

Green is Good: The Revolution in Sustainable Packaging

In season two of the hit television series *Mad Men*, Don Draper—the macho 1960s advertising executive and hero of the show—enjoys a picnic with his family at a local park. “We should probably get going if we don’t want to hit traffic,” Don says at the end of the lazy summer afternoon. Then he stands, drains his beer and hurls the can into the woods. His wife Betty, meanwhile, shakes out the picnic blanket, leaving behind a mess of food wrappers and paper plates.

“Perfectly socially acceptable 50 years ago,” notes a YouTube viewer, commenting on the clip. “Just plain weird now.”

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Since then, U.S. and global consumers have made great strides toward sustainability in nearly every realm of life and commerce. What the Drapers never even suspected, the Baby Boomers taught themselves, and Gen-Xers and Millennials were born knowing: Green is good. No one doubts that anymore, and with that fundamental shift in social mores and consumer expectations, sector after sector of the economy has been undergoing transformations including energy, agriculture, transportation, housing and yes, packaging.

Sustainable packaging is now a \$27 billion market, growing at nearly 4% annually across three distinct segments: reusables, recyclables and degradables (See Figure 1). Recycled (and recyclable) paper and plastic are the vast majority of the sustainable market and will continue to be so for some time, benefitting from consumer familiarity and a well-developed recycling infrastructure, but the landscape is changing. Degradable and compostable containers molded from plastic, wood and non-wood-fibers are making critical inroads, with quick service restaurants (QSRs) leading the way. Consumer packaged goods (CPGs), while lagging QSRs, may have the greatest long-term growth potential with these types of packaging.

The trend is accelerating, and not just because we all agree it should, or even because the regulatory system increasingly says it must. These days, sustainability is cool, a fact that brand owners, converters, packagers, retailers, investors—anyone with a stake in understanding what ultimately drives consumer spending—can’t afford to ignore. Among the key drivers are:

- **The halo effect.** Environmental consciousness has gone mainstream, and the ripples are being felt throughout the sustainable packaging sector—by consumers, increasingly aware of the power they have to express green values and promote a green agenda through the buying choices they make; by marketers who want to build a compelling brand story around sustainability; and by companies at every

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Figure 1
The sustainable packaging market is segmented into three categories

	Degradable	Recycled	Reusable
Definition	Packaging that can break down with exposure to the elements or the sun within a reasonable period of time Compostable is a sub-characteristic of biodegradable that can break down within 180 days	Packaging that includes a variety of recycled materials (e.g., recycled plastic bottles, recycled corrugated paperboard)	Packaging (multiple substrate types) that can be used for more than one use (e.g., drums or containers)
Example source materials	Wood pulp derived from wood-based raw materials (in either virgin or recycled form) Resins derived from plant-based raw materials (e.g., corn, tapioca, and bamboo) Biodegradable plastics such as PLA and PHA Photodegradable plastics	Paper, plastic, metal, and glass	Primarily metal or plastic, but could also be fiber-based
Example products			

Recycled is produced from recycled content and is separate from recyclable, which would be captured in conventional packaging if produced with non-recycled inputs (e.g., PET)

Source: Freedonia; Smithers Pira; TechNavio; L.E.K. analysis

stage in the supply chain who are finding ways to boost earnings by being first to market with new materials and innovative designs.

- The legal landscape.** Polystyrene is still the packaging material of choice for takeout boxes, cups and trays in the food service industry, but its days are numbered. In the U.S., more than 100 cities, including Los Angeles, Portland (OR), San Francisco and Seattle have already banned its use; San Jose and New York City are not far behind. Across Europe, meanwhile, conventional packaging has come under increasing legislative assault. The EU's Packaging Waste Directive requires corporations to collect or fund the recovery of packaging waste for their products. Keep in mind that legislation in a single large market can prompt a sudden broad switch across an entire supply-chain region, transforming the wider market overnight. Among the prime beneficiaries of this trend: degradable molded fiber (DMF), one of the best sustainable choices for restaurants seeking to match the insulation properties of polystyrene. CPGs face less legislative pressure today in the U.S. but are preparing for tomorrow, prompting ahead-of-the-curve DMF adoption in industries from computers and other delicate electronics to wine and automotive components.

- Channel pressures.** At least eight U.S. airports are going beyond recycling by promoting sustainable disposal practices through supplier mandates or on-site composting programs. QSRs, colleges and universities, and sports arenas are all part of the trend. Big-box retailers including Wal-Mart and Sam's Club are grading suppliers based on sustainability scorecards, holding them publicly accountable to shoppers as well shareholders.
- The all-natural revolution.** Green products, be they foodstuffs or household cleaning supplies, go hand in hand with sustainable packaging, and the market for such products is growing. Our research forecasts a compound annual growth rate of nearly 13% between 2010 and 2015 for packaged organic foods, and about 28% between 2012 and 2017 for green cleaning supplies. Note that more than two-thirds of consumers who choose green products prefer brands with green packaging.
- Product innovation.** Innovations in packaging like DMF in and of themselves are not new—think egg cartons and seedling planters—but the technology has come a long way in recent years. For example, the newest DMF containers are sturdy, attractive, clean-edged and versatile.

They perform well in a range of applications—from QSR dinnerware that won't disintegrate when it gets wet, to protective shipping for computers and consumer electronics, to stylish CPG packaging for products like Beats headphones and Gillette razors. Companies are choosing packaging innovations like these to make a statement that's not just green, it's cool.

Who Will Be the Winner In Sustainable Packaging?

While everyone wins with the environmental benefits of any type of sustainable packaging, traditional recycling is likely to remain the predominant material in the sustainable packaging arena for the foreseeable future. Degradable packaging, while showing promise and innovation, remains today a somewhat lumpy subsector, defined by scattered, opportunistic adoption and significant short-term obstacles. The science of degradables has allowed many packaging segments to align with global greening standards. But while they have taken a step in the "green" direction, degradables still lag behind recycling.

Recycling Remains Top of the Heap

- **Consumers are more familiar with recycling than degradables.** American consumers understand how recycling benefits the environment. Decades of publicity campaigns have built up recycling's brand as the green way to dispose of packaging waste. So consumers know how to interpret the triangle stamps on all things plastic; they know exactly what to do with old newspapers, magazines, bottles and cans; and they pay beverage-container deposits without complaint.
- **Stronger market for reuse of recyclables versus degradable materials.** Behind the scenes, there's a mature, efficient global market designed to feed the intense demand for recycled materials and the production of recycled products. Multinational CPGs like Coca-Cola, for example, provide recycling containers at major sporting events to help secure access to a steady stream of recycled content that, in turn, they can reuse for bottle packaging. In contrast, degradable materials currently

face a lack of demand for the reuse of their content that results in a lack of infrastructure for their collection. While fertilizer for organic farming has been put forth as a potential application for biodegradable materials, concern over the potential presence of genetically modified organisms (GMOs) in biodegraded materials has inhibited demand for this potential end-use. In addition, some biodegradable packaging types (like DMFs) may release greenhouse gases as it decomposes, potentially offsetting the environmental benefit. Other degradables, because of end-user unfamiliarity, may find their way to landfills specifically designed to prevent decomposition.

- **CPGs currently prefer recyclables.** Some forms of degradable packaging, specifically DMF, remain tough fits for certain CPG applications. About 40% of CPG primary packaging is translucent (think plastic "clamshells" for razors), a requirement degradables like DMF cannot satisfy. In opaque applications, DMF is generally more expensive than traditional recycled paperboard, as well as less receptive to ink print.

Degradables May Be The Quiet Upstarts

While recyclables still own the market in the near terms, degradables will benefit from a quiet revolution in sustainable packaging with far-reaching implications up and down the value chain.

- **End customers demand uniqueness.** Product differentiation drives sales growth. Sustainable packaging is a prime differentiator that helps consumers make a choice they can feel good about—stylistically, aesthetically, and for the greater good. It may be something they're willing to pay more for, especially consumers who have already made the choice to buy a green product. Bottom line is that consumers prefer a "green" product to be sold in "green" packaging.
- **Investors.** Many degradables, especially DMF, are developing technologies that are still in the steep stage of the adoption curve. The industry is highly fragmented and ripe for consolidation. Roll-up and bolt-on opportunities abound. Technical innovators who are

first to market with unique and original solutions will be well-positioned for rapid growth.

- **Converters.** The development of the degradable market—including innovations like wood and non-wood degradable molded fiber, starch-based and photodegradable plastics and others—may translate into growth that comes at the expense of traditional paperboard and plastic pellet product lines. Converters who fail to innovate in anticipation of evolving demand will ultimately lose business.
- **Raw material suppliers.** As it is with converters, the coming degradable packaging revolution is both a challenge and an opportunity. Fast-changing market conditions will favor those with broad product lines that include degradable resins as well as wood and non-wood fibers.

The Next Green Frontier

For many consumers, sustainability is no longer simply a lifestyle option; it's an important choice they feel they can make to protect the environment for the sake of future generations. That's a powerful consumer motivator. Meanwhile, producers, packagers and retailers around the world face growing regulatory and channel pressure to comply with sustainable packaging standards. Add the known sales benefits of differentiated packaging, plus the cool factor increasingly associated with all things green, especially among Millennials and Gen-Xers, and it's clear where the growth opportunity lies. Companies that best recognize the far-reaching implications of this shift in the packaging industry, and innovate accordingly, will reap outsized rewards in the constantly evolving marketplace.

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