

Basic Functions and Different Types of Food Packaging System

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Opinion Article

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ABOUT THE STUDY

Food packaging is a type of packaging system that is specifically designed for food. It is one of the most important aspects of the food industry processes because it protects food from chemical, biological, and physical alterations. Food packaging's main goal is to provide a practical way of protecting and delivering food goods at a reasonable cost while meeting the needs and expectations of both consumers and industries. Furthermore, current trends such as sustainability, environmental impact reduction, and shelf-life extension have gradually risen to the top of the priority list when designing a packaging system.

Functions

Physical protection

The food contained within the package may need to be protected from shock, vibration, compression, temperature, bacteria, etc.

Barrier protection

A barrier against oxygen, water vapor, dust, and other contaminants is frequently required. Permeation is an important consideration in design. A primary function is to keep the contents clean, fresh, and safe for the intended shelf life. In some food packages, modified or controlled atmospheres are also maintained. To help extend shelf life, some packages contain desiccants, oxygen absorbers, or ethylene absorbers.

Containment or agglomeration

Small items are typically grouped together in a single package to facilitate handling. Containment is required for liquids, powders, and granular materials.

Information transmission

Packages and labels convey instructions on how to use, transport, recycle, or dispose of the package or product. Governments require certain types of information.

Marketing

Marketers can use the packaging and labels to entice potential buyers to buy the product. Aesthetically pleasing and visually appealing food presentations can entice people to think about the contents. For several decades, package design has been an important and ever-changing phenomenon. Marketing communications and graphic design are used on the package's surface and the point of sale display. The color of the package is important in evoking emotions that persuade the consumer to purchase.

Security

Packaging can play an important role in reducing shipment security risks. Packages can be designed with improved tamper resistance to deter tampering and tamper-evident features to help indicate tampering. Packages can be designed to help reduce the risk of pilferage; some package constructions are more resistant to pilferage, while others have pilfer-indicating seals. Authentication seals may be included in packages to help indicate that the package and contents are not counterfeit. Packages may also contain anti-theft devices, such as dye packs, RFID tags, or electronic article surveillance tags, which can be activated or detected by devices at exit points and must be deactivated with specialized tools. This type of packaging is used to prevent retail loss.

Convenience

Packages can include features that make distribution, handling, stacking, display, sale, opening, reclosing, use, and reuse easier.

Portion control

To control usage, single-serving packaging has a precise amount of contents. Bulk commodities can be divided into smaller packages suitable for individual households. It also helps with inventory control by selling sealed one-liter bottles of milk rather than having people bring their own bottles to fill.

Types

Packaging design can vary greatly depending on the function that is fashioned into various types of packages and containers, as well as the food products and their function, such as:

Primary packaging

Primary packaging comes into direct contact with the food products, creating the ideal headspace for them while protecting them from external contamination. Furthermore, primary packaging, also known as retail packaging or consumer units, is in charge of food packaging marketing. Primary packaging materials typically include cardboard cartons, plastic trays, glass bottles, and multi-layer structures.

Secondary packaging

Secondary packaging combines several primary packages into a single box, which is typically made of corrugated cardboard. As a consequence, the secondary level provides as a physical distribution carrier for the primary packages, making handling easier during transportation. It is occasionally used as a display aid in retail outlets or grocery stores for basic goods.

Tertiary packaging

The outermost package, known as tertiary packaging, makes it easier to handle, store, and distribute both primary and secondary packages in bulk safely, providing additional product protection while making large quantities of materials transportable. A wrapped pallet of corrugated case is the most common type of tertiary packaging.