

Changing Packaging Materials? *Not So Fast!*

From the planning phase, through proving functionality, to the final launch, the production of packaging products is complex. Each member of the supply chain (raw materials suppliers, packaging suppliers, and consumer packaged goods companies) must study and test the new material and/or format in a number of environments and scenarios before qualifying it for commercial use. As a result, the timespan—from conceptualization to commercialization—of a new packaging product can take up to a decade, according to AMERIPEN research and discussion with members from across the supply chain.

Consumer Packaged Goods (CPG) Company

5 years →

As the supplier stakeholders are performing their due diligence, CPG companies have been studying and anticipating consumers' evolving preferences. Once an unmet need is identified, resources are allocated, and a team is formed to begin testing. Teams typically include supply chain members who understand the purpose of the project and can advise on appropriate packaging materials.

Raw Materials Supplier

1-2 years →

A need or catalyst for change is identified, and a new material is developed. Rounds of pilot-scale testing are necessary to assess quality and safety, physical properties, performance, and more. These tests may need to be repeated, and material compositions adjusted, until consistent results are achieved, and the raw materials supplier can attest the material is safe for customers. Afterward, production of the new material is scaled for commercialization.

Note: Regulatory and/or third-party testing also may be needed depending on the application and certifications being pursued. This could add up to five years to the timeline in some instances.

Packaging Supplier

1 year →

After the new material is deemed safe and available for use, the packaging supplier creates the new packaging product and conducts its own pilot studies—for example, seal strength testing and simulated distribution testing—of the new material. Results of these tests inform regulatory documentation for commercial use, licensing, and registration.

1-2 years

6 months-2 years →

Next, performance testing, such as determining how a package will perform on the CPG company's filling and sealing equipment, is needed to assess functionality and ensure the packaging meets customers' requirements. Timelines can greatly increase when new equipment is purchased or introduced in the process.

Some products must have packaging approved or authorized by FDA or other regulators. Documentation can include information on product specifications, safety data, quality assurance, and labeling, for example. The time involved in this stage varies significantly depending on the requirements and markets served.

← 1 year

Following satisfactory results with lab-scale testing, larger pilot-lab scale tests are performed on qualified, commercial-grade packaging. These studies include shelf-life testing of the quality of a product in the packaging, barrier testing, and plant trials of the packaging on the company's manufacturing equipment.

During this time, CPG companies also conduct consumer testing of the product and its packaging; they may iterate on the packaging, if needed.

← 2 years

Next, the CPG company will complete rounds of small-scale finished packaging tests on a variety of samples containing the new material. These studies will determine which samples meet performance, quality, and safety standards of the CPG company's products.

← 8 months →

The best packaging is selected, and if needed, capital investments are made to scale for mass production.

← 9-18 months →

Commercialization and marketing processes take place, and the new packaging product flows through distribution logistics and is available to consumers in stores and more.

BOTTOM LINE?

Packaging plays an important role in product safety and protection. Even the smallest changes require significant testing, evaluation, and regulatory oversight to ensure human and product safety.



NOT Changing Materials?

When new packaging products use existing materials or formats/designs—which already have been qualified by regulatory agencies for commercial use—the launch process may begin here.

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Additional source:
DeMaria, K. (2000). The Packaging Development Process: A Guide for Engineers and Project Managers (1st ed.). CRC Press.
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