

# Recycled Packaging & How it Impacts the Food Industry

## Walmart Scorecard's Impact on Packaging

During a PACK Expo keynote in 2006, Walmart launched the packaging scorecard initiative. Since then, brands have been continuing to update and revise their packaging to create a more environmentally-friendly solution. Below is an outline of how the sustainable initiative has impacted the food industry across various package types, including paper-based, plastic, glass, and aluminum.

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## Paper-Based Packaging and Poly-Replacements

Paper and paper-based products, such as cartons and paperboard, are easy to recycle, and the resultant recycled material is extremely versatile. More than half of Americans have easy access to paper recycling – an amount which is expected to increase rapidly – and there are far fewer restrictions on recycling paper than plastic.

For applications such as food safe packaging and high-end brand displays, coatings are utilized to provide the appropriate properties. To achieve a recyclable, paper-based package for these types of applications, water-based coatings are often required.

To address this, Sierra is working with nationally-recognized chemical companies to qualify reliable eco-friendly coatings. Our water-based, eco-friendly coatings can meet biodegradable, compostable, and fully recyclable requirements. These coatings also possess important properties to aid in brand awareness efforts; they are easy to print over and allow for optimal packaging aesthetics.

## Plastic Brand Packaging

One of the biggest challenges with recyclable, plastic packaging is the restrictions involved with recycling plastic material. It is estimated that 95% of recyclable plastic packaging, amounting between \$80 and \$120 billion worth of packaging material, is wasted on an annual basis.

While outreach, recovery, reclamation, and recycling efforts can be effective for multinational corporations, they may be cost-prohibitive for smaller or regional brands. For these businesses, investing in eco-friendly packaging is often a more practical, actionable solution.

Recycling plastic presents a three-fold problem:

1. Public access to plastic recycling facilities or programs is surprisingly limited;
2. Different municipalities levy often confusing recyclability restrictions based on plastic type, size, and shape; and
3. The recycling process is costly in terms of money and energy use.

### **Aluminum, Glass and Plastic Bottles**

As demand rises for sustainable products, brands are prioritizing green initiatives, such as eco-friendly packaging and packaging recovery.

The Coca-Cola Company, for example, has established an extremely ambitious recycling initiative – by 2020, they aim to recover and recycle a full 75% of the beverage containers, bottles, and cans they produce annually. Working with The Recycling Partnership, Coca-Cola has already recycled 59% of their output.

This is just one example of the growing sentiment in favor of environmentally conscious initiatives; worldwide, consumers are looking to brands to lead conservation efforts with sustainable, environmentally friendly packaging options.

To learn how to make your food packaging eco-friendly without sacrificing your unique brand identity, contact our chemical experts.

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## **Biodegradable Packaging Options**

Investing in environmentally-friendly packaging is quickly gaining momentum in many industries, including food and beverage. From a product development perspective, our paper experts have seen biodegradable packaging become increasingly popular.

According to the Environmental Protection Agency (EPA), a material can be described as biodegradable when it is “capable of being decomposed by the action of biological processes.”

In other words, a material is biodegradable if it will decompose within a reasonable amount of time when left outside in natural conditions.

**RELATED:** How to Choose Between Biodegradable, Compostable, and Recyclable Packaging

# Packaging Materials and their Biodegradation Process

Glass, commonly used for packaging beverages and various high-end products, is not biodegradable. In fact, it can take up to 1,000,000 years to biodegrade. Plastics are not biodegradable, either; polyvinyl chloride (PVC), often used in food and beverage applications, is capable of physical breakdown but never truly decomposes. Polyethylene (also known as polythene or simply “poly”), another popular food packaging plastic, takes up to 1,000 years to biodegrade. Other plastics can take various lengths of time to biodegrade, averaging at about 450 years.



These packaging decomposition rates are untenable when striving for increased sustainability. Paper, on the other hand, is an ideal biodegradable option, taking anywhere from two to five months to decompose.

## Biodegradable vs. Compostable

Because the terms are often incorrectly interchanged, biodegradability and compostability are frequently conflated. Adding to the confusion is the fact that the processes involve the same action – decomposing a material into an organic state. This decomposition occurs in two very different ways, however.

Compostable materials decompose only when in a carefully controlled environment, where factors such as source material, moisture content, temperature, oxygen levels, and acidity are all closely monitored. Biodegradable materials decompose through a chemical process where micro-organisms break down the materials resulting in carbon dioxide, methane, and biomass.

## Paper Biodegradability

Paper is much more biodegradable than plastic or glass. Some paper can decompose faster than fully organic products. For example, paper towels often biodegrade quicker than thick fruit rinds such as orange or banana peels. However, it's important to keep in mind that not all paper products biodegrade at the same rate.

Less processed papers, such as mechanically pulped products, biodegrade at slower rates than more highly processed papers. Paper containing mechanical pulp has higher amounts of lignin – very complex phenolic polymers found in the cell walls of trees – which interferes with biodegradation.

## Designing Eco-Friendly Packaging

The right coating can provide resistance to grease, oil, water, oxygen-exposure, or a combination of these food-safe properties for paper-based packaging; while maintaining the eco-friendly standard. However, these types

of properties are often provided by poly- or PVC-based substrates, thereby negating any of the potential environmental benefits of using paper in packaging.

To counter this issue and create truly environmentally friendly packaging, Sierra Coating Technologies has partnered with some of the nation's most accomplished chemical companies to develop several biodegradable coatings.

As a leading contract and toll manufacturer of eco-friendly coating and lamination solutions, including poly and PVC replacements, Sierra is proud to be a part of the push toward sustainability. The benefit of working with Sierra is that we run tests on our production equipment to ensure the materials and substrates will run efficiently during a full-line production. If you're ready to make the switch to environmentally friendly packaging, contact our chemical experts.