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GETTING RID OF RIGID:

A GUIDE TO FLEXIBLE PACKAGING

Introduction

Lifestyle changes, societal shifts, security concerns, economic factors and of course, a global pandemic have all led to the growing importance of product packaging. Over the last few years, there have been many exciting changes in the packaging world, but one of the biggest shifts has been the proliferation of the flexible packaging market. In fact, it's the fastest-growing segment within the US packaging industry and around the world, according to the Flexible Packaging Association (FPA). Growth is projected for nearly all end-user markets. including food, beverages, personal care, nutrition, and even pharmaceutical products.

This white paper takes a look at the burgeoning format and what companies need to know in order to get rid of rigid for a flexible future.

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What is FLEXIBLE Packaging?

Flexible Packaging is a package or container made of easily yielding materials that, when filled or closed, can be readily changed in shape. It is used for consumer and institutional items to protect, market, and distribute a vast array of products The North American Flexible Packaging Market was valued at USD 40.70 billion in 2020, and it is projected to be worth USD 47.58 billion by 2026.

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HISTORY of Flexible Packaging

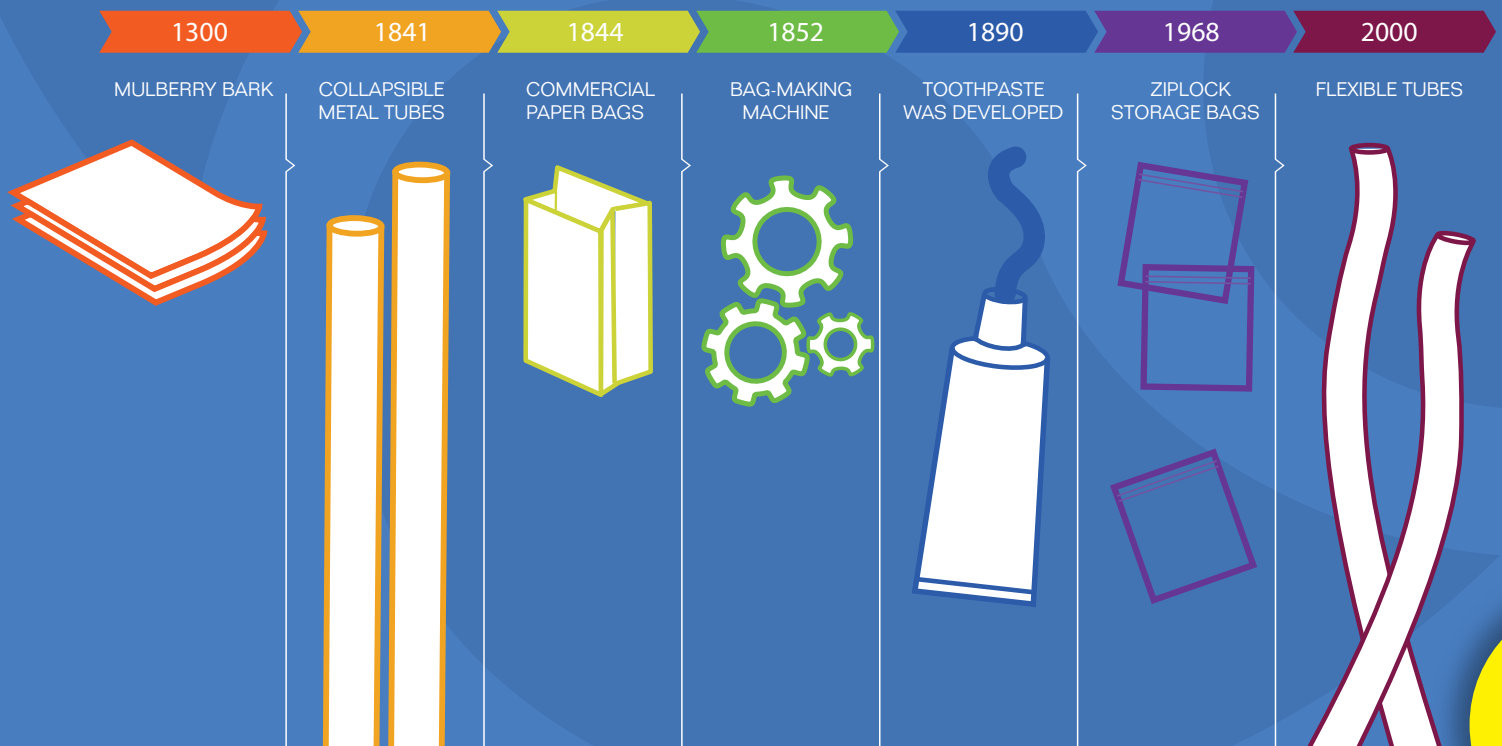
These days, it's rare to walk down any grocery aisle without coming across several products contained in flexible packaging. In fact, if flexible packaging did not exist, neither would frozen foods that steam right in their packages; antibacterial wipes and single-use samples. But even though it is perceived to be a modern, relatively new format, studies show that flexible packaging dates back to the 14th Century when the Chinese utilized thin layers of mulberry bark to cover food items.

The next milestones can be traced to a succession of advancements in the 1800s. These include the production of commercial paper bags in 1844 and the invention of a bag-making machine in 1852. In the 1870s, the bag-making process was improved by adding glue and a gusset design, and in 1905, machinery was created to produce printed paper bags quickly. Other advancements that played a role were in 1841, when collapsible metal tubes were introduced for artist's paints in 1841 and in the 1890s, when toothpaste was developed.

The early 20th century saw the invention of cellophane, a clear layer of film to wrap food in that was entirely flexible and water-resistant. This set off several flexible packaging developments including Ziplock storage bags, which utilized a zipper, and the introduction of flexible tubes as a packaging option for yogurt.

Innovation continues to occur by making it easier for the consumer to use and store these products. The current generation of flexible packaging has added features, including flip-top caps, pumps, squeezability, easy-open features, notch options, dispensing possibilities, pre-made straw holes, self- heating pouches, aseptic pouches, child-resistance, tamper-evidence, pourable spouts, and tear-off pull tabs. On the manufacturing side advancements in machinery include increased line speeds, lower production costs, and more in-line capabilities that make flexible more competitive than rigid packaging, like folding cartons, corrugated boxes, and cans.

TIMELINE OF FLEXIBLE PACKAGING



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TYPES of Flexible Packaging

There are multiple types of flexible packaging, which is typically determined by the size needed and it's end use. Common types of printed packaging include:

SACHETS: Also called packets, are appropriate for dry products, tablets, and capsules; liquids and powders They are ideal for small items and individual servings of condiments, medicinal or beauty products. They are also commonly used by brands in trial/sample sizes in beauty and food products.

FLEXIBLE WRAPPERS: Individual candies, mints and nutrition bars are generally wrapped with flexible packaging materials.

STICK PACKS: These long, skinny flexible packages are often used for drink mixes, nutraceuticals, spices, and other single-serve items. They are easy to open and simply require tearing at the top to enable the contents to be tipped or poured into a bottle, cup, or mug for use. Tear notches or laser scoring options for opening may also be incorporated.

POUCHES: Perhaps the greatest rise in the growth of the flexible packaging category is the popularity of flexible pouches. Often more cost-effective than traditional packaging options like glass, metal, and cardboard, these are a great choice for food, beverage, pet, cannabis, and nutraceutical packaging.

ROLLSTOCK: This is flexible packaging that has been printed on but not yet formed.

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There are NUMEROUS pouch types to choose from including:

- **Stand-up:** These feature sealed sides and a gusseted bottom base to provide stability. Because they stand upright, this type of pouch is ideal for display, storage, and ease of use. They are used in everything from coffee and pet food, to cleaning and personal care products.
- **Flat pouch:** These are also referred to as pillow pouches due to their flat and simple design. Flat pouches are ideal for storing and transporting products such as snacks, candy, cosmetics, and household items. Recently, flat pouches became popular in the CBD and legal cannabis markets as a way to package products.
- **Side-gusseted:** This type of packaging format is named for the gussets on either side of the bag that expands when filled with product. Gusseted pouches are commonly used for dry items such as coffee, frozen foods, and cleaning products.
- **Block-bottom:** The big difference with block bottom pouches is this packaging allows them to stand while being filled. This type of pouch gives more room for branding since you can print your logo, information, and instructions on all sides of the package.
- **Corner seal pouch**, which is often used in foodservice applications.

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Top 10 Benefits of Flexible Packaging

1. It's lightweight, easy to store, carry and reseal.
2. Customizable – available in many different shapes, sizes, and films.
3. Able to provide tamper-evident, reclosure and dispensing options.
4. Provides efficient product to package ratios.
5. Provides a smooth surface for high-quality images, so it's visually appealing on store shelves and to consumers.
6. Less expensive to produce – because not as much material is needed to make flexible packaging. Some studies have put the potential savings from using flexible packaging at as much as 40%.
7. Cheaper to Ship - Cheaper to Ship - the weight of a flexible material can be up to 70% lighter than that of traditional packaging and it takes up much less volume.
8. Able to extend the shelf life of many products, especially food.
9. Numerous sustainable aspects because it uses fewer resources, generates fewer emissions, and creates less waste. (see page 9)
10. It is at the forefront of important packaging trends in product protection, packaging design and performance.

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Materials Matter

Flexible packaging has evolved from a simple mono-layer film to a complex multilayer structure that combines several different materials. Each type of film has different properties, and its use depends on the nature of the product being packaged. Choosing the right materials is one of the most important components of a successful finished product.

To some degree, packaging converters are "scientists" and must be well-versed in how the different layers of materials work together and interact with the product. That's why it's crucial to work with an experienced printer who understands the overall manufacturing process and has expertise in recommending the correct combinations of barrier foils and films, sealant layers and tie layers.

The most common flexible packaging materials include:

LLDPE: Linear low-density polyethylene is the most flexible of plastic sheeting films. Known for its durability and extra strength, LLDPE has the ability to absorb impacts without puncturing or tearing. It's used quite often in food packaging because of the high-performance structures that make it less permeable, which also increases life.

LDPE: This low-density polyethylene is the most common type of film but lacks the tensile strength and density of LLDPE. Common uses include lids for coffee, bread bags, and six-pack beer can rings.

BOPET: Known for its stiffness properties, chemical inertness, high tensile strength, and heat resistance. It also serves as an oxygen barrier and protects products like coffee and convenience foods against loss of aroma and oxidation. BOPET is used most often to make lids for yogurt containers and ready meals of the fresh or frozen variety.

OPP: Bi-Oriented Polypropylene (OPP), known as BOPP or OPP, has high tensile strength, excellent optics and is a good water vapor barrier. It's typically used in applications such as food, medical, personal care, and cosmetics.

EVOH: Ethylene-vinyl alcohol copolymer Polyethylene Terephthalate PET is a kind of plastic that is transparent, durable, and has excellent gas and moisture barrier characteristics. It is the same material used in beverage bottles for cold drinks, water, and juices. It's strong, lightweight, flexible, and 100% recyclable raw material that is used all over the world.

FOIL: Provides an excellent 100% barrier to all gases, moisture, and light. It is a good reflector of radiant heat, usually supported with plastic and/or paper (in multi-layer structure) because it cracks when folded. Alone does not provide an acceptable aroma or odder barrier. It is mainly used as tamper-proof lidding for yogurts, flavored drinks, cosmetics, foodstuff, beverages, and powders, for confectionery and ready meals, soups and sauces, preserved and liquid foods, pharmaceuticals.

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IMPACT from Covid on Flexible Packaging

The packaging industry wasn't spared when Covid-19 hit and experienced numerous supply chain issues around bottles, caps, and label stock. This made switching from rigid packaging to flexible a necessity since manufacturers were unable to procure the containers they typically used. While some flexible packaging printers who relied on sourcing film overseas had issues, those who purchased domestically made material saw big spikes in business.

Even before the pandemic, there were concerns about bacteria being transmitted through in-store shared samples at a supermarket or make-up counter. Once Covid hit, sample-size packets spiked since they were a more hygienic way to try products.

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Sustainable

The conversation about sustainable packaging has hit peak levels. A study by Nielsen found that 73 percent of millennial consumers – today's largest consumer demographic – are willing to pay more for sustainable products. A separate study from Nucleus Research found consumers were willing to spend up to 6 percent more on products from socially responsible companies.

Major brands are listening to their customers by setting environmentally conscious goals with deadlines that are around the corner. Many of these include a reduction in single-use plastics. So how does that square with the growth of the flexible packaging market?

While most flexible packaging materials contain plastic, there are numerous eco-friendly aspects to it due to an overall reduction in the carbon footprint as compared to rigid packaging.

- **Less Material:** Flexible packaging requires less material overall, making it a more environmentally friendly option than materials such as glass and rigid PET. Flexible packaging also uses fewer resources during the production process, including water and fossil fuel.
  - Steel can be used to package coffee requires 1,605 percent more water than a stand-up flexible pouch.
  - Rigid pail for packaging cat litter uses more than 1,429 percent more fossil fuel than a flexible bag.
- **Lower CO2 Emissions:** Since there is less material required to make the same product, there is a decrease in total greenhouse gas emissions. By using less material in flexible packaging systems, the amount of energy needed to convert the raw material into finished packaging is reduced, leading to a reduction in overall carbon footprint.
- **Transportation benefits:** Flexible packaging is usually shipped either flat or on a roll. This allows a more significant number of packages to be shipped on a truck versus rigid packaging. Because fewer trucks and pallets are needed, energy consumption and the use of other valuable natural resources are also reduced.
- **Less Landfill Space:** Flexible packaging requires less landfill space than other packaging options and comprises only 4 percent of the packaging material in landfills. The packaging efficiency for flexible pouches, for example, is nearly double that of a plastic container, with half the amount of packaging required for the same amount of product.
- **Uses Less Plastic:** Use approximately 60 percent less plastic than rigid plastic bottles.
- **Not "green" enough?** Over the last few years, significant strides have been made in compostable and recyclable flexible packaging materials.

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FIVE Steps to Flexible Packaging Success

MEET UP:
There are a number of people both inside and outside of any organization that will be impacted by a switch from rigid to flexible. It's crucial to bring all stakeholders together to discuss their part in the project and to decide on elements, including size, shape, closures, and graphics. This could include product development, marketing, sales, creative, logistics, operations and any other internal departments. Bring your external partners like your ingredient suppliers, retailers, and ad agency into the process early on too. Together discuss any ramifications regarding the format change.

1

MAKEOVER:
This type of transition is a great opportunity to refresh other aspects of the packaging. Consider new graphics, updated copy and revised messaging as an additional way to entice new consumers.

2

MOCK-UP:
Produce package prototypes to ensure the packaging idea is viable. This can help catch and resolve any issues before investing money in printing a large run. Prototypes are also very effective to use in retailer or investor presentations and can be used in photo shoots or trade shows before the final product is produced. If budget allows, produce a limited quantity to test run the product in a small region.

3

MIMIC:
Changing packaging formats, especially when products are perishable is an important component in your project. Arrange for stability testing, which is the process for determining, through storage at defined conditions and testing at specific intervals, how long a product remains safe and effective at particular storage conditions.

4

MAKE SURE:
Do you have the right suppliers for this project? Not every packaging printer has the capability to handle flexible packaging. Your supplier needs to have an expertise in materials so they can engineer customized flexible packaging based on a products unique formulation. In addition to asking about their material expertise, when sourcing a new vendor, make sure that their MOQs and lead times meet your needs. Some flexible packaging printers require very large orders or have turnaround times that can exceed two months. Lastly, ask for samples of their work to ensure that the materials are up to the brand's quality standards.

5

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Premium Label and Packaging Solutions was formed in 2021 to bring together a group of award-winning converters with decades of experience in the Pharmaceutical, Nutraceutical, Beauty, Food & Beverage, and Household Product industries. Forming one company with redundant capabilities and market proficiency allows our clients to get the best of both worlds: the personal touch of a small business with the infrastructure of a large organization.

We offer an extensive portfolio of solutions, including Pressure Sensitive and Expanded Content Labels, Shrink Sleeves, and Flexible Packaging. Our large fleet of equipment includes the HP Indigo 25k, which was specifically designed to work with our flexible packaging lamination and forming equipment. In addition to producing beautiful packaging, this state-of-the-art allows us to offer:

- Lower minimums on fully formed flexible packaging
- Faster turnarounds than industry averages
- Limited edition and personalized options

To learn more:

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