

## Marketing Environmentally Degradable Plastic Products

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The topic of degradable plastics in their various forms continues to be in the news. Oakland recently copied the San Francisco ordinance requiring bags to be reusable or compostable. Other cities around California specifically and the U.S. in general are considering similar legislation.

It is of concern to this author that these laws will serve as a “de-facto” ban on polyethylene bags as the volume of truly compostable plastics film-grade plastics currently is not sufficient to meet the demand should every municipality considering this type of legislation enact it.

As a general rule, whenever the demand for a product exceeds its supply, mayhem is the result. It will vary in degree depending on whether we are waiting in line to fill the gas tank of our automobile (for those of us who remember the 70’s), stocking up on bottled water, plywood, and batteries before a tropical storm, or trying to buy milk and bread before an ice storm here in Texas.

The “demand” for degradable plastics in the late 1980’s resulted in companies supplying resin, film, and bags made from cornstarch-filled polyethylene. We were assured these bags were biodegradable. Objective testing by independent researchers proved they were not.

Once again we are in a situation where there is a demand for degradable plastics. A variety of claims are being made about the ability of products to break down in different environments, whether it be in a compost pile, a landfill, or littered along the highway. Before buying into a supplier’s claim (and/or buying their product), it may be helpful to determine what problem you are trying to solve (other than a customer’s demands), what options you have, and what hazards may lie ahead if you are not careful.

### California Law and ASTM Definitions

California law AB 2147 requires that any package labeled as degradable, biodegradable, or compostable unless the container meets the current American Society for Testing and Materials (ASTM) standard specification for the term used on the label. In ASTM D 6400 each of these terms is defined as follows:

*Degradable plastic* – a plastic designed to undergo a significant change in its chemical structure under specific environmental conditions, resulting in a loss of some properties that may be measured by standard test methods appropriate to the plastic and the application in a period of time that determines its classification.

*Biodegradable plastic* – a degradable plastic in which the degradation results from the action of naturally occurring microorganisms such as bacteria, fungi, and algae.

*Compostable plastic* – 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 visible, distinguishable or toxic residue.

In order to be identified as compostable, plastic products must also meet the following requirements detailed in ASTM D 6400:

- be converted to carbon dioxide and water under the environmental conditions of temperature, oxygen, moisture, and biological activity measured using ASTM Test Method D 5338. For products consisting of a single polymer, 60% of the organic carbon must be converted to carbon dioxide within 180 days. For products consisting of more than one polymer, 90% of the organic carbon must be converted to carbon dioxide within 180 days.
- fragment so that no more than 10% of its original dry weight remains after sieving on a 2-mm sieve,
- pass the requirements of ASTM Guide D 6002 or OECD Guideline 208 which test its effect on plant seed germination, and
- have concentrations of heavy metals less than 50% of those prescribed in 40 CFR Part 503.13.

If the plastic product does not meet *all* of these requirements, it cannot be labeled as “compostable.” Suppliers whose raw materials are compostable will have data that not only demonstrates the compliance of their products to these requirements, but will know the limitations of their technology, such as maximum thickness at which the requirements can be met, the maximum storage or service temperatures, its barrier properties, or if their material is safe for food contact.

#### U.S. Federal Trade Commission (FTC)

Other important considerations are the guidelines published by the U.S. Federal Trade Commission. The FTC became involved with this issue in the late 1980’s when a number of companies claims of biodegradability turned out to be bogus. The following information is taken from their website (<http://www.ftc.gov/bcp/online/pubs/buspubs/epaclaims.htm>) on the application of the terms commonly used in descriptions of degradable plastics:

#### **Excerpt from the Guides on use of terms "degradable," "biodegradable" and "photodegradable"**

It is deceptive to misrepresent, directly or by implication, that a product or package is degradable, biodegradable or photodegradable. An unqualified claim that a product or package is degradable, biodegradable or photo-degradable should be substantiated by competent and reliable scientific evidence that the entire product or package will completely break down and return to nature, that is, decompose into elements found in nature within a reasonable short period of time after customary disposal.

Claims of degradability, biodegradability or photodegradability should be qualified to the extent necessary to avoid consumer deception about: **(a)** the product or package's ability to degrade in the environment where it is customarily disposed; and **(b)** the rate and extent of degradation.

So merely claiming your bag is “degradable” without any qualification could land you “in the cross-hairs” of the FTC. If you do claim degradability, you should qualify your statements as to

the environment required to effect product degradation, and have the scientific test data ready to back up your claims (saying “my supplier told me” probably won’t do).

The FTC goes on to give specific examples of allowable and deceptive claims. The following are taken from their website <http://www.ftc.gov/bcp/grnrule/guides980427.htm> and are fairly self-explanatory:

*Claims of degradability, biodegradability or photodegradability should be qualified to the extent necessary to avoid consumer deception about: (1) the product or package's ability to degrade in the environment where it is customarily disposed; and (2) the rate and extent of degradation.*

**Example 1:**

A trash bag is marketed as "degradable," with no qualification or other disclosure. The marketer relies on soil burial tests to show that the product will decompose in the presence of water and oxygen. The trash bags are customarily disposed of in incineration facilities or at sanitary landfills that are managed in a way that inhibits degradation by minimizing moisture and oxygen. Degradation will be irrelevant for those trash bags that are incinerated and, for those disposed of in landfills, the marketer does not possess adequate substantiation that the bags will degrade in a reasonably short period of time in a landfill. The claim is therefore deceptive.

**Example 2:**

A commercial agricultural plastic mulch film is advertised as "Photodegradable" and qualified with the phrase, "Will break down into small pieces if left uncovered in sunlight." The claim is supported by competent and reliable scientific evidence that the product will break down in a reasonably short period of time after being exposed to sunlight and into sufficiently small pieces to become part of the soil. The qualified claim is not deceptive. Because the claim is qualified to indicate the limited extent of breakdown, the advertiser need not meet the elements for an unqualified photodegradable claim, *i.e.*, that the product will not only break down, but also will decompose into elements found in nature.

**Example 3:**

A soap or shampoo product is advertised as "biodegradable," with no qualification or other disclosure. The manufacturer has competent and reliable scientific evidence demonstrating that the product, which is customarily disposed of in sewage systems, will break down and decompose into elements found in nature in a short period of time. The claim is not deceptive.

**Example 4:**

A plastic six-pack ring carrier is marked with a small diamond. Many state laws require that plastic six-pack ring carriers degrade if littered, and several state laws also require that the carriers be marked with a small diamond symbol to indicate that they meet performance standards for degradability. The use of the diamond, by itself, does not constitute a claim of degradability.<sup>(3)</sup>

So if you are going to claim your bag or packaging is going to break down in a landfill within two years, you or your supplier had better bury it in a landfill, go back two years later, dig into the area it was dumped, and conclusively prove it is gone! (May I suggest you bury a few newspapers along with the samples from the day you started the testing for an accurate date reference).

The FTC has also published more detailed guidelines for claiming compostability of your product. Merely meeting the requirements of ASTM D 6400 or AB 2147 is not sufficient.

*(c) Compostable: It is deceptive to misrepresent, directly or by implication, that a product or package is compostable. A claim that a product or package is compostable should be substantiated by competent and reliable scientific evidence that all the materials in the product or package will break down into, or otherwise become part of, usable compost (e.g., soil-conditioning material, mulch) in a safe and timely manner in an appropriate composting program or facility, or in a home compost pile or device. Claims of compostability should be qualified to the extent necessary to avoid consumer deception. An unqualified claim may be deceptive if: (1) the package cannot be safely composted in a home compost pile or device; or (2) the claim misleads consumers about the environmental benefit provided when the product is disposed of in a landfill. A claim that a product is compostable in a municipal or institutional composting facility may need to be qualified to the extent necessary to avoid deception about the limited availability of such composting facilities.*

**Example 1:**

*A manufacturer indicates that its unbleached coffee filter is compostable. The unqualified claim is not deceptive provided the manufacturer can substantiate that the filter can be converted safely to usable compost in a timely manner in a home compost pile or device. If this is the case, it is not relevant that no local municipal or institutional composting facilities exist.*

**Example 2:**

*A lawn and leaf bag is labeled as "Compostable in California Municipal Yard Trimmings Composting Facilities." The bag contains toxic ingredients that are released into the compost material as the bag breaks down. The claim is deceptive if the presence of these toxic ingredients prevents the compost from being usable.*

**Example 3:**

*A manufacturer makes an unqualified claim that its package is compostable. Although municipal or institutional composting facilities exist where the product is sold, the package will not break down into usable compost in a home compost pile or device. To avoid deception, the manufacturer should disclose that the package is not suitable for home composting.*

**Example 4:**

*A nationally marketed lawn and leaf bag is labeled "compostable." Also printed on the bag is a disclosure that the bag is not designed for use in home compost piles. The bags are in fact composted in yard trimmings composting programs in many communities around the country, but such programs are not available to a substantial majority of consumers or communities where the bag is sold. The claim is deceptive because reasonable consumers living in areas not served by yard trimmings programs may understand the reference to mean that composting facilities accepting the bags are available in their area. To avoid deception, the claim should be qualified to indicate the limited availability of such programs, for example, by stating, "Appropriate facilities may not exist in your area." Other examples of adequate qualification of the claim include providing the approximate percentage of communities or the population for which such programs are available.*

**Example 5:**

*A manufacturer sells a disposable diaper that bears the legend, "This diaper can be composted where solid waste composting facilities exist. There are currently [X number*

*of] solid waste composting facilities across the country." The claim is not deceptive, assuming that composting facilities are available as claimed and the manufacturer can substantiate that the diaper can be converted safely to usable compost in solid waste composting facilities.*

**Example 6:**

*A manufacturer markets yard trimmings bags only to consumers residing in particular geographic areas served by county yard trimmings composting programs. The bags meet specifications for these programs and are labeled, "Compostable Yard Trimmings Bag for County Composting Programs." The claim is not deceptive. Because the bags are compostable where they are sold, no qualification is required to indicate the limited availability of composting facilities.*

In summary; before you market a “degradable” product,

1. have a firm understanding of the intended application,
2. under what environmental conditions it will have to degrade,
3. what use and storage temperatures to which it will be subjected,
4. what data your supplier has to support their claims, and
5. what you can claim without becoming the subject of unwanted inquiries by concerned government agencies.

Here’s to doing our part to protect the environment!

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