FOOD PACKAGING MATERIALS AND THEIR FUNCTIONS

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Доповідь присвячено проблемі вибору пакувальних матеріалів для харчових продуктів. Проаналізовано властивості обраних матеріалів та основні функції упаковки.

Food packaging development started with humankind's earliest beginnings. Early forms of packaging ranged from gourds to sea shells to animal skin. Later came pottery, cloth and wooden containers. These packages were created to facilitate transportation and trade.

Utilizing modern technology, today's society has created an overwhelming number of new packages containing a multitude of food products. A modern food package has many functions, its main purpose being to physically protect the product during transport. The package also acts as a barrier against potential spoilage agents, which vary with the food product. For example, milk is sensitive to light; therefore, a package that provides a light barrier is necessary. The milk carton is ideal for that. Other foods like potato chips are sensitive to air because the oxygen in the air causes rancidity. The bags containing potato chips are made of materials with oxygen-barrier properties. Practically all foods should be protected from filth, microorganisms, moisture and objectionable odours. We rely on the package to offer that protection.

Aside from protecting the food, the package serves as a vehicle through which the manufacturer can communicate with the consumer. Nutritional information ingredients and often recipes are found on a food label. The package is also utilized as a marketing tool designed to attract your attention at the store. This makes printability an important property of a package.

The food industry utilizes four basic packaging materials: metal, plant matter (paper and wood), glass and plastic. A number of basic packaging materials are often combined to give a suitable package. The fruit drink box is an example where plastic, paper and metal are combined in a laminate to give an ideal package. This concept can be easily seen in your peanut butter jar. The main package containing the food (primary package) is made of glass (or plastic), the lid is made of metal lined with plastic, and the label is made of paper.

Each basic packaging material has advantages and disadvantages. Therefore, combining the basic materials works well in most cases. Today's package is designed with the consumer's safety and convenience in mind.

Examples are microwaveable popcorn packages, squeezable ketchup bottles and the tamper-proof milk bottle cap.

So, for a product like milk, which is an essential food for children and young adults and therefore cannot be very expensive, paper makes a good economical material. It also provides a good printing surface. However, since paper absorbs water, it will gain moisture from the milk, get weaker and fail, thereby exposing the milk to spoilage factors. It may even break and waste the product. When a thin layer of a plastic called polyethylene is utilized to line the inside of the milk carton, it serves as a barrier to moisture and makes an economical, functional package.

After making a food product and placing it in the appropriate package, a number of these individual packages must be placed in a large container to facilitate shipment. These larger containers are called secondary packages. The paperboard box is a very common secondary package. Plastics also can serve as secondary packages. The milk case in which a number of milk cartons are delivered to the supermarket is a good example.

We cannot discuss food packaging without discussing the effects of packaging waste on the environment. Clearly, recycling is a sound approach. However, the problem often lies in feasibility of collection, separation and purification of the consumer's disposed food packages. This mode of recycling is called post-consumer recycling. While it offers a logistic challenge, recycling is gaining in popularity, and the packaging industry is cooperating in that effort. Aluminium cans are the most recycled container at this time. Plastic recycling is increasing, yet most plastic is recycled during manufacturing of the containers; not as post-consumer recycling. For example, trimmings from plastic bottles are reground and reprocessed into new ones.

The plastics industry is helping to facilitate consumer recycling by identifying the type of plastic from which the container is made. A number from 1 to 7 is placed within the recycling logo on the container's bottom. For example, 1 refers to PET (Polyethylene Terephthalate), the plastic used for the large 2 litre soft drink bottles. Plastics have the advantage of being light. This helps to conserve fuel during transport and also reduces the amount of package waste.

There are many interesting packaging concepts being explored by the industry to keep up with the changing life style of the consumer and new technologies. Many professionals are involved in designing and manufacturing the modern package.