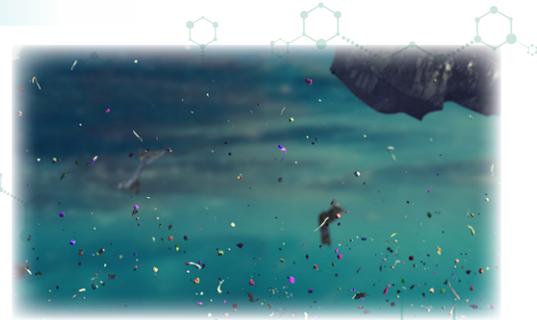


Clarifying Misleading Claims About Biodegradation

As demand for eco-friendly plastics grows, so does greenwashing. False claims and misleading labels deceive well-meaning consumers. These practices erode trust and can worsen environmental harm. To avoid being misled, consumers must understand the certifications and standards that separate sustainable, compostable, and biobased plastics from imitations as they make their switch from persistent plastics to the earth-conscious alternative.



What many people may not realize is that products made from oxo-degradable plastic, often marketed as “better” alternatives, contribute to the microplastic issue as they are made from traditional, persistent plastics. The damage caused by persistent microplastics is nothing short of alarming, and the consequences for the planet are far-reaching.

What Is Oxo-Degradable?

Oxo-degradable products are made from a persistent carbon-carbon backbone polymer, such as polyethylene (PE), that is blended with additive materials such as starch. The addition of additive materials accelerates the breakdown of the plastic, resulting in small, persistent fragments.

Traditional carbon-carbon backbone plastics take hundreds, if not thousands, of years to fully biodegrade. The addition of additive materials will cause traditional plastics to break down into microplastics that persist in the environment. If used in organic collection programs, oxo-degradable plastic will contaminate the final product, causing economic losses for composters and undermining organics recycling.

Unqualified Biodegradable Claims and Unsupported Superlatives

The U.S. Federal Trade Commission (FTC) Green Guides caution against unqualified “biodegradable” claims. To use this term legally in marketing, a product must fully break down into natural elements within one year after customary disposal. Without peer-reviewed data or certified testing (e.g., ASTM D5511, D5526), such claims are unfounded. Items destined for landfills, incinerators, or recycling facilities will not degrade within a year, so unqualified biodegradable claims, as noted below, shouldn’t be made.

- **Unqualified Biodegradable Claim:** ASTM D5511 biodegradability testing has shown 99.7% biodegradation in 1,697 days (less than 5 years) under anaerobic conditions.
- **Unqualified Biodegradable Claim:** ASTM D5526 biodegradability testing demonstrates up to 36.6% biodegradation in 391 days under landfill conditions.

Inappropriate Use of ASTM Standards
 ASTM D5511 and D5526 are commonly referenced by companies to claim biodegradation in a landfill. However, close review reveals that these are both *Test Methods* and not *Test Standards* with pass/fail criteria.
 In contrast, test standards such as ASTM D6400 and EN13432 do provide pass-fail criteria, and are used by certification bodies such as BPI or TÜV Austria to ensure that products meet the scientific requirements to make claims of compostability.

These claims are that they do not meet FTC guidelines, as the material will not fully biodegrade in more than one year.

Regulatory Impact

Because claims of biodegradability are often misleading, since 2013, California has prohibited the use of terms like “biodegradable,” “degradable,” or “decomposable”—or any implication that plastic will break down in landfills or the environment (California Public Resources Code § 42357). Similarly, Maryland, Minnesota, and Washington ban the use of “biodegradable” in marketing plastic products or bags unless supported by verified third-party certification and compliance with standards such as ASTM D6400 or D6868.

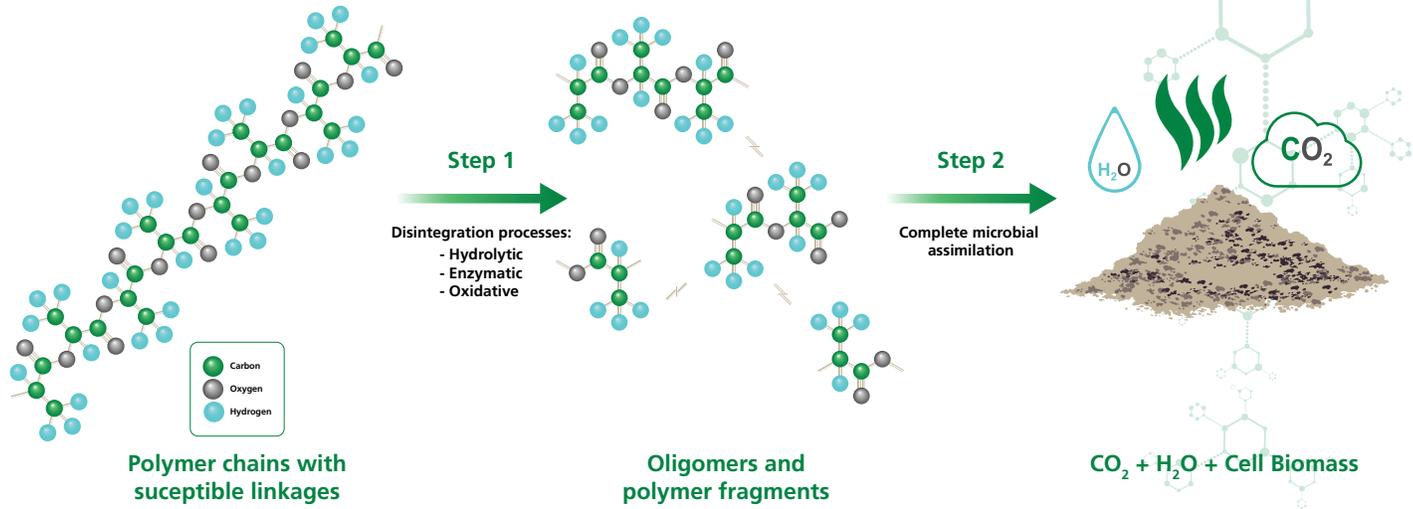
Landfills Are Poor Biodegradation Environments
 Landfills are largely anaerobic environments whose microbes and low oxygen conditions lead to poor and/or incomplete anaerobic biodegradation. Under these conditions, even organic materials like food and paper can remain intact for decades. Over time, organic material may slightly decompose, producing methane gas (a harmful greenhouse gas, with a global warming potential 23 times that of carbon dioxide).



What Makes Compostables, Compostable

Certified compostable plastics, made from carbon-oxygen backbone polymers, are designed to fully biodegrade during the composting process, not just fragment. Their polymer chains are engineered to break down through hydrolytic, oxidative, or enzymatic disintegration processes, allowing microbes to consume the fragmented residues as a source of food and energy. The end products are carbon dioxide, water, and biomass, with no plastic left behind. The resulting compost can then be used in sustainable agriculture and other eco-friendly applications, helping to build soil organic matter, improve water retention, and serve as a natural filter.

To avoid contributing to contamination, always ensure a compostable product is BPI-certified or approved for use in CMA compost systems. Certified compostable products go beyond the linear model, offering the ability to be composted at the end-of-life.



What They're Saying

"Oxo-degradable plastics persist as huge quantities of microplastics (i.e., smaller than 5 mm in size), which take thousands of years to fully disintegrate and cause significant harm to marine and soil life."

- Closed Loop Partners Composting Consortium

"...does not support the use of any kind of degradability additives in packaging, including additives that seek to make packaging more degradable in landfills, marine environments, or open environments (e.g., as litter)."

- Sustainable Packaging Coalition

"Problematic and Unnecessary Materials" include "degradable and biodegradable materials that are not certified compostable, including bio-assimilating, oxo-degradable, oxo biodegradable, and photodegradable materials used in plastics packaging."

- US Plastics Pact

"Oxo-degradable plastic packaging is not a solution to plastic pollution and does not fit in a circular economy"

- Ellen MacArthur Foundation

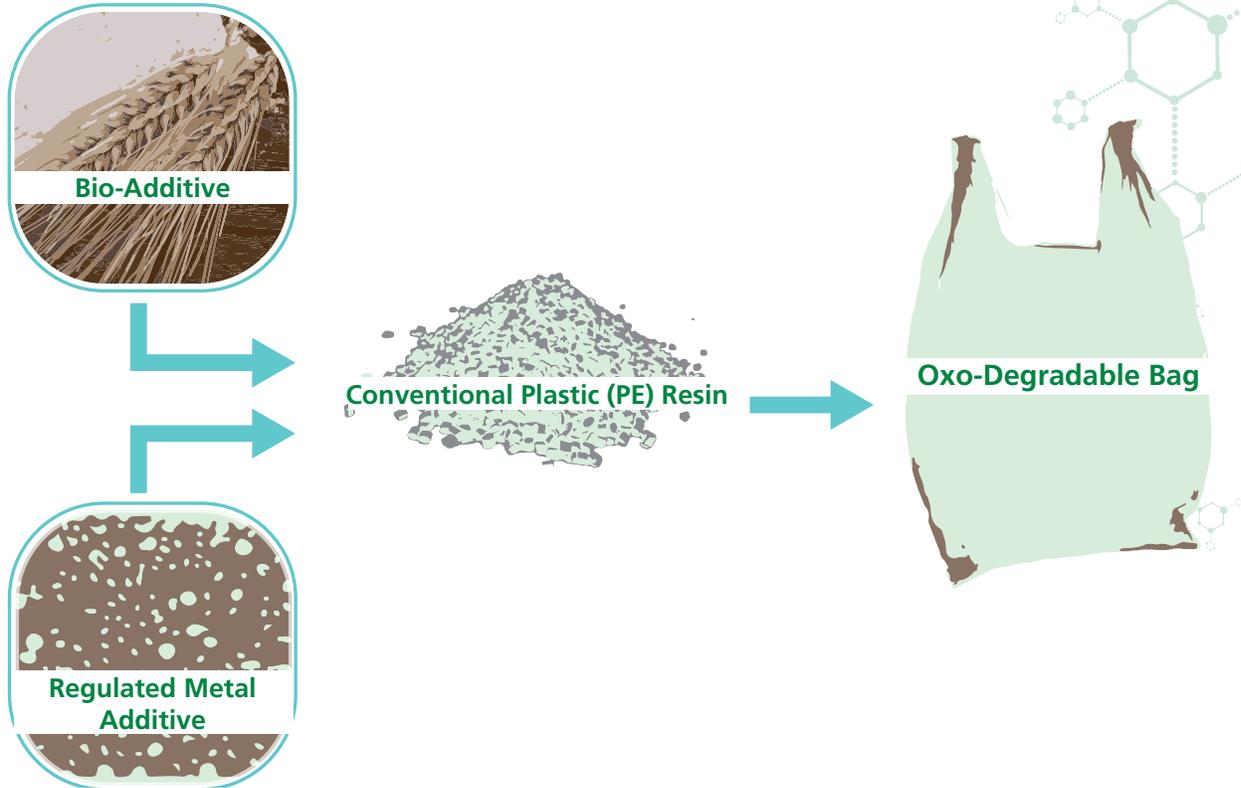
"The following SUP products cannot be placed on the market: products made from oxo-degradable plastic."

- EU Single Use Plastic Directive

Risk of Greenwashing

One of the main reasons industrial composters reject compostable products is contamination. Greenwashing leads well-meaning consumers to mistakenly place non-compostable items like oxo-degradable plastics in organics bins. If not removed during screening, these materials pollute the finished compost, rendering it unsellable. This not only causes financial losses but also erodes composters' trust in compostable products and worsens environmental harm.

Promoting vague or unverifiable environmental benefits misleads consumers and may violate advertising laws. Regulatory agencies such as the FTC in the U.S. and similar bodies in the EU (e.g., the Green Claims Directive) are actively investigating greenwashing. Misleading claims damage industry credibility and reduce trust in sustainability innovations.



Natur-Tec® embraces a science-based approach to sustainable packaging. All of our products are developed using technologies based on the following:

- Compliance with global environmental standards
- Use of certified testing protocols (e.g., ASTM, ISO)
- Transparent disclosure of environmental benefits and limitations

Natur-Tec® does not make claims of biodegradability unless validated by:

- Independent lab testing
- Recognized certification bodies (e.g., BPI, TÜV Austria)
- Context-specific disposal scenarios (e.g., industrial composting, anaerobic digestion)

Natur-Tec® encourages our customers, distributors, and industry partners to evaluate “green” product claims critically. Sustainability must be built on scientific evidence, not marketing language.

To learn more, visit www.naturtec.com.