely break down, decomposing into elements found in nature within a reasonably short period of time</p> <p>*Does not mean compostable and will not break down efficiently in a landfill</p> | <p>No universal symbol- Covers a wide range of products, mostly conventional plastic, none of which are compostable or certified as safe for the natural environment once degraded</p> |
| <p>Oxo- Biodegradable*</p> | <p>Made from oil or natural gas by-products, with an added chemical substance that helps to speed up oxidation of the plastic under natural conditions; leaves a potential heavy metal residue behind after degradation</p> <p>*Does not mean compostable and will not break down efficiently in a landfill</p> |  |
| <p>Compostable</p> | <p>Consists of a mix of bio-engineered plastic and natural components such as PLA, bamboo or bagasse (residual from sugar cane industry). Must be able to break down into carbon dioxide, water and biomass at the same rate as paper. It also needs to look like compost, should not produce any toxic material and should be able to support plant life.</p> <p>Only truly compostable if packaging states a certification symbol and then only suitable for certain industrial facilities</p> |   |
| <p>Backyard Compostable</p> | <p>Consists of unbleached paper with a thin cellulose lining. Bags will safely break down in a passive backyard composter within 6-12 months though some residual material may still be visible</p> |   |



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